MEXICO CITY’S WATER CRISIS

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Millions of Mexico City’s residents face the water crisis daily. Mexico City and its metropolitan area, with more than 23 million residents, face the critical challenge to have an effective and sustainable water supply for all of its residents. Currently, more than 250,000 residents are not connected to the central water network, and the World Bank and Conagua estimate that by 2030, access to water will worsen for millions of people, saying that “if the current water management practices continue, we will have to find new sources for 30% of the demand generated in the Valley of Mexico.”

Seventy percent of Mexico City’s water comes from an aquifer whose capacity is overexploited by 200%. The other 30% of the city’s water is pumped 330 kilometers from the State of Mexico and Michoacan, including 1 vertical kilometer. Out of this pumped water, only 40% reaches the potable water network, as the other 60% is lost through leakages. At the same time, in Mexico City it rains enough to fill the Aztec Stadium 1,000 times each year. However, this rainfall causes flooding that goes straight into the drainage system.

This is the paradox that surrounds Isla Urbana’s central commitment. We take advantage of the rain by harvesting it. Sometimes, the solution really does fall from the sky.”

1 Agua urbana en el Valle de México: ¿un camino verde para mañana?. Banco Internacional de Reconstrucción y Fomento / Banco Mundial / CONAGUA, 2013.
WHO ARE WE?

We are a project formed by integrating people from various disciplines, both social and technical, dedicated to designing and installing rainwater harvesting systems, which provide an alternative and sustainable water source. Our work aims to impact water sustainability in Mexico City, starting on the household level with families that experience the worst water scarcity. However, we also work in rural areas throughout Mexico that are completely disconnected from the water network.

WHAT DO WE DO?

We strive to diffuse rainwater harvesting in Mexico by facilitating access to the technology to make this practice possible, and by installing our refined system principally in single-family households, schools of various sizes, and even in industrial settings or newly constructed buildings. We designed our system to function and be taken care of as easily as possible so that the users can adopt the technology quickly. Thanks to our engineering, design, and community relations teams, we constantly work to improve the system based on feedback that the system’s users give us after using it for a full rainy season.

Part of our work centers on gathering the necessary information so that society learns about the current water situation on a citywide level and about rainwater harvesting as an alternative, but viable, solution. We have generated a wide variety of materials to hand out so that people learn about harvesting the rain, understand how it works and why we do it, and can apply their knowledge to their lives.
Isla Urbana formed in 2009 when a group of young adults who were interested in rainwater harvesting came to Mexico City to study water scarcity in the city’s outskirts. The project’s founders moved to the neighborhood called Cultura Maya in the Ajusco region to understand the problem firsthand. From there, they began the project, which grew in tandem with their knowledge of the problem and local solutions. This first stage in the formation of Isla Urbana was fundamental to fully understand families’ necessities when living with water scarcity— from this, they imagined and designed the rainwater harvesting system based upon the Mexican context they observed, and lived. Thanks to their experience during the first couple of years, it was possible to scale the project to reach a high volume of households.

Guided by the principle “rain for all” and trying to put this technology within reach to anyone interested, they found that the best way to operate was via a hybrid work model: a civil organization that works in marginalized areas that most suffer from water scarcity, and a social enterprise that makes the rainwater harvesting systems and other water technologies available to the market and anyone who wants to purchase it. The end goal is that everyone captures the rain, no matter if they are suffering or if they do not face water issues, but that everyone living in Mexico City, and the city itself, can benefit from using sustainable water sources.
At Isla Urbana, we know that beyond designing and installing systems, our work is more impactful and effective when we combine it with working alongside communities to build an intentional awareness about water issues. To reach our goal, we work in parallel with rainwater harvesting and in building a culture around water through education, art, and empathy. Through participatory methods and community teamwork, we apply diverse strategies to share knowledge about our relationship with water, and with it, to raise consciousness within society. We especially focus on children to start introducing this knowledge from a young age.

