

# Sponge Cities **NET ZERO**

Year of Sustainability- #COP28UAE

## **EFFICIENT STORM WATER MANAGEMENT**

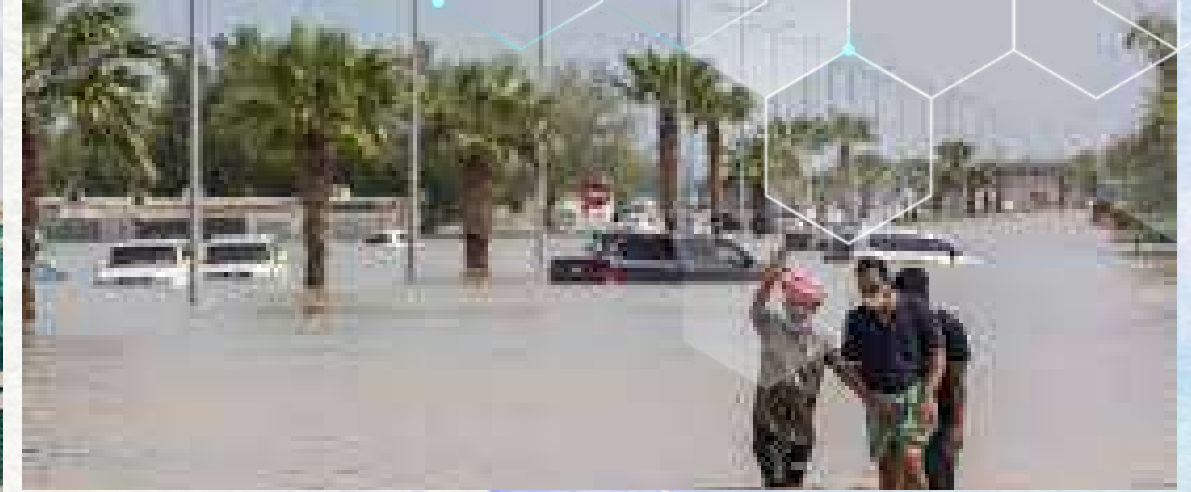
DR CHANDRA DAKE



United Nations  
Climate Change



# Climate Change is **Real**



As seen in recent Media



# Challenges - Climate Change in a Desert Region

While cloud seeding can be highly successful, it's important to address the challenges specific to the region:



Recent excessive rains



Extreme weather conditions



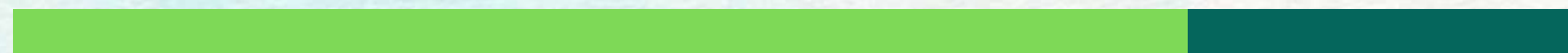
Soil degradation



Runoff of storm water to Sea



Infrastructure needs to adopt to Climate Change



# How is Sponge City Solution Relevant

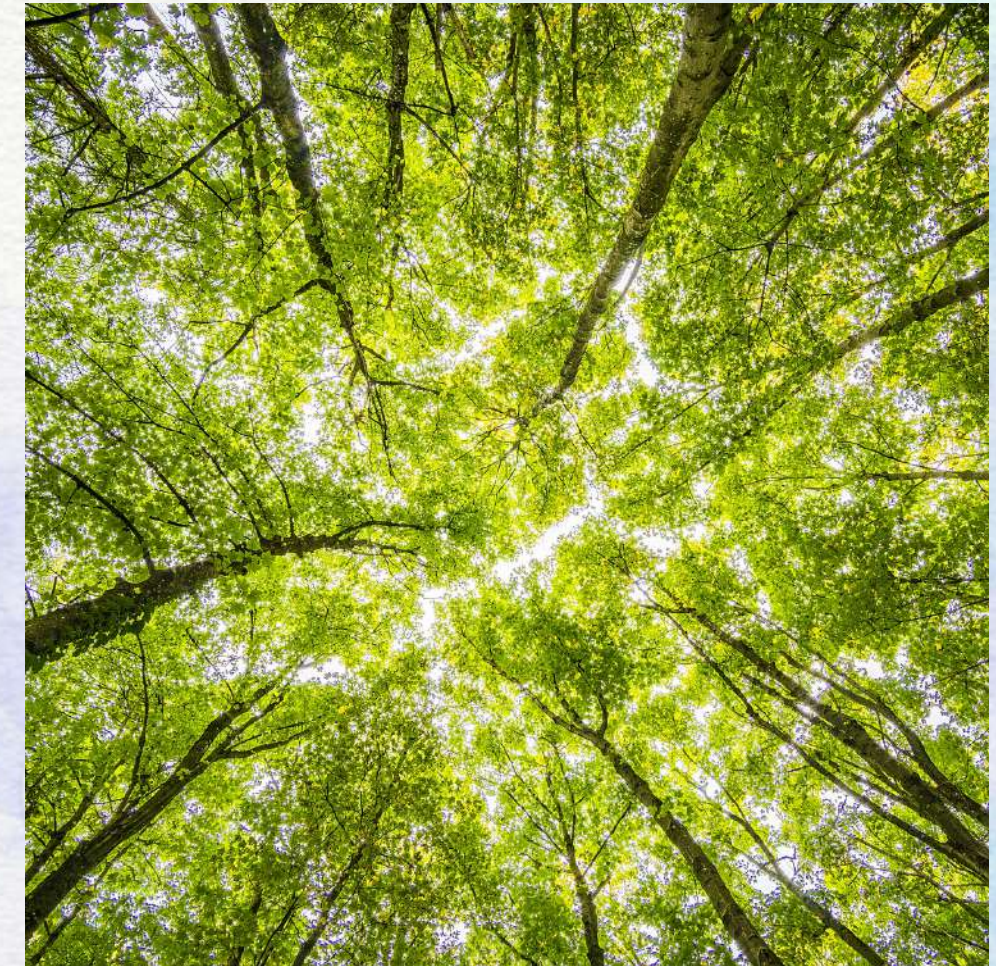


**Sponge City** is a new urban development model aiming to create sustainable and resilient urban environments by utilizing technology such as permeable roads, honeycomb water storage, rain gardens, and ground water recharging to manage stormwater, reduce runoff, improve water quality, and increase green spaces, alleviating flooding, water scarcity, and stormwater pollution



**Sponge City is a change of paradigm**

Sustainable and Low-Impact  
Green; Eco-based; and Nature-  
based Solutions  
Close to source  
High resiliency  
Climate Adaptation Solution  
Integrated and Smart



**Path to Net  
Zero**

Sponge Cities promote sustainable urban water management, a key component of net zero.

**Every Drop of Water  
is Important**

# Integrated Stormwater Solution



**Necessary to make overall plans for urban water recycling and utilization**

**FOUR Blocks**



Harvesting

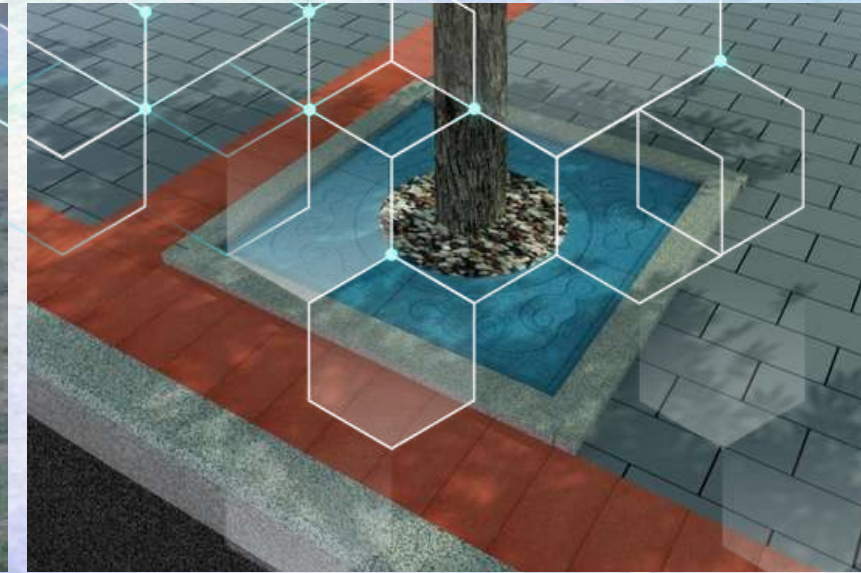
Storage

Ponds - Bioretention

Greenery

# Sponge City: Rain Water Harvesting

## SOLUTION



## FEATURES



**Rainwater Harvesting through roads, Pavements, and Kerb stones constructed with IDer Product Range.**



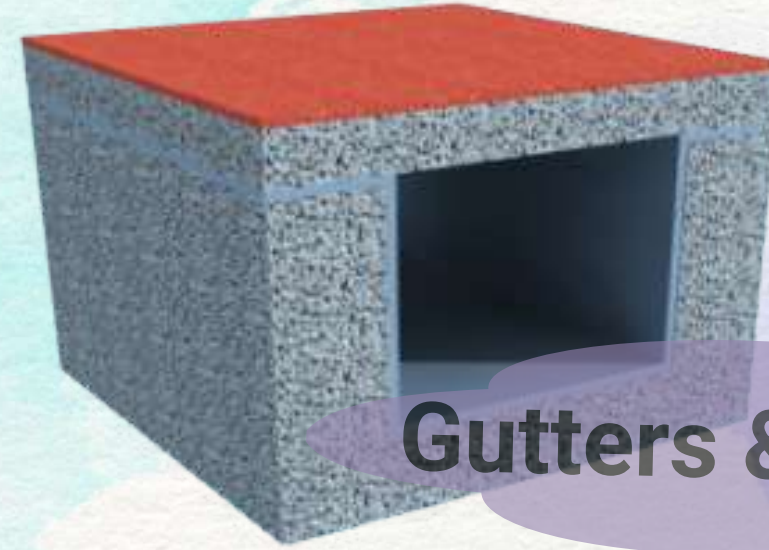
**Rainwater is absorbed leaving the roads and pavements completely dry and skid free.**



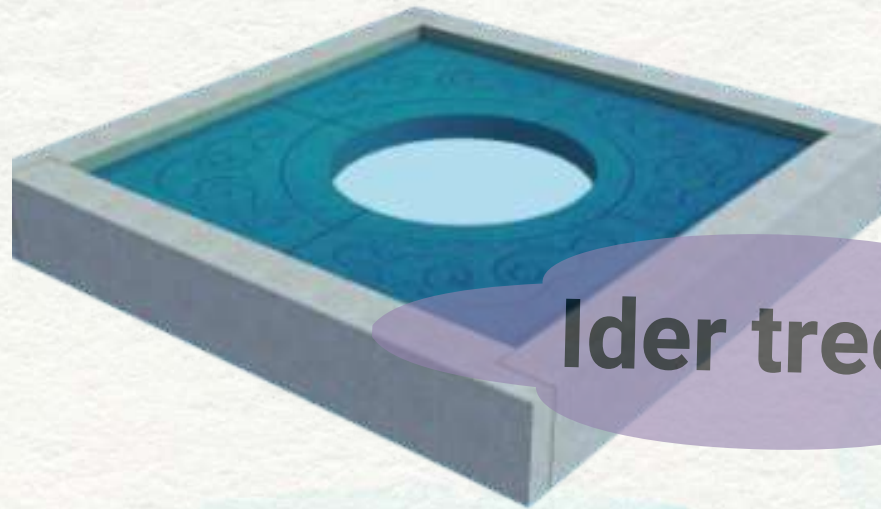
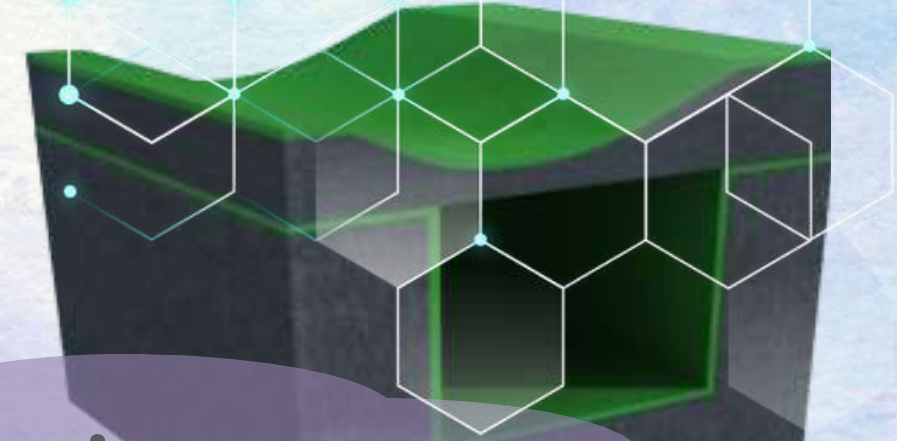
# Product Range



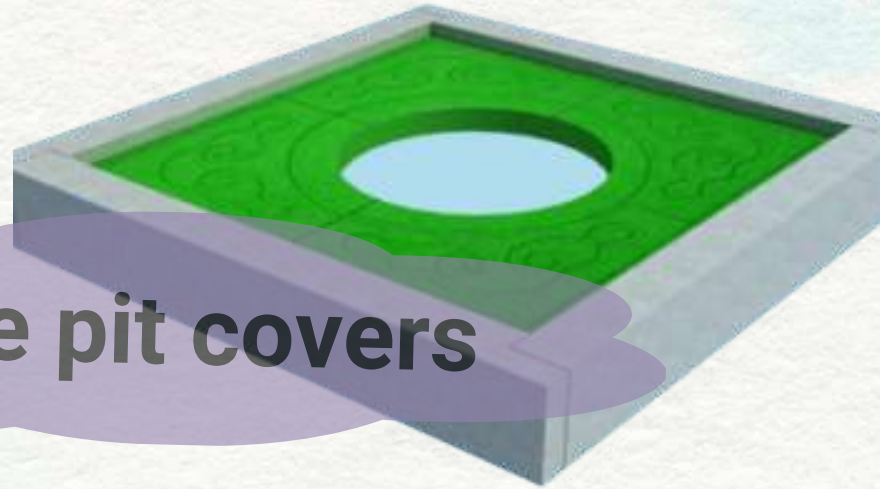
**Ider Permeable Pavers**



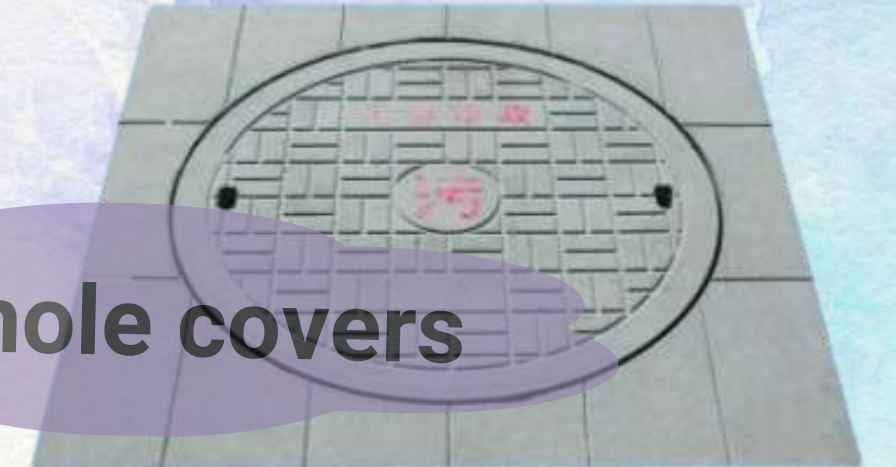
**Gutters & Drainage Inlets**



**Ider tree pit covers**



**Ider Manhole covers**



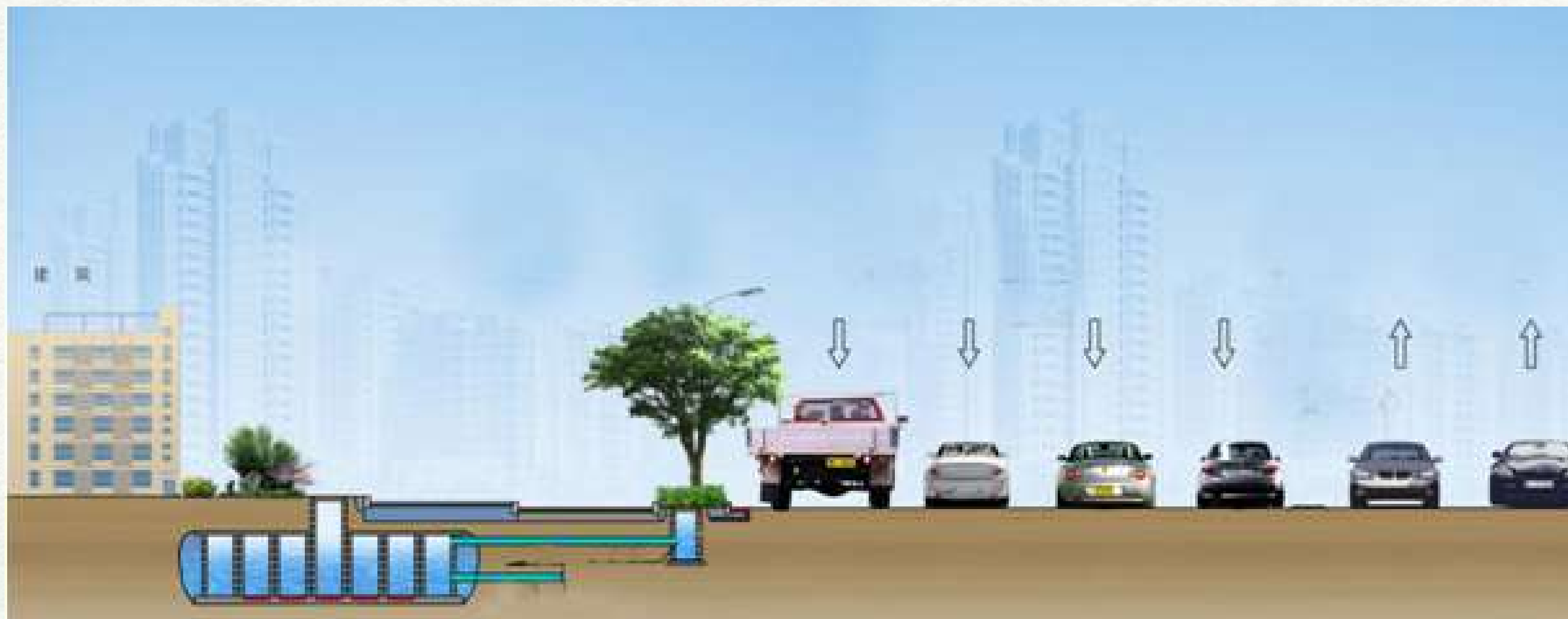
**Ider permeable curbstone**



**Ider filter water edge stone**

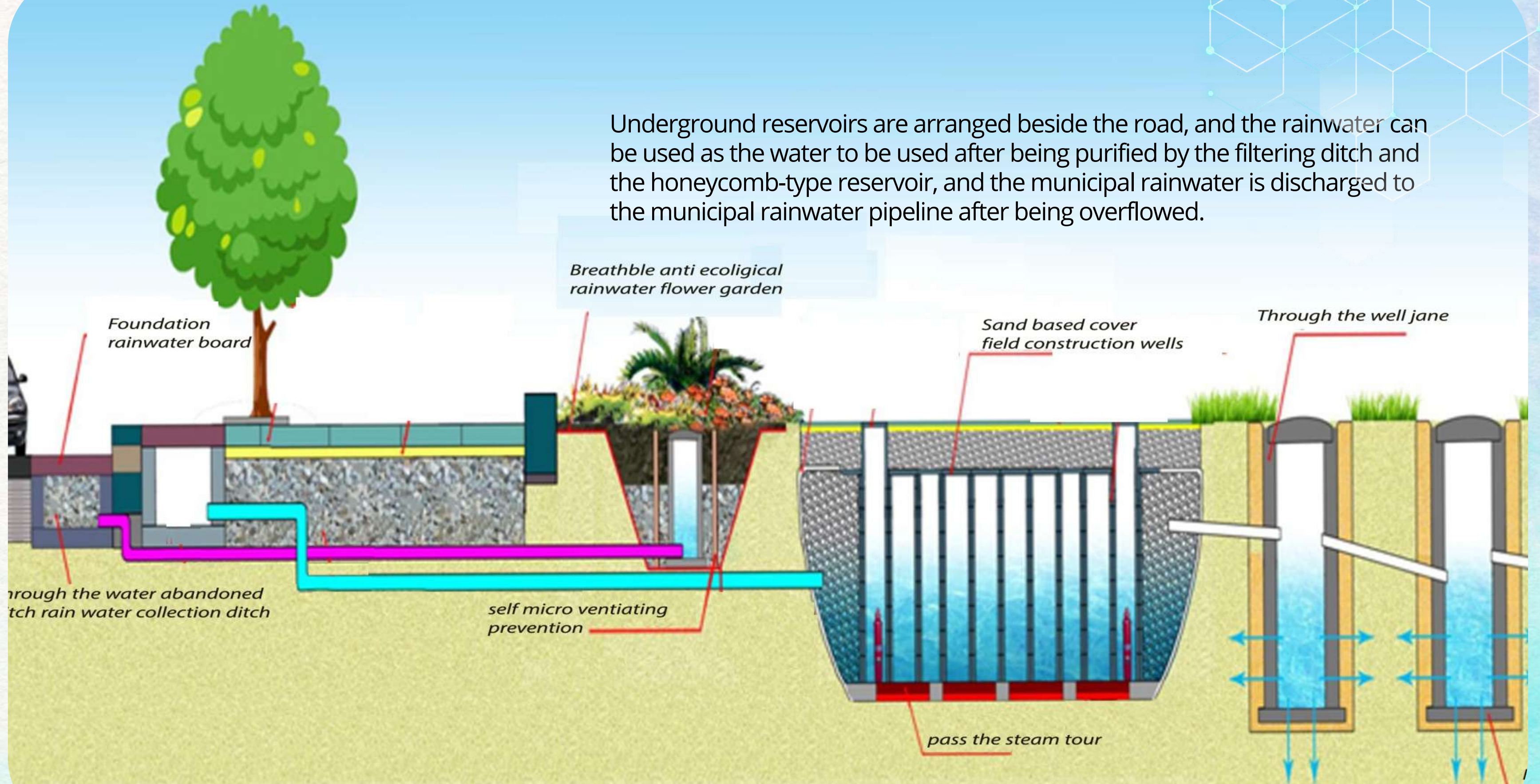






# Typical Design

Underground reservoirs are arranged beside the road, and the rainwater can be used as the water to be used after being purified by the filtering ditch and the honeycomb-type reservoir, and the municipal rainwater is discharged to the municipal rainwater pipeline after being overflowed.





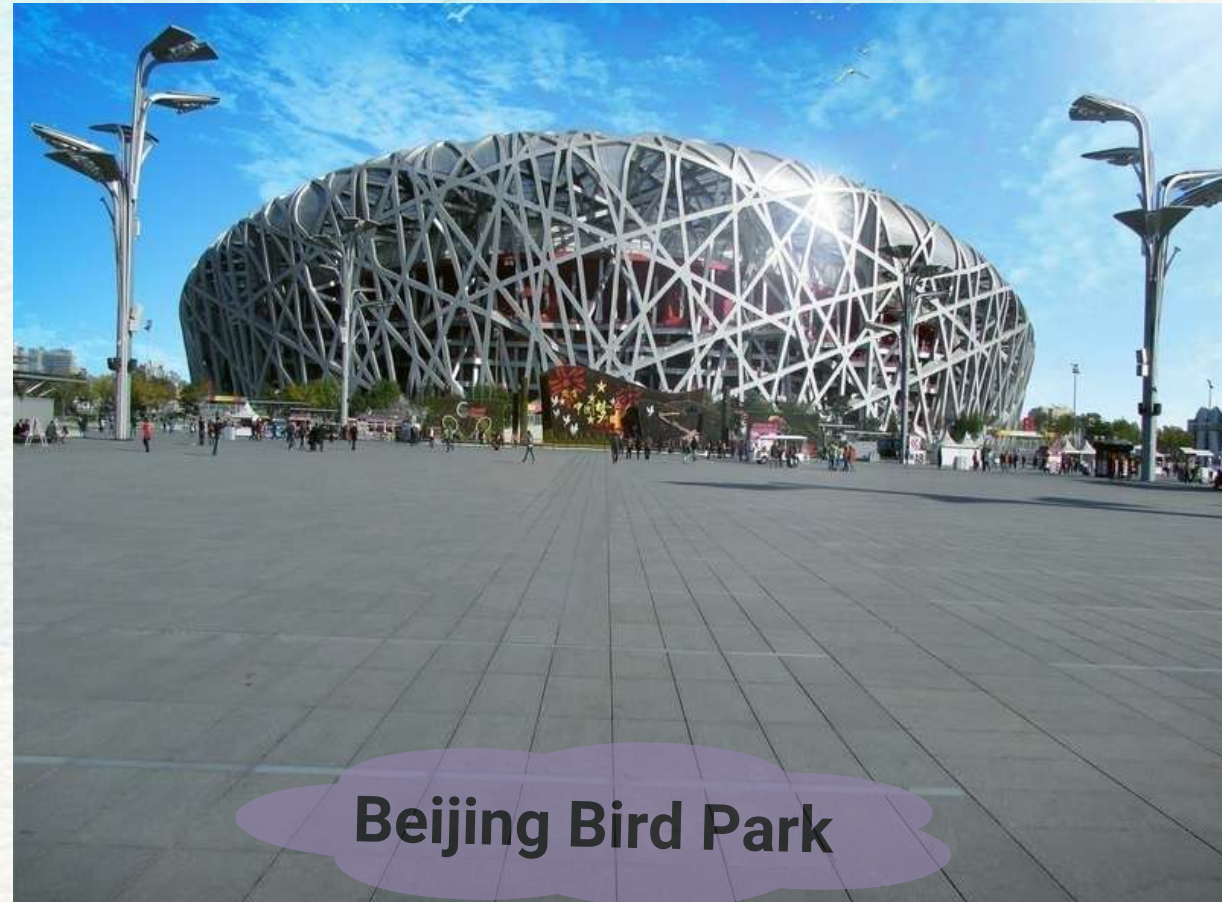


**A Sponge Facility – Complete Water Conservation**

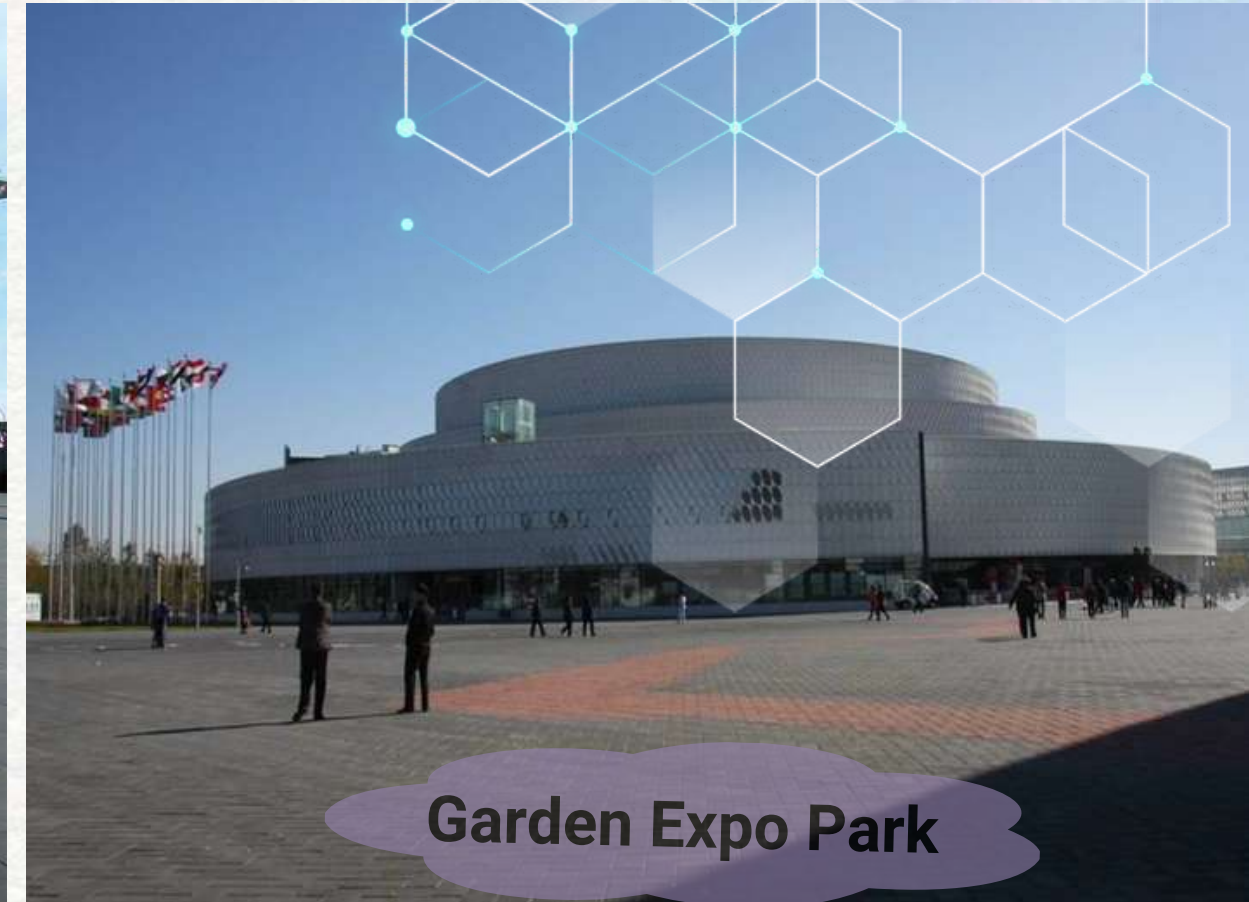
# Some Successful Projects



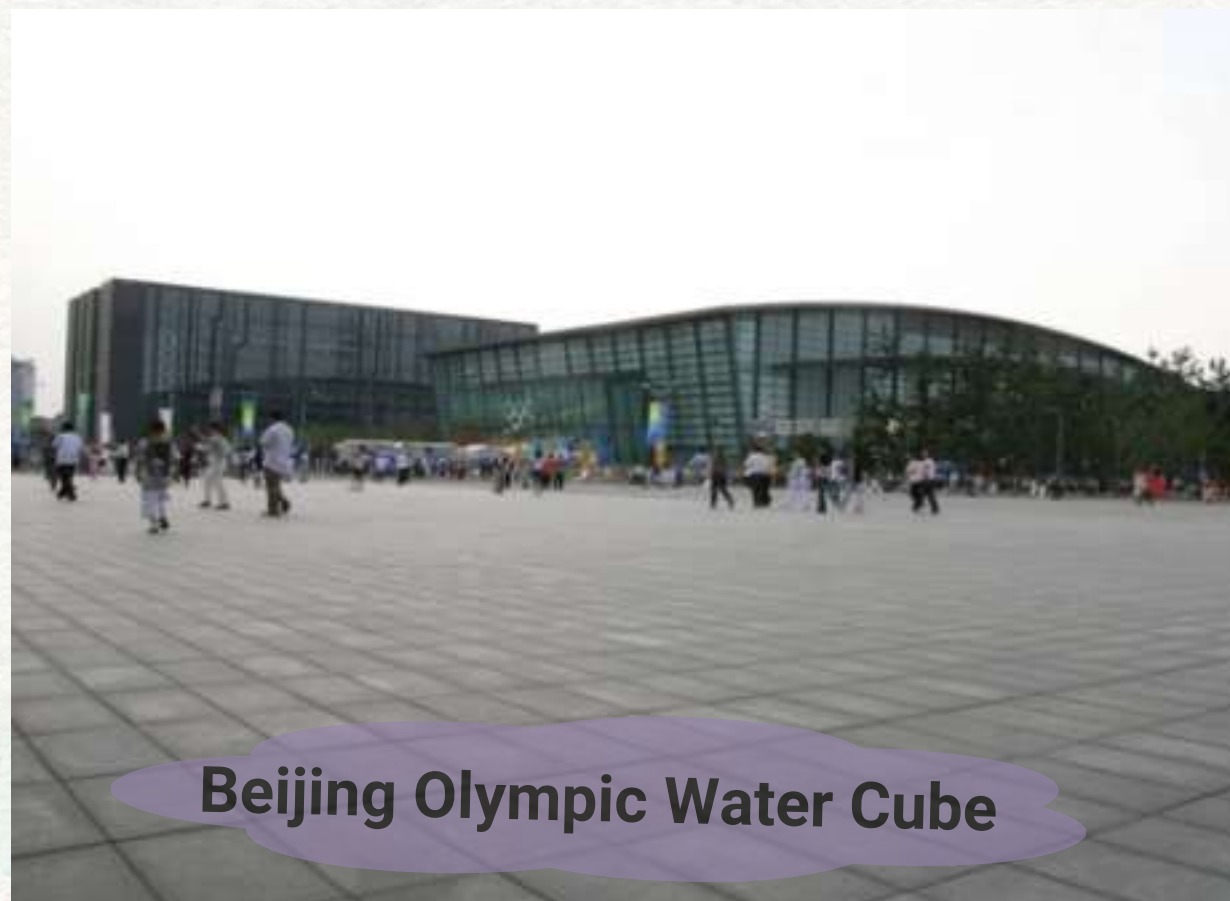
Beijing Olympic Water Cube



Beijing Bird Park



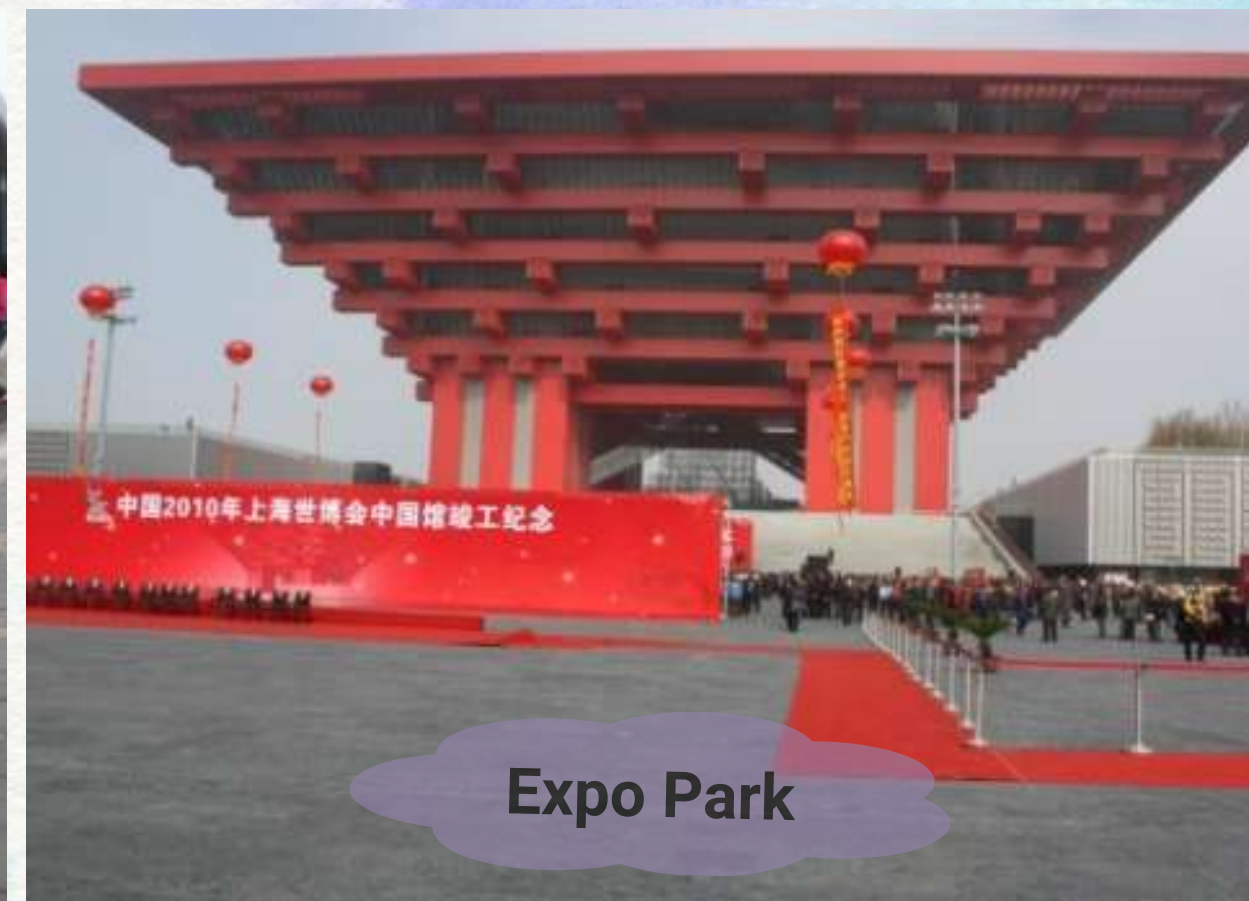
Garden Expo Park



Beijing Olympic Water Cube



Beijing Bird Park



Expo Park

# Decentralised Storage

## CHALLENGES

**Flooding**  
**Wastage of water**  
**Draining of water into Sea**  
**Water Pollution**

## SOLUTIONS

**Modular**  
can be built as small as  
**1000 Cubic Meters**  
or  
**200,000 Cubic Meters**

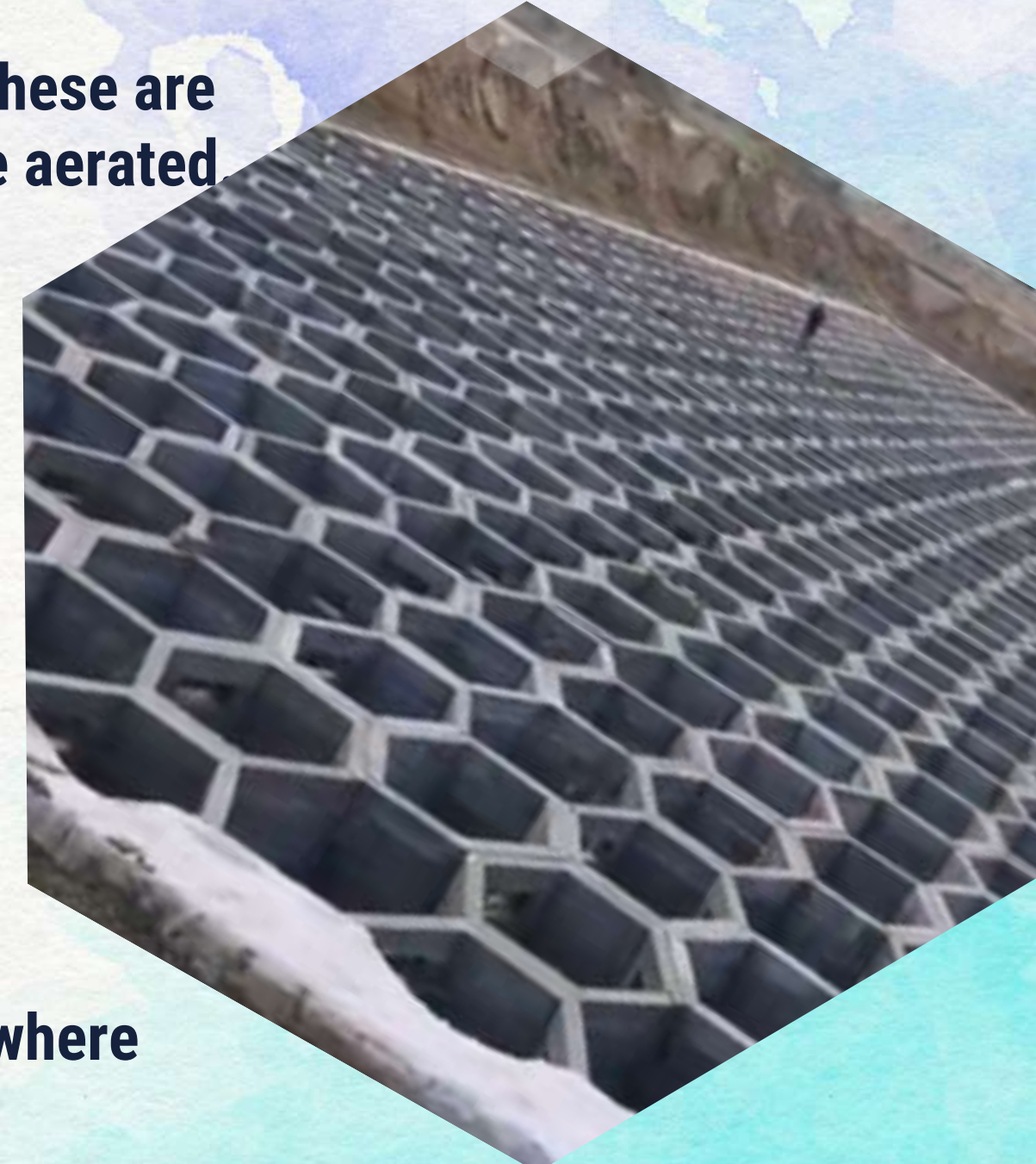
**Surface Area**  
**Parking**  
**Or**  
**Green Lawn**

**Keeps Water Clean for**  
**more than a Decade**  
**using no chemicals and**  
**no Electricity**

**Water is stored in the unique honey-comb structures. These are made with the IDer product that will allow the water to be aerated**

**With breathable sand & breathable filter surfaces, air pockets are created in water storage tanks, allowing constant motion of air due to differential pressure, thus water remains clean without use of Electricity or Chemicals.**

**These can be built in a decentralized manner, closer to where the water is used – Water in Bank.**





**50000 cm Honeycomb Storage  
– Construction Site**





# Bio-Retention Ponds: Overflow Management

## CHALLENGES

**Stagnation,  
Water Pollution,  
Disturbance to  
Aquatic Life**

## SOLUTIONS

**Overflow Water the Patented Honey-Comb storage is routed through to Pond, which allows for aquatic growth. These ponds are made with Breathable Sand Carpet that allows the water to be aerated**

**With Constant motion as well  
Dissolved Oxygen availability allows  
Aqua Eco System**

**Fish, Plants, no Smell or Stagnation**





**BioRetention Ponds - Overflow  
Management**

# Some Greening Projects

## Dengkou County

improved agricultural planting on saline and alkali land in Dengkou County and effect of its Improvement



## Ningxia Zhongwei Desert Facility

Used for greenhouse planting in desert facilities, 75% water saving, 35% fertilizer saving, 15% increase in yield - Chillies



## Umlah Desert

Large Rice Plantation on heavy saline & alkali land and effect of its improvement, Increasing the local food production in the area



## Ningxia Tengger Desert

Baiyutan Maowusu Desert

## Yuanmingyuan Lake

Man made Lake demonstrating the use of Rechsand Blanket and Sand for retention of water as well as aquatic growth



## New Hetian MU Desert

Caofeidian Saline in Tangshan



# Breathable Sand

Afforestation in deserts using Innovative technologies such as native trees and breathable sand.

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Award winning breathable sand innovation transforms desert into arable land

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## Patented Innovations



Maximize every drop of rain in the desert by capturing and sustainably storing it to use for planting trees and creating a nature-based solution for a greener future.

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## Sponge Cities

Sustainable Water Collection  
Patented Water Storage

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Ponds in Desert to Store Rain Water





# First VERRA Listed Afforestation Project in Middle East

It involves native high yield Carbon Sequestration trees  
for its Planting Methodology  
Agro Forestry - Food Forests  
Carbon Sequestration & Calculation

Ghaba Program has an impact on SDGs related to Poverty, Food Security, Water Security and Health.

# Impact through SDGs



SDG 12 & SDG 2



SDG 6



SDG 13



SDG 15

Ghaba program supports multiple Sustainable Development Goals (SDGs) such as ending hunger (SDG 2), clean water and sanitation (SDG 6), combating climate change (SDG 13), responsible consumption and production (SDG 12), life on land (SDG 15), and partnership for the goals (SDG 17) through reforestation and conservation efforts in arid regions.

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# Join the Global Effort to Combat Climate Change and Support Sustainable Development

Nature-based solutions are critical in mitigating the effects of climate change and promoting sustainable development.



Let's join the Sponge City partnership and harness the power of nature to create a more sustainable future for generations to come.

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# Greening of Desert

Dake Rechsand Breathable Sand Technology



GULF  
SUSTAINABILITY  
AWARDS 2021™

**GOLD AWARD WINNER**

**THANK YOU**

Path to **NET ZERO**

