# Orbis

## a disaster-ready, drinking water system

**Equipment and Guidance**
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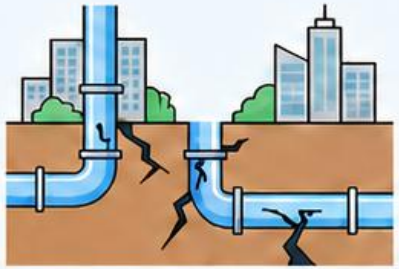
**Scientific Advisors:** João Nuno Silva (INESC-ID) and Duarte Mesquita (IST)

### THE URBAN WATER CRISIS

**Survival Window 72 Hours**

Access to safe water may be limited within the first 72 hours after a disaster, a critical period to save lives.



**Vulnerable Infrastructures**

Water supply systems are highly susceptible to damage from seismic activity and pathogenic contamination.

**High-Risk Communities**

The most vulnerable groups, such as the elderly, hospitalized patients, and school children, are the most at risk.

### THE SMART MODULAR SOLUTION

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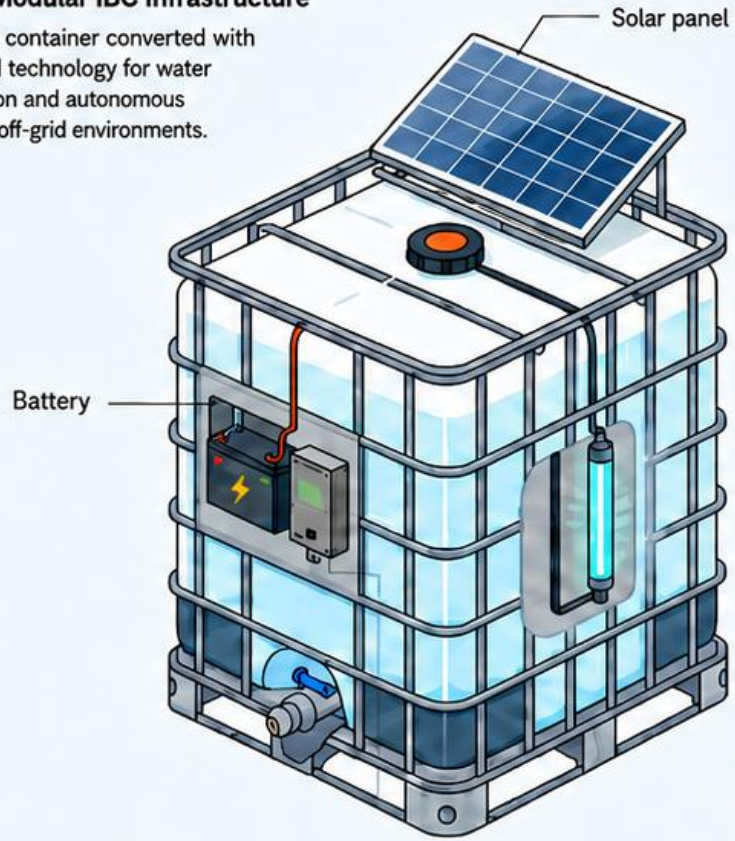
**1000L Modular IBC Infrastructure**

Standard container converted with advanced technology for water purification and autonomous supply in off-grid environments.




**Sensor Layer**

- pH
- Turbidity
- Temperature
- Water Level
- Flow

**Processing and Control Layer**

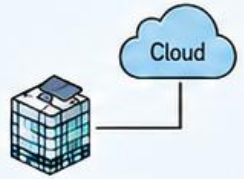
Managed by an STM32 microcontroller, it controls the UV-C and circulation pump to ensure efficient water treatment.

**Fair Resource Allocation Layer**

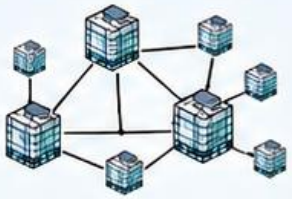
Verifies water quality and authenticates users via RFID to ensure fair distribution based on SLA, preventing waste and mismanagement.

### RESILIENT COMMUNICATION AND SUPERVISION

**Operating Modes: Normal vs. Disaster**




In Normal mode, the system connects to the cloud.



In Disaster mode, gateways form a mesh network that allows local nodes to communicate without internet.

**WEB DASHBOARD**