Building Back Better – Reframing Water Agenda

Water Leaders Summit TIWW 2021

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water is recognized as a priority

but why then is it not on the political & business agenda?

- It's on the **political** agenda, but not in the right sequence
events, my dear boy, events

we need to reverse the sequence
('prevention & cure' **NOT** 'rescue and recovery')

- It's on the **business** agenda, but we need to better articulate the **value of water**

we need to value the diverse benefits & spill-over effects

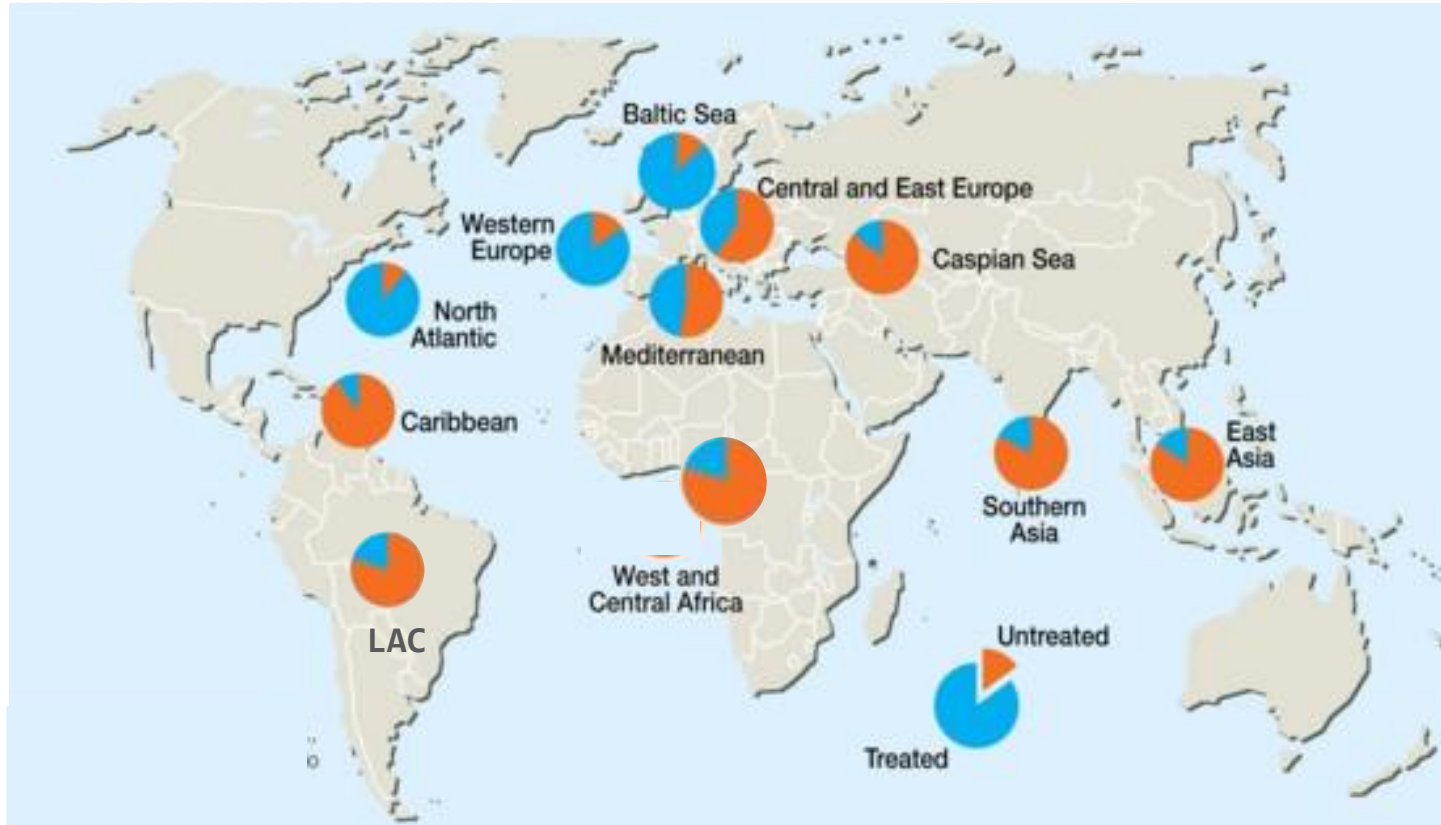# opportunities to reverse the sequence

need to **RESET** water management in the context of new narratives

- historically a building block of the **high carbon economy**

- now water should become a building block for the new **low carbon economy** (particularly in global south)
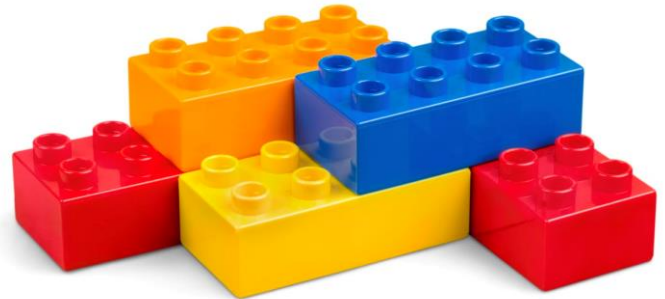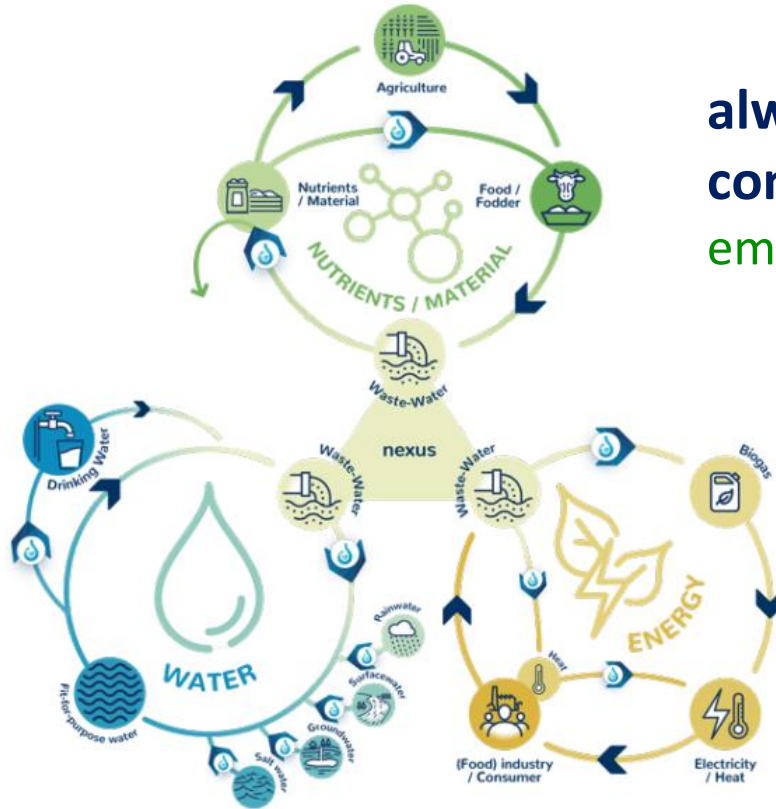