The Carpa Azul is a social and environmental educational program led by Isla Urbana. We host workshops and artistic and cultural events within communities to promote and develop a new water paradigm and empower each community by engaging them in environmental responsibility. The Carpa Azul creates educational materials and follows up with the communities to ensure that people are adopting the technology and using the rainwater harvesting systems correctly, for their own and for the community's benefit.
Through the Rain Schools program (Escuelas de Lluvia), we install rainwater harvesting systems to bring a sustainable water source to schools that suffer from water scarcity. With children of all ages, we begin to discuss water, and introduce them to concepts like sustainability, the environment, our water source, and other relevant terms and ideas. We also give environmental education workshops using engaging methods that even involve parents, teachers, school directors, and students to create an effective and communal water culture in each school.

We use water as a unifying approach to sustainability, our environments and our watershed, among other related topics.
Isla Urbana installs rainwater harvesting systems in areas with the highest need, like in the Wixárika community in the Jalisco Sierra, the Mazateca community in Oaxaca, and the Rarámuris in Chihuahua. To date, we have worked in 35 indigenous communities, installing rainwater harvesting systems and leading environmental education programs.

More info about Rural Systems

550 Systems installed
3,850 Beneficiaries
50,000,000 Approx. Potential liters captured

HA TA TUKARI
(Water Our Life in the Huichol language)
Wixárika community in the Jalisco Sierra

MAZATECA
Sierra in the state of Oaxaca

RARÁMURI COMMUNITY
in the Tarahumara Sierra in Chihuahua
Capturing the rain only works when the users properly adopt the technology and turn into true rainwater harvesters. This means understanding the origin of the need for the practice, how the system works, and how to maintain it.

Throughout the years, Isla Urbana has developed this social technology, which, through an assortment of activities like community meanings, environmental education workshops, rainwater harvesting courses, technical support, and follow-up visits, ensures a high adoption rate for the rainwater harvesting systems and their long-term persistence.

The socialization models that we propose through our projects, combined with the physical technology that we have created (i.e., the systems themselves), are key to the practice’s success, its permanence, and its expansion.
The ‘Tlaloque,’ named after the Aztec rain god, ‘Tlaloc,’ is the separator of the first rainfall. When the rainwater falls, the first 5-15 minutes of rain wash the rooftop, and the water becomes dirty. To prevent this dirty water from entering the storage cistern, the water enters the Tlaloque. Once the Tlaloque is full, the clean rainwater is rerouted into the cistern. This water is 75% cleaner than if all of the rainwater entered the cistern without the Tlaloque.

**LEAF FILTER**
Non-oxidizable steel mesh filters out leaves, any coarse material, and sediment that contaminates the water.

**TURBULENCE REDUCER**
It allows the water to enter the cistern calmly and without stirring up any sediment that has settled at the bottom.

**CHLORINE DISPENSER**
The floating chlorine dispenser, located inside of the cistern, disinfects the water and prevents the growth of any bacteria.

**FLOATING SUCTION VALVE**
This floating valve sucks the water from the top of the cistern, which is the cleanest, when removing the water for storage or usage.

**FILTER**
The sediment filter filters out sediments to 50 microns, followed by a STD 20” filter with an activated carbon cartridge.
BENEFITS OF CAPTURING THE RAIN

6-8 MONTHS OF WATER

SAVES FAMILIES TIME, MONEY AND ENERGY

LESS CONTAMINATION (EMITTED BY WATER TRUCKS)

LESS ENERGY USED (TO PUMP WATER)

RESIDENTS BECOME WATER INDEPENDENT AND WATER RESILIENT

RECHARGES THE AQUIFERS

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CO₂
OUR IMPACT

20,190 SYSTEMS INSTALLED
121,140 BENEFICIARIES
807 M MILLION CAPTURED LITERS
80,760 WATER TRUCKS POTENTIALLY AVOIDED
RECOGNITION

Contract with the UN to receive funding for our work with the Huichol, 2020.

Innovatis Award (Technological Innovation for Social Inclusion)

I3 LATAM
Selected as 1 of 10 of Latin America’s most innovative entrepreneurs, 2019.

Innovatis Award (Technological Innovation for Social Inclusion)
1st place, Experiences, CONACYT, Mexico City, 2018.

Premio Ciudad (City Award) of Mexico
Winner of the Environmental Action category, Mexico City, 2017.

Member of the Social Design Circle
Recognized as members of the Social Design Circle for Design Prize, 2017.

UBS Visionaries Award
For innovation and social entrepreneurship, Mexico City, 2015.

Recognized by MTech35 Massachusetts Institute of Technology Tech Review
35 global innovators under 35 years old, Boston, Massachusetts, 2013.

Ashoka Fellowship
Changemakers, 2012-2015

“Rompe con el Cambio Climático” (“Break with Climate Change”) Award
SEMARNAT, Mexico, 2011

Best Practices in Water: “El agua, fuente de vida” (“Water, a Source of Life”) Finalist
UN Water, Spain, 2011.

BBC World Challenge Finalist
In every story, the experiences were the same; people had few resources to pay for water and they couldn’t rely on the pipas (water delivery trucks). The rainwater harvesting system enormously improved their quality of life.”

Sol García, Isla Urbana, The Guardian
GLOSSARY

**Water insecurity**
A variable level of water scarcity, which is generally related to social precariousness. The population that lives in this situation has the highest need to harvest rainwater.

**Potable water/ purified water**
Potable water in Mexico is treated so that it is safe for human contact (but not drinkable), which abides by the Mexican government’s standard NOM-127-SSA1-1994. Purified water is treated to a greater extent (more strictly so than potable water), and must comply with the Mexican government’s standard NOM-244-SSA1-2008. Purified water is drinkable.

**Sustainable**
Refers to the development model that tries not to compromise future generations due to the overconsumption of resources.

**Water crisis**
When a water system is deficient and causes several social and environmental problems such as: water scarcity, flooding, contamination, illness and droughts, among others.

**RWH**
Rainwater harvesting.

**‘Tlaloque’ or separator of the first rainfall**
The Tlaloque is the rainwater harvesting system’s most important part: it reroutes the quantity of dirty water (the first 5-15 minutes of rainfall) that falls on the roof so that the water that enters the storage cistern is 75% cleaner.

**Intermittent water service (tandeo)**
Water that is distributed through the water network only during certain hours.

**Transport in barrels**
Water that requires to be transported by foot or with the help of an animal (like a donkey) to carry the water jugs or barrels to a destination (ie, household) in the case that the destination is not connected to the water network or cannot be reached by water delivery trucks.

**Aquifer mantle**
A natural, underground deposit made up of porous rock, gravel, or sand, in which water brought from rainfall, lakes, and rivers accumulates and flows. The sustainability of an aquifer is incredibly important since aquifers contribute to the natural springs and wells that provide for both urban and rural populations.
DOES HARVESTED RAINWATER ACTUALLY HAVE GOOD, TRUSTWORTHY QUALITY?

Rainwater is good quality water: it’s nature’s way of giving us water in a pure form. Even in Mexico City, where the air pollution levels are worrisome, we can still take advantage of the rain. Our system’s 6 steps ensure that the harvested rainwater is comparable to, if not better than water from the central water network.

WHAT ABOUT ACID RAIN?

This only applies to water that has a pH level lower than 5.6. In Mexico City, acid rain does sometimes occur, however, it does not present a health risk to Isla Urbana’s rainwater harvesting system’s users. The system is designed to neutralize any acidity. The real risk is the polluted air we breathe.

WHAT ABOUT THE MINERALIZATION OF RAINWATER?

Rainwater has a low concentration of minerals and presents no health concerns since most of the minerals that we consume come from a balanced diet. Rainwater is soft, and actually is great to bathe in (for your skin and hair), and for washing clothes. When washing over rooftops and when passing through the system, the rainwater acquires some, but few, minerals.
WATER SCARCITY IN MEXICO CITY AND ITS METROPOLITAN AREA

15% of the population suffers from at least one of these water problems: pressure, quality, quantity, and frequency.

3.5 million residents!

More than 1 million people have severe problems with water access.

In 241 of the city’s neighborhoods, where 17% of the city’s population reside, people rely on barrels and animals to obtain water.

The majority of households with water problems have an income of less than 2 minimum wages.

Daily water consumption in the city’s:

Poorest sectors: 28 litres

Mid-range sectors: 275-410 litres

Richest sectors: 800-1000 litres

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CONTACTO

#CaptaLaLluvia
#RainForAll

CHECK OUT OUR WEBSITE

Nonprofit Social Enterprise

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WRITE TO US!

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