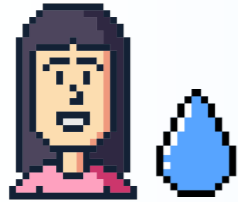


# Can digital water bring water and sanitation for all?

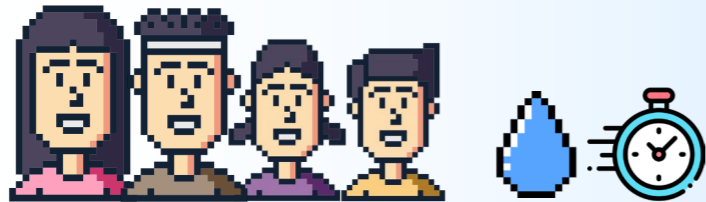
ENRIQUE CABRERA – INTERNATIONAL WATER ASSOCIATION



# WATER IS HEAVY



**50 kg / day**



**73000 kg / year**

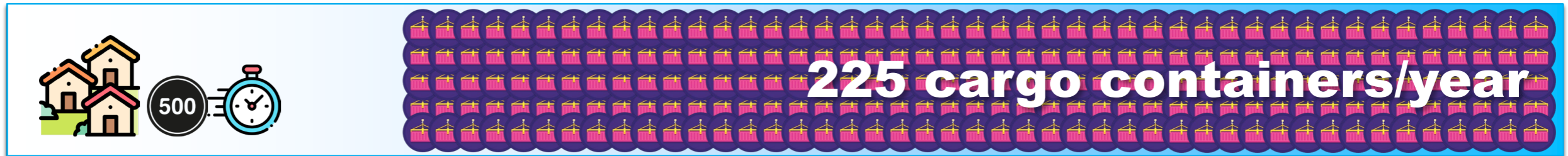


**9000 tons / year**



**18,250,000 tons / year**

# WATER IS HEAVY



# WATER IS LOCAL (HEAVY)

**Water must be sourced and distributed locally**

**Solutions should**

- Be designed taking into account local conditions
- Be implemented locally
- Follow international best practices



# WHAT IS DIGITAL WATER?

## Data gathering

- We can obtain much more data and far more reliable than before.

## Data visualization and analysis

- We can digest large amounts of data and understand reality better

## Artificial intelligence

- We can obtain help in decision-making processes through the use of complex algorithms

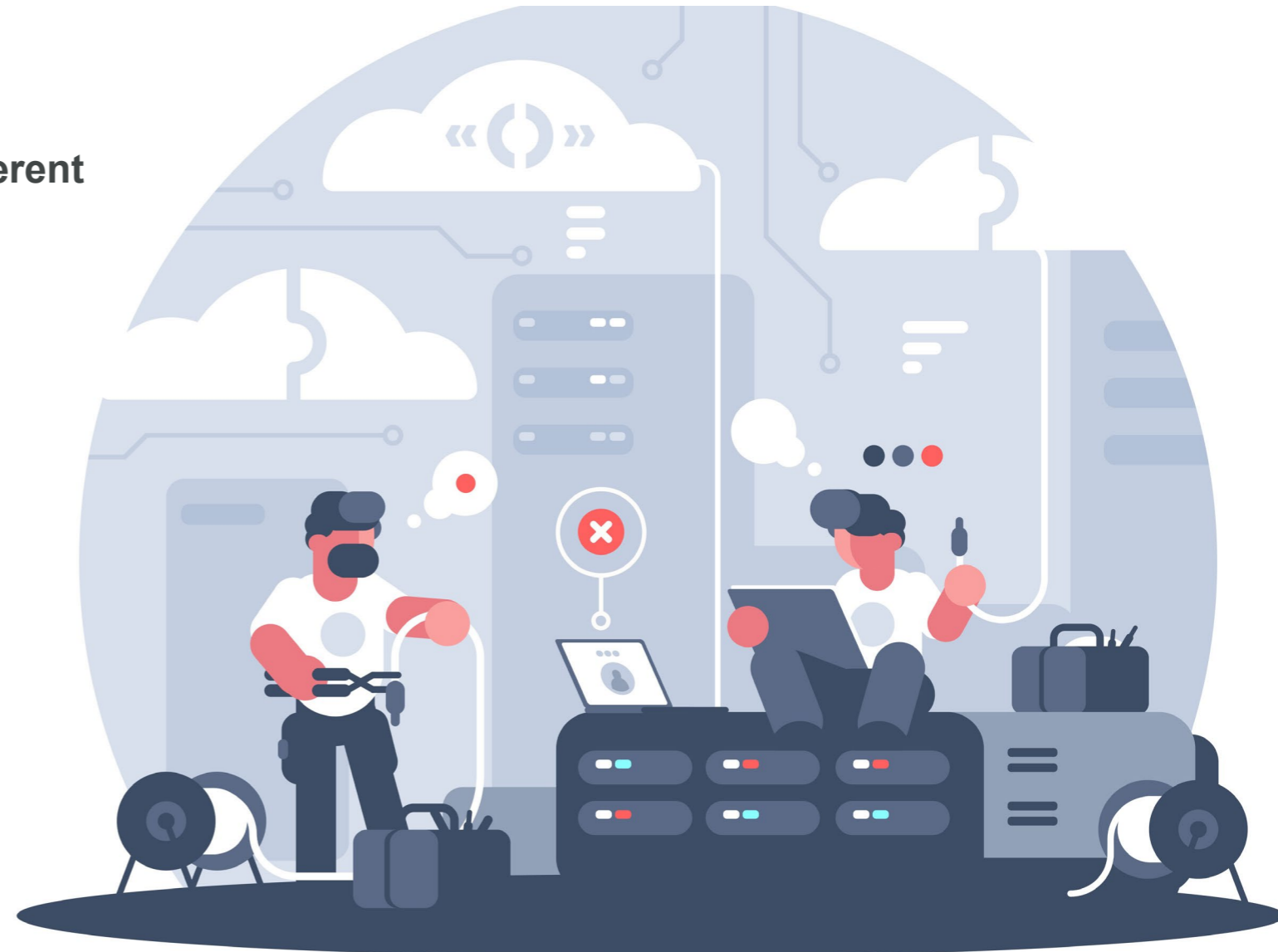
## User Engagement

- We can engage directly with individual users



# DATA GATHERING

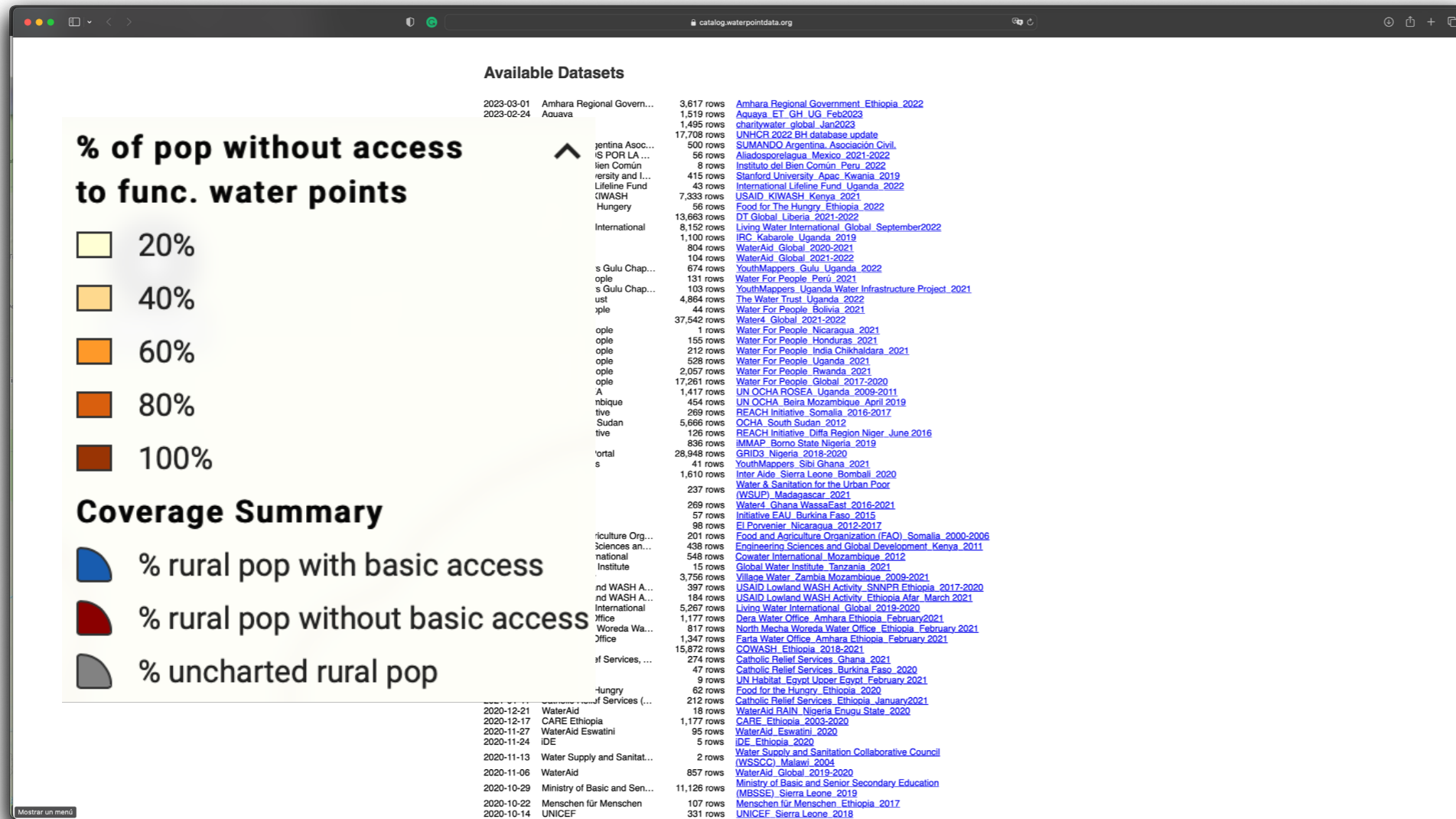
- Satellite images
- Social media / meteorological data
- Data aggregation and consolidation from different sources
- Sensors providing real-time information