wastewater is the key

80% of wastewater is <u>NOT</u> treated

next 20 years golden age for wastewater & sanitation - opportunities to "leapfrog"

always now described within the context of the circular economy

emissions, efficiency, resourcefulness

next 20 years golden age for wastewater & sanitation - opportunities to "leapfrog"
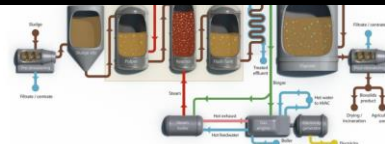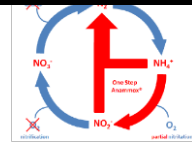
build

- sma
- ene
- imp
- bac

INDIA

- **increase #STPs by 50% -** 145 under construction + 70 proposed

- **700+ FSTPs committed**

Thermal Hydrolysis

Anammox

Adv. Control

Nature based (green) solutions can support resiliency & decarbonize

Water for Irrigation

Ecohydrology

Reservoir

Dam

Lake Bank Filtration

River Bank Filtration

$0.067/m3 (cf 0.28/m3)

Source Water Protection

Water Treatment

(0.17 $/m3)

Soil Aquifer Treatment Artificial Recharge Recovery

0.012 -0.024 $/m³ (cf 0.05-0.15 $/m³)

Primary Treatment and/or Constructed Wetlands, WSPs

WW Treatment & Reuse
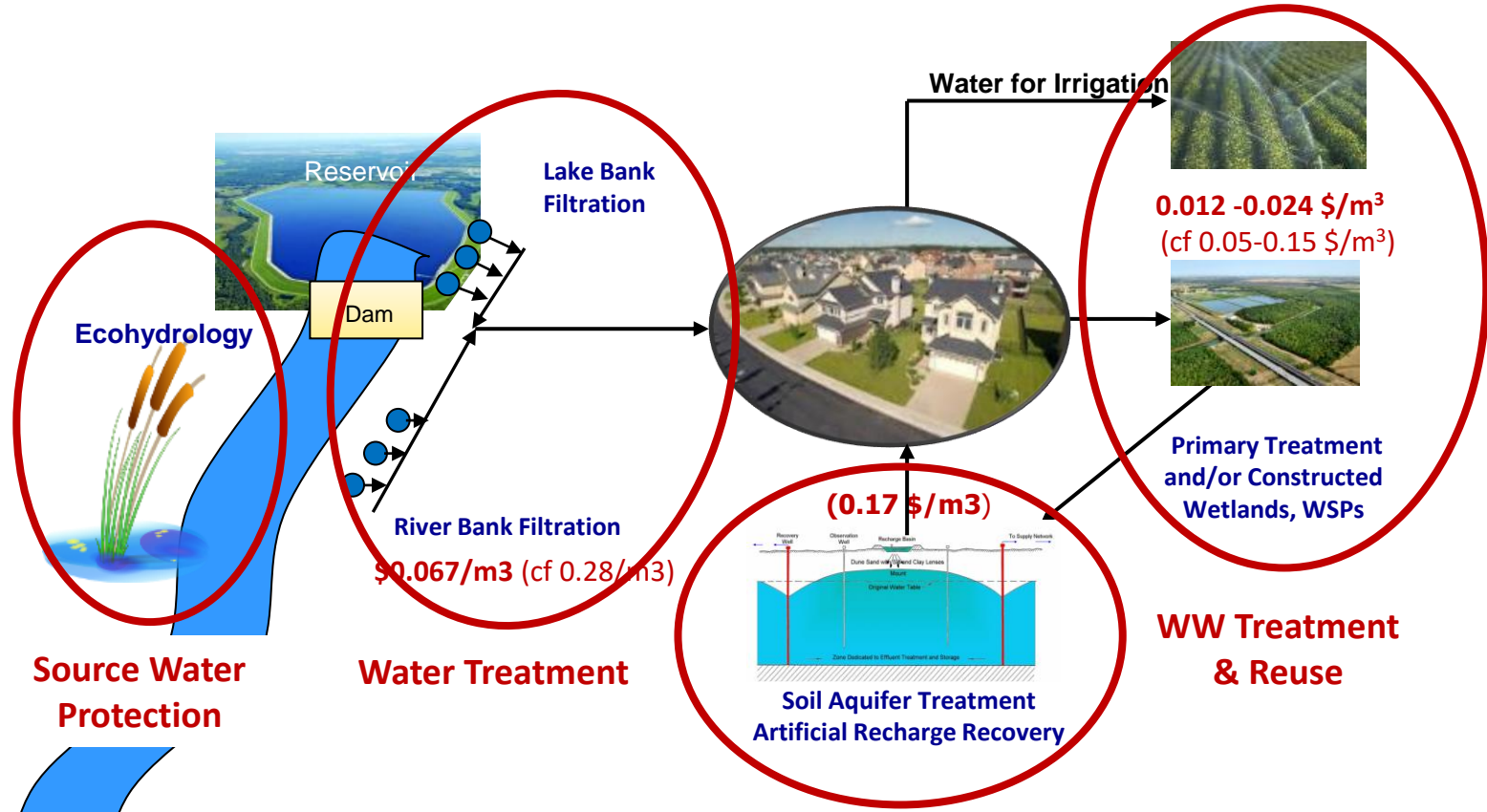
we are living in an uncertain world

Uncertainty in storm events

Uncertainty in demand

Uncertainty in quantity & quality

Uncertainty in pipe condition

Uncertainty in energy

Uncertainty in water allocation
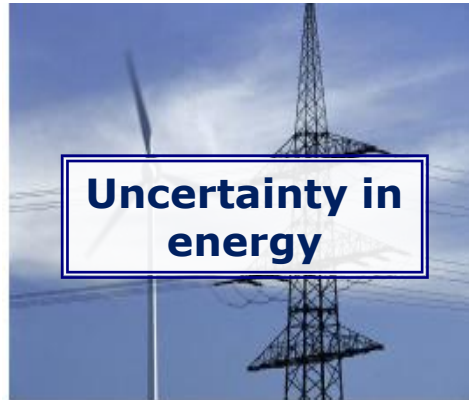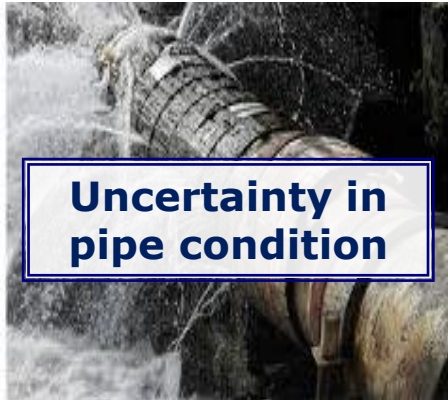
Resiliency requires adaptive/flexible systems for an uncertain world
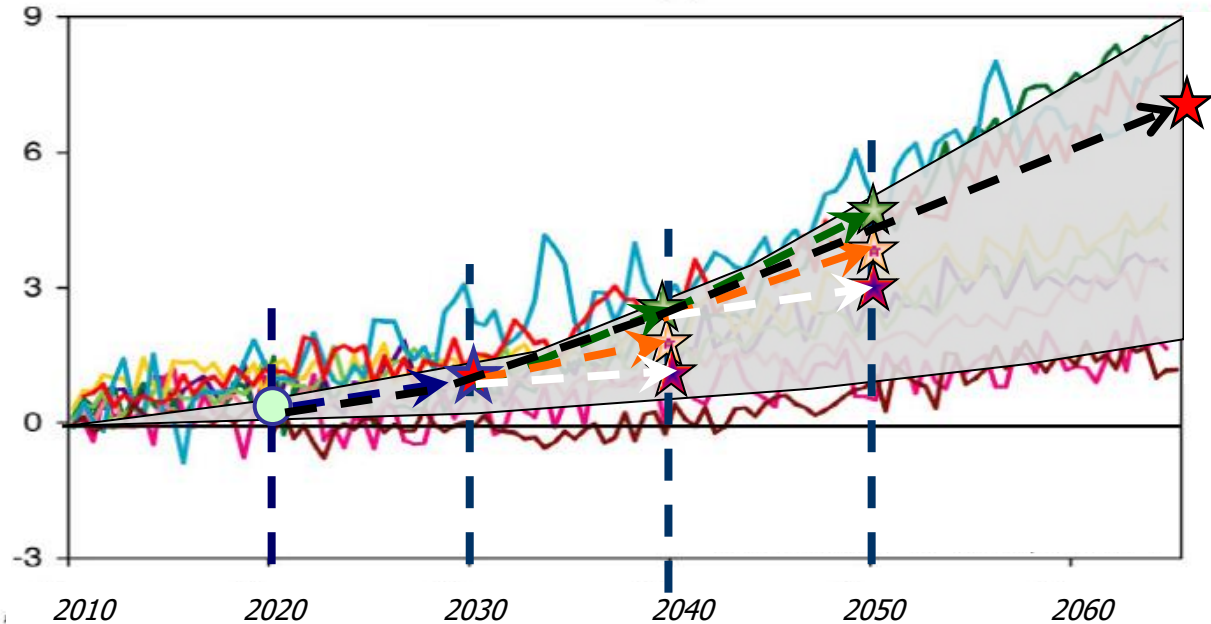
Nature based solutions provide adaptive capacity

eco-treatment

green roofs

pervious pavement

infiltration trench

tree filters

retention pond

Nature based solutions provide adaptive capacity

Rural

Semi-urban

Urban

City

Q = rate of runoff

Early Urban

Urbanization

Urban

Time
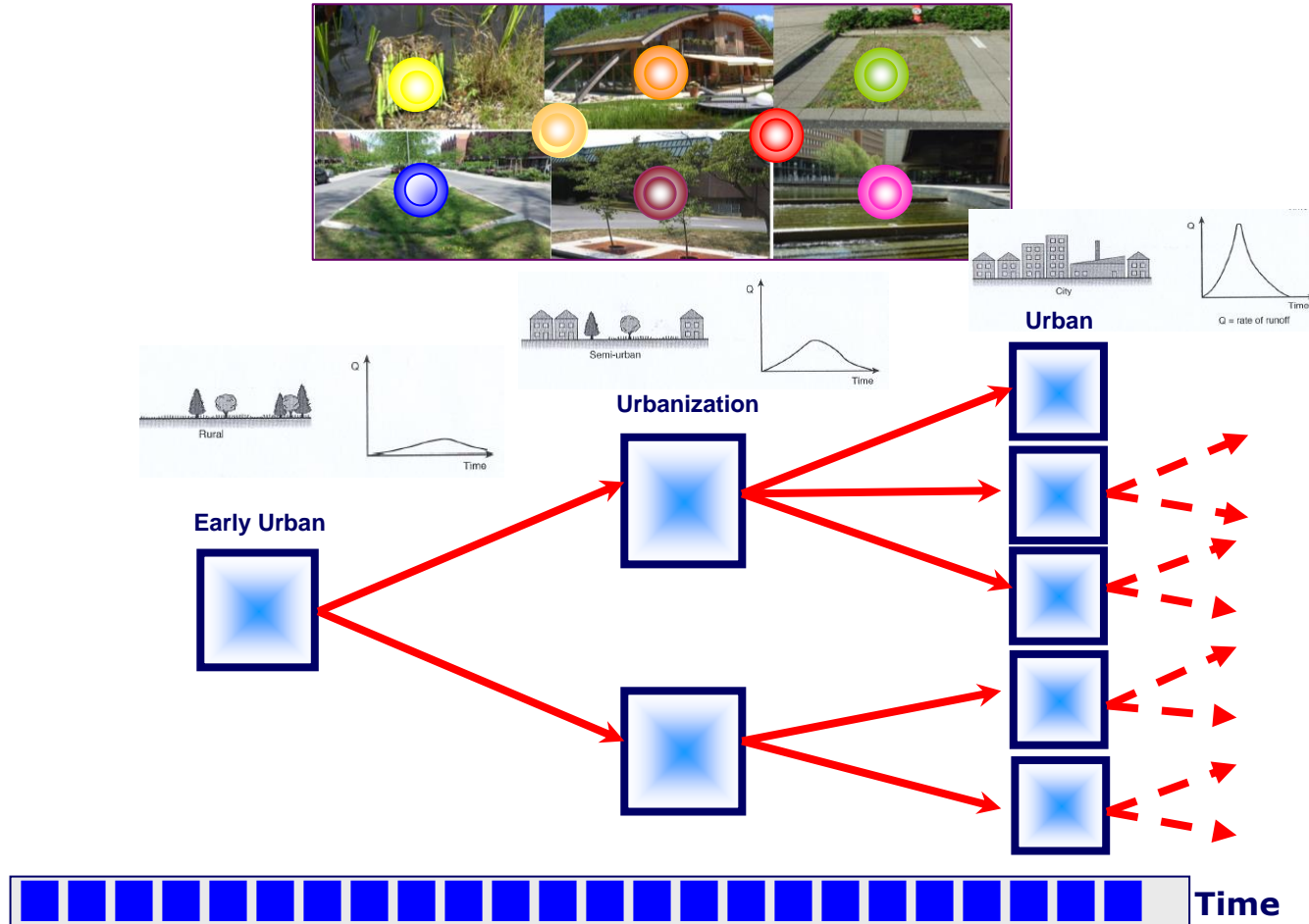
SUDs are green & provide greater resilience

Case Study: Kupferzell Germany
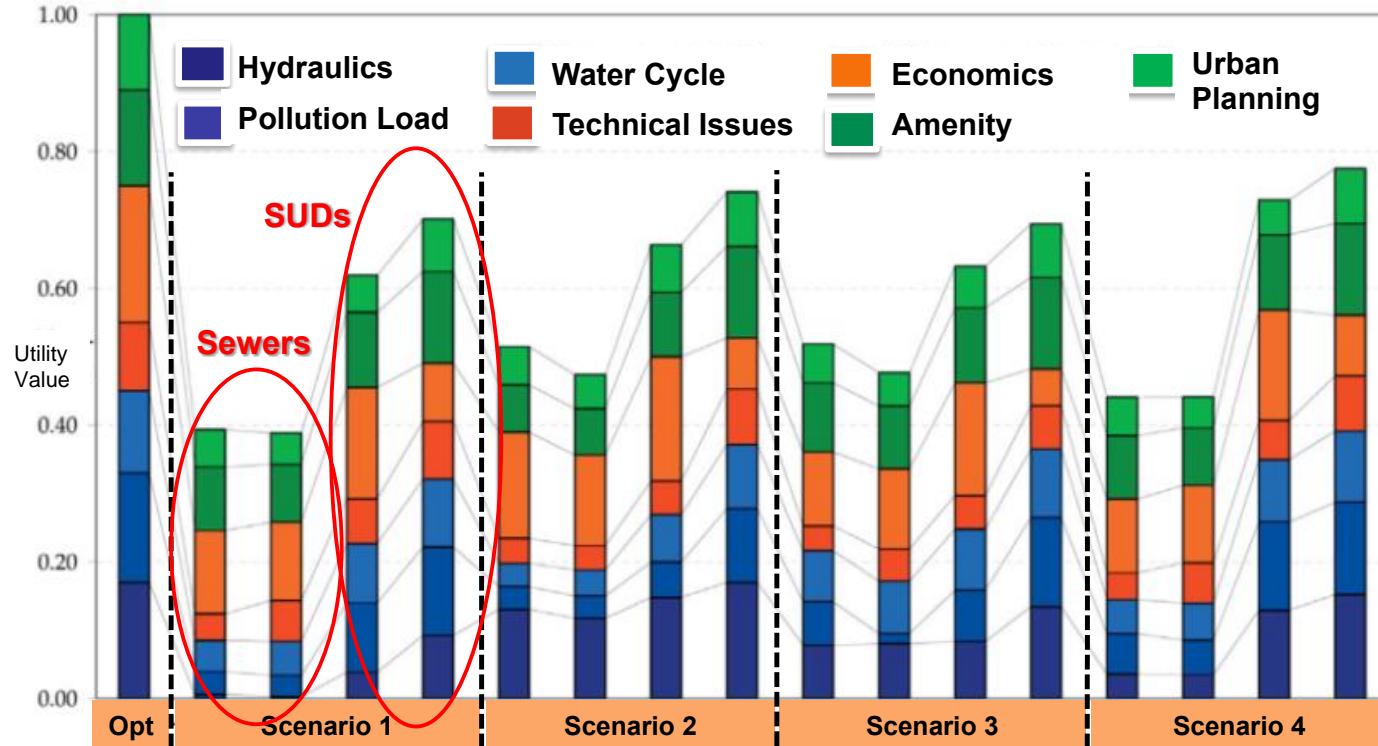
Eckart, Sieker, Vairavamoorthy (2010)

Decentralized systems have adaptive capacity
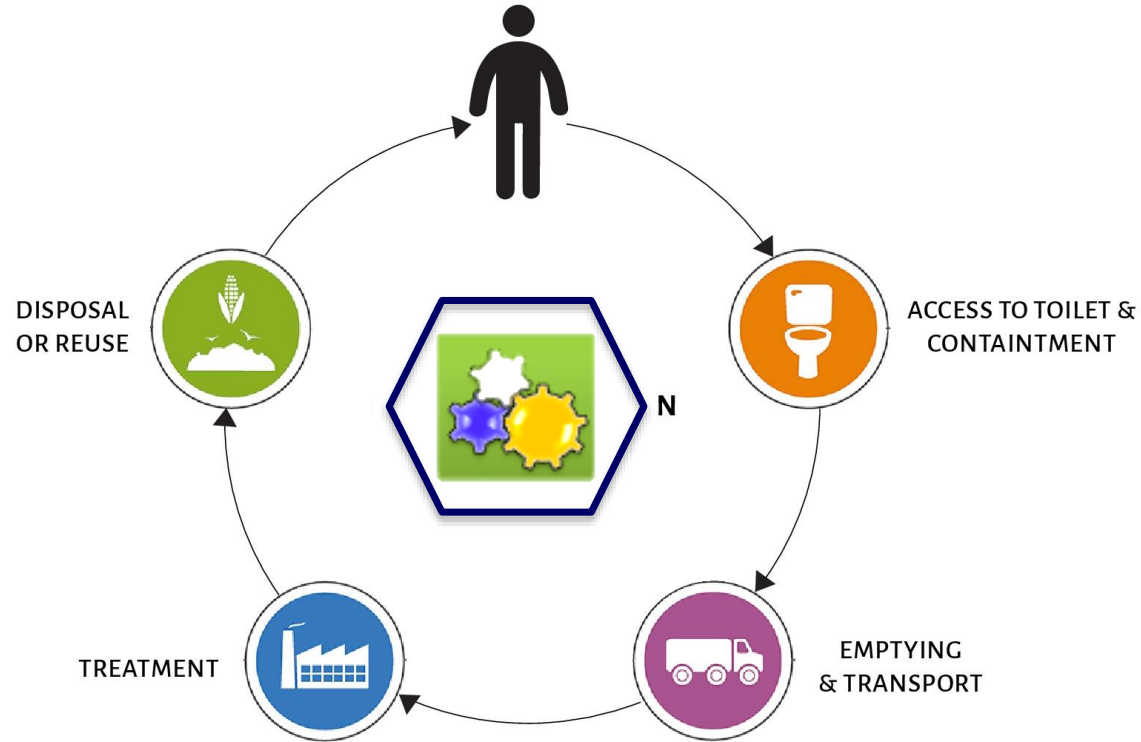
Decentralized systems have adaptive capacity

Decentralized systems well suited for:

- adjusted growth (to deal with rapid growing cities)

- increased resiliency (dampens the propagation of failures)

- minimize energy for reuse

'urban form' can help or hinder
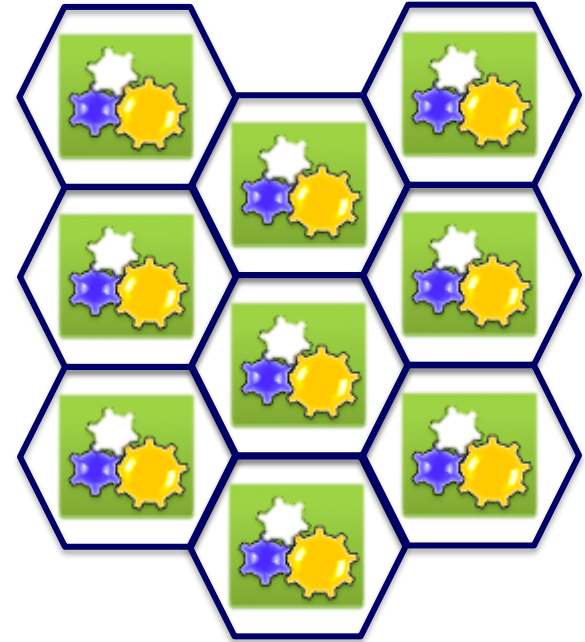
changes in perspective

we're dealing with a system of systems

It's ok to optimize at sub-system level

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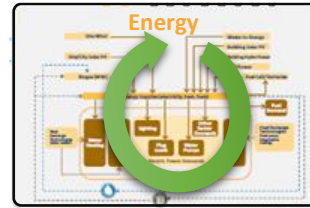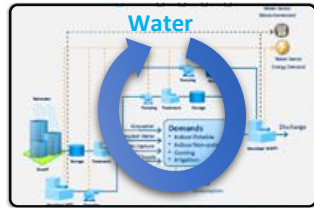
But we need to recognize that we're dealing with a 'system of systems'
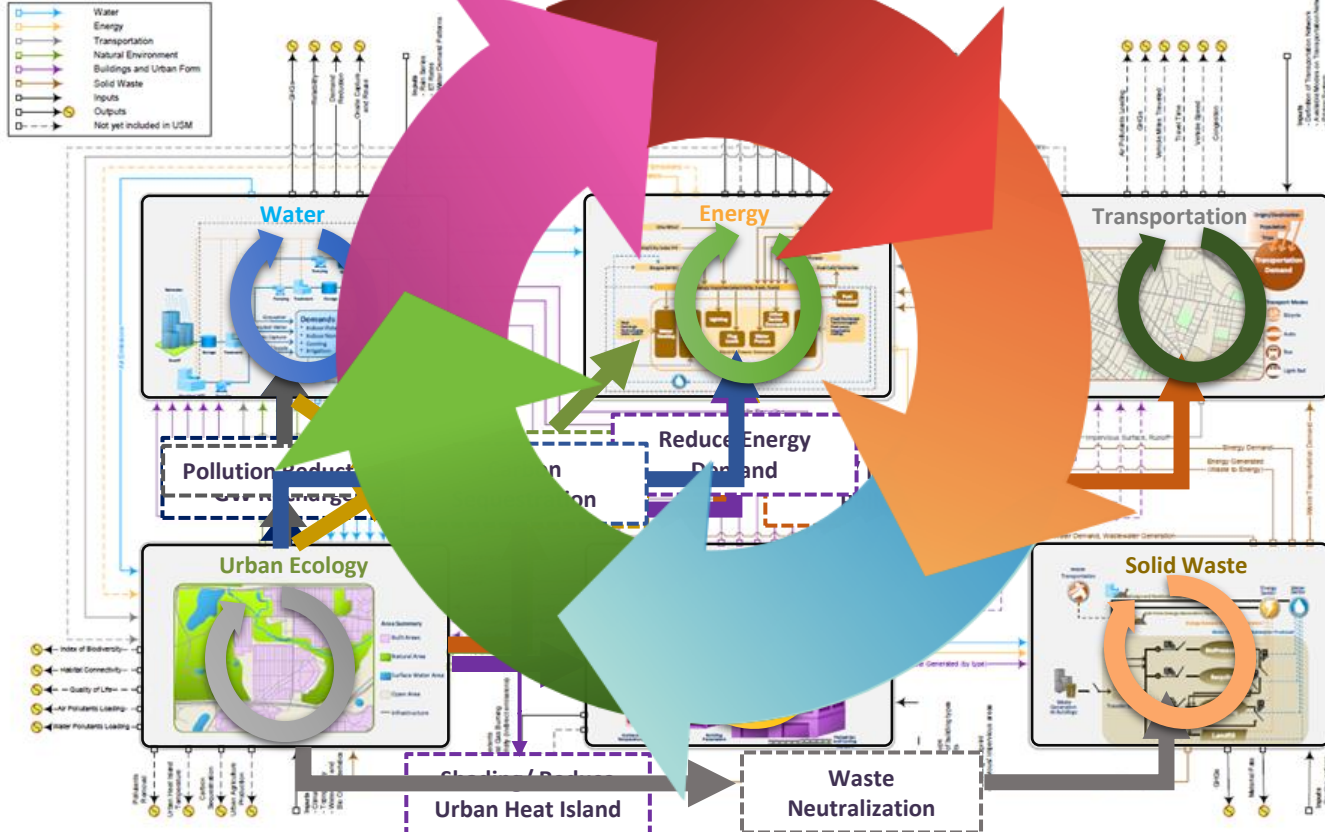
digital water

**enabling us to transition towards
<u>green</u>, <u>resilient</u>, and <u>inclusive</u> growth**
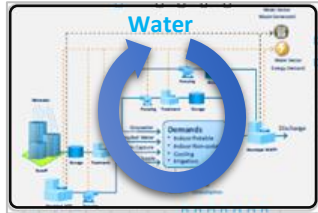
Digital ecosystem - connected assets

integration of data &
sophisticated analysis

real-time
online

4 V's
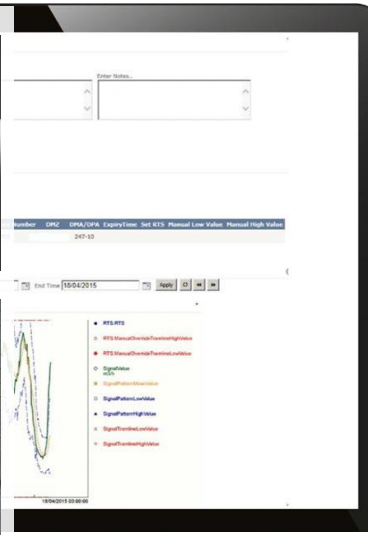
EDS uses ANN to process pressure and flow sensor signals in
near real-time to detect and forecast pipe bursts and leaks

3.6 billion camera
phones in use

30 billion
RFID tags embedded into
our global ecosystem

250 million
smart meters in Europe
by the end of 2020

Digital ecosystem – silent running

integration of data & sophisticated analysis

smart pumps, valves etc.

real-time data from online sensors

ASSET MANAGEMENT

A SMARTER UTILITY

PRESSURE ZONE LEVELING

PUMP CONTROL AND MONITORING

VALVE CONTROL

WATER QUALITY

FLEXNET

GREYWATER

© Sensus

SCADA

IRRIGATION CONTROL

PRESSURE AND TEMPERATURE

CUSTOMER PORTAL
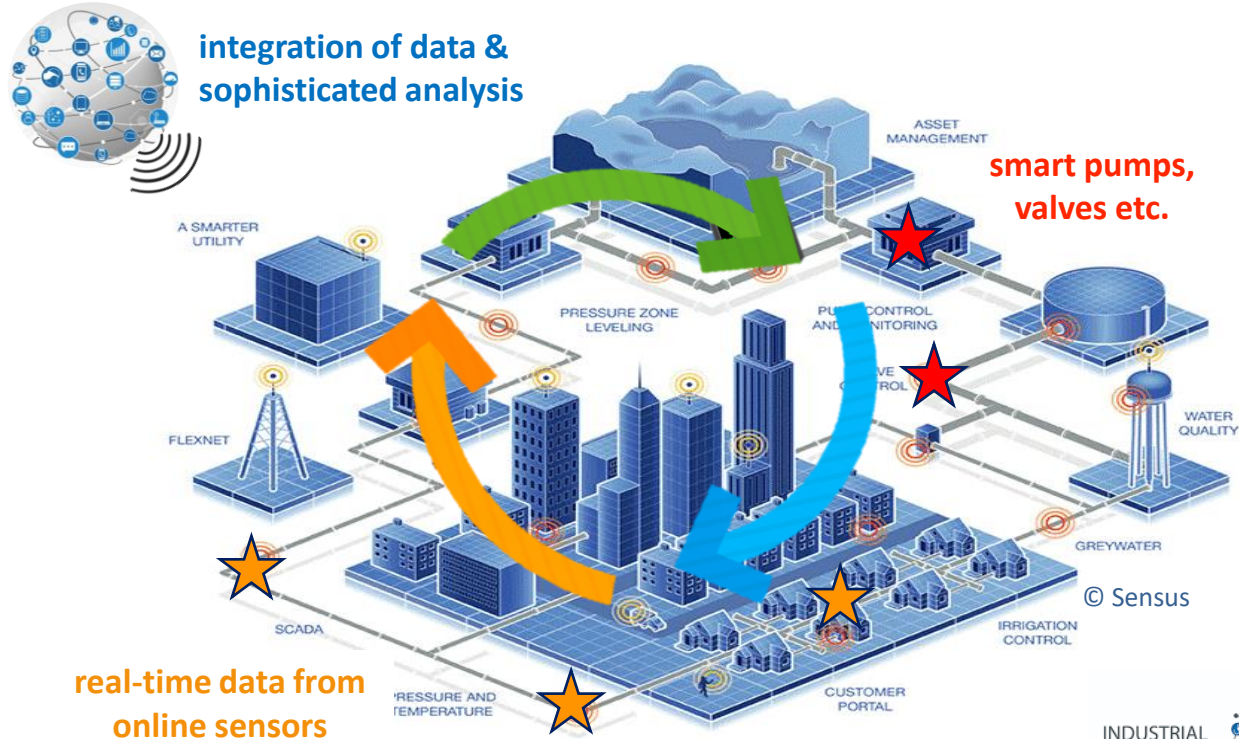
INDUSTRIAL INTERNET OF THINGS

Efficient water use – inclusive

Smart Water Prepayment (pay-as-you-go)

Proactive Customer

Analytical Engine

Smart Device

Top-ups
Top-ups by Mobile Money at any time, for any amount from anywhere

Check real-time balance by mobile phone at any time

Account management
Automatic **Pay-As-You-Go**

Water access control
A positive balance **automatically opens water** access

When credit reaches zero, the **water access shuts off**

Mobile

CTCloud

LoRaWAN or GPRS

CTMeter

Notifications
Receive **notifications** by SMS or Whatsapp in case of low credit, leaks or abnormal consumption

Data analytics:
detect fraud - detect leaks and/or blocked meters

History of water consumption

Measurement
Measures accurate consumption

Transmits consumption data and alerts **every 30 minutes** (default)

Smart sanitation - inclusive
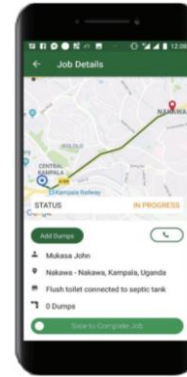
- Kampala Capital City Authority (KCCA) GIS-based mobile app

- Ensures more regular, efficient & effective management of septic tanks

- Links **Pit Emptiers** with **Customers** via **Call Center**

- App created over 5,000 pit-emptying jobs with 63% increase in income

We need to change the default setting for sustainable water management

- **Celebrate** water use efficiency, resource use efficiency, extraction of value from waste streams

- **Promote** systems that are more integrated, hybrid grey & green, multi-use & multi-functional, distributed

- **Encourage** approaches and