# AGGREGATED DATA CHARTING BASIC ACCESS

## Water Point Data Exchange

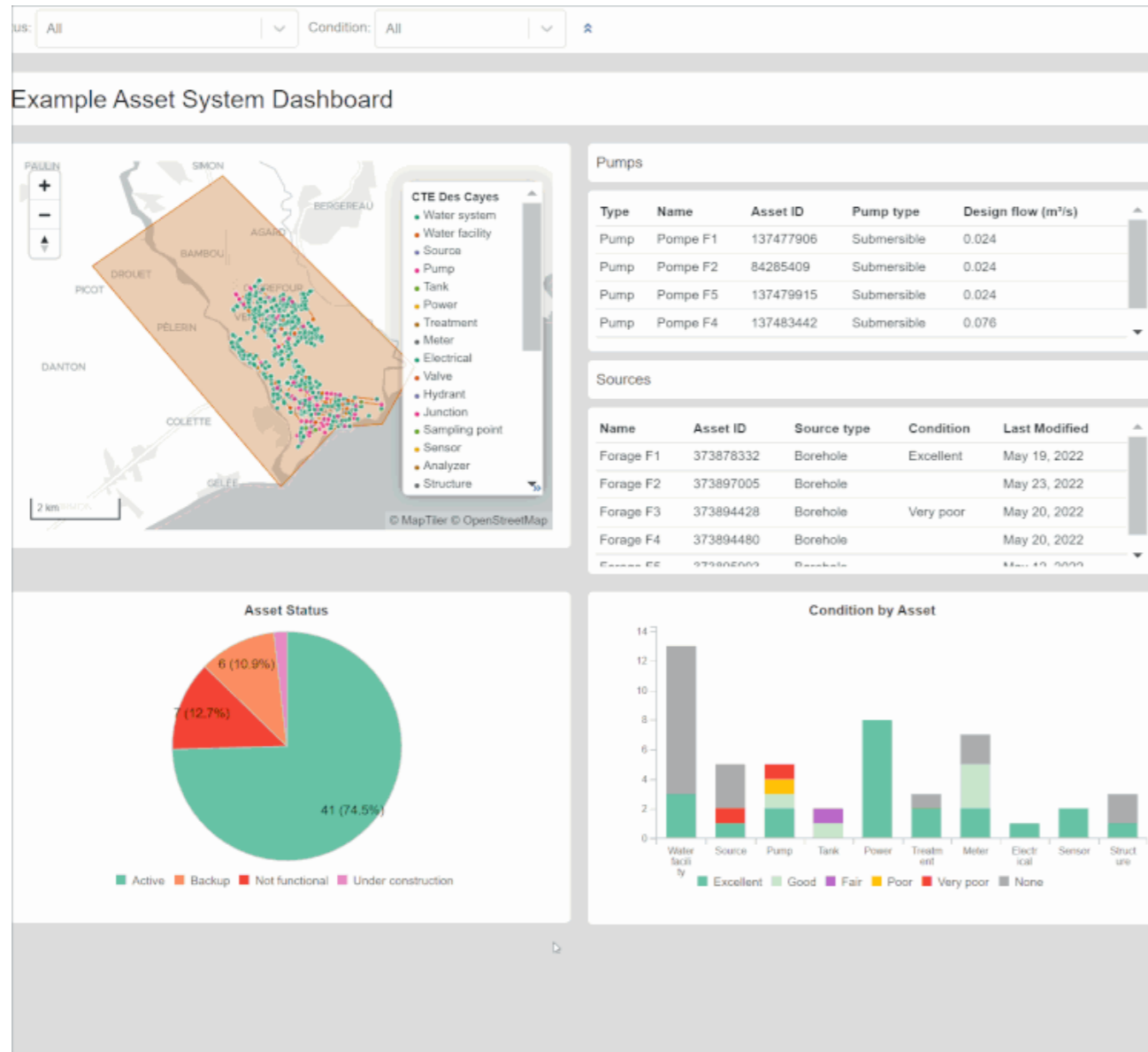
[www.waterpointdata.org](http://www.waterpointdata.org)



The screenshot shows the 'Available Datasets' page on the Water Point Data Exchange website. On the left, there is a legend for '% of pop without access to func. water points' with color-coded boxes for 20%, 40%, 60%, 80%, and 100%. Below this is a 'Coverage Summary' section with four categories: '% rural pop with basic access' (blue), '% rural pop without basic access' (red), and '% uncharted rural pop' (grey). The main area displays a list of datasets with columns for date, organization, row count, and dataset name. The list includes various international organizations like Amhara Regional Government, USAID, UNHCR, and many others, with row counts ranging from 1 to 331.



# OPEN SYSTEM FOR DATA COLLECTION



## mWater

[mwater.co](http://mwater.co)

- Data collected through centralized surveys and other sources
- Uploaded to the cloud and mixed with other data (spreadsheets, population density, etc.)
- Data can be cleaned and visualized





# AWARD WINNING IOT SENSORS FOR REFUGEE CAMPS



## IOT sensors UNHCR

- Low Power Wide Area networking protocol sensors used to monitor water sources in refugee camps
- In the Uganda pilot, serving 500k refugees 6000 m<sup>3</sup> of water
- Used as a basis of payment for water-trucking operations (\$15M/month)
- Deployed in other locations
- Won the European Innovation Council Horizon Prize on Affordable High-Tech for Humanitarian Aid



# DATA VISUALIZATION AND ANALYSIS

## Visualization

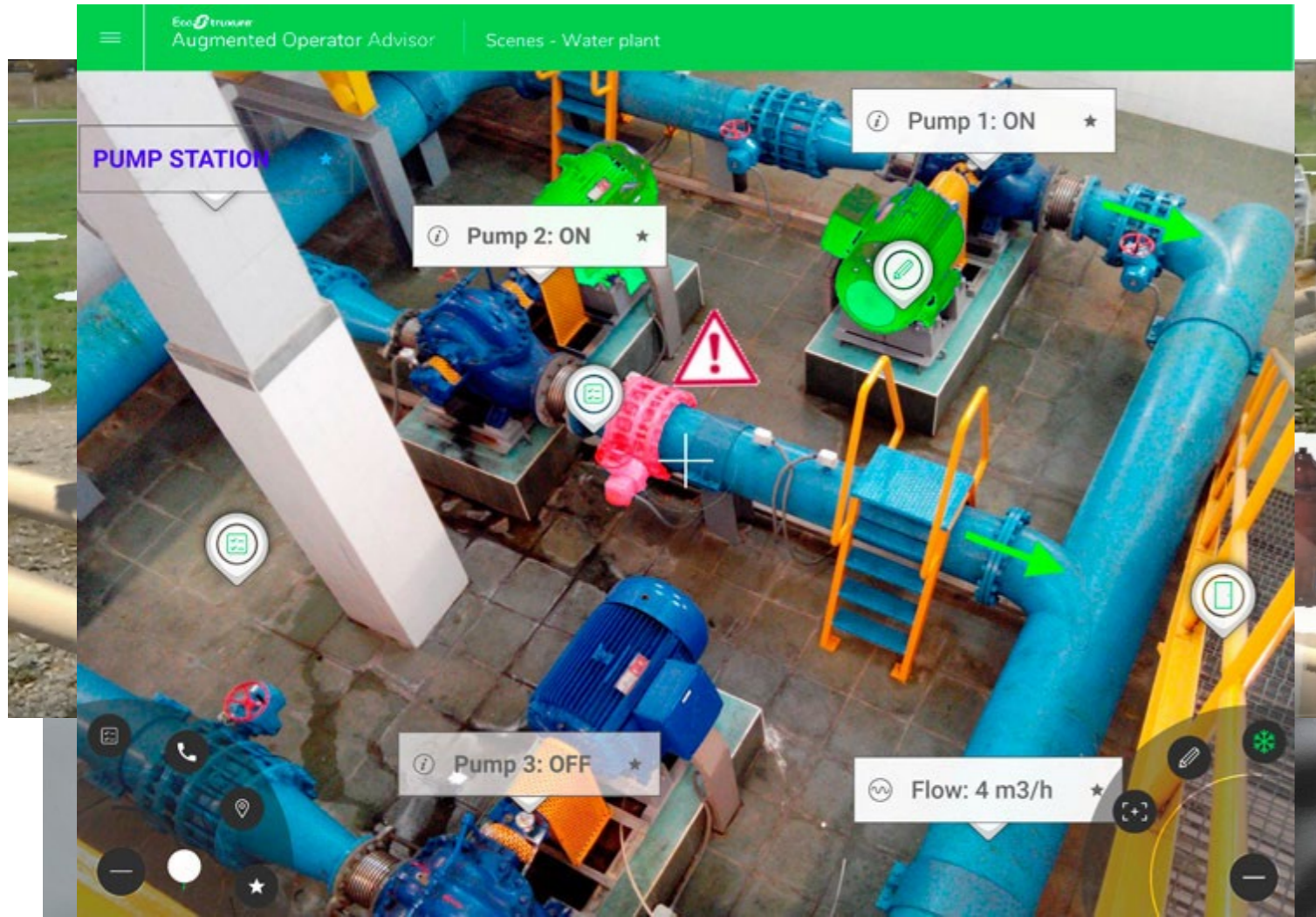
Social media / meteo data

Data aggregation and consolidation from different sources

Sensors for real-time information



# AUGMENTED REALITY TO ASSIST IN THE OPERATION OF ASSETS



- Allows to locate buried assets
- Displays valuable static information linked to the assets
- Can also include real-time information

Sources:

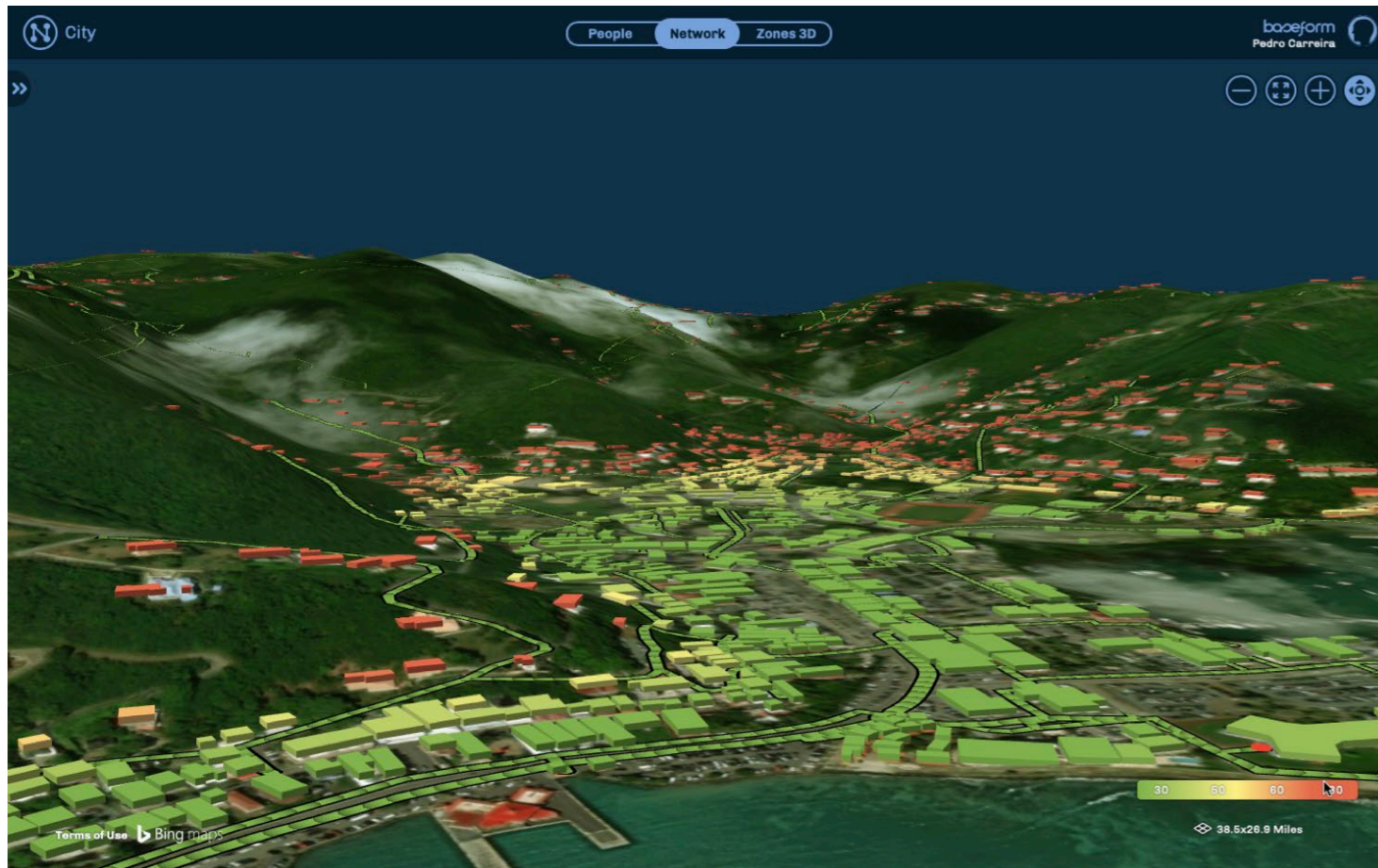
Envirotech Magazine

KWR

Smart Water Magazine / Schneider Electric



# FULL DIGITAL WATER PLATFORM EASY TO DEPLOY



## baseform

[www.baseform.com](http://www.baseform.com)

- Virgin Islands infrastructure entered in the system from scratch
- In the absence of sensors, real-time data supplied to the system via google forms and whatsapp
- All assets included, geo-referenced
- Strong starting point, smart meters now being introduced



# ARTIFICIAL INTELLIGENCE

## AI and algorithms can be used to assist in better decision making

- Provide suggestions in the day-to-day operations of water networks or facilities
- Predict failures in assets
- Create future scenarios
- Improve collection routes and save time



# DIGITALLY ASSISTED OPEN PLATFORM WITH AI



## Qatium [qatium.com](https://qatium.com)

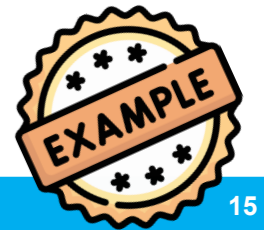
- Open, full network-management platform
- Can create networks from little information and grow with needs, including real-time input
- AI facilitates the operation of the network with limited technical knowledge
- Already in use in Latin America in a large project with IADB



# SEPTIC TANKS COLLECTION ROUTE OPTIMIZATION



- Digital technologies can also help with decentralized systems
- Sensors or mobile apps can report on septic tanks needing sludge collection
- AI algorithms can optimize the routes (reducing collecting times in +30%)



# USER ENGAGEMENT

## Mobile apps can be used to improve services for the users

- Connect users with safe water sources, collect quality information, report on quality issues
- Facilitate micropayments
- Provide information on the service at their household (consumption, leaks, septic tank)





# THE ROLE OF INTERNATIONAL ORGANISATIONS

## The role of international organizations

- Open dissemination of knowledge
- Frameworks and standards
- Training / learning
- Supporting global professionals

**Turn global into local**





**the international  
water association**

**inspiring change**

**inspiring change**



Enrique Cabrera, Spain

# Thank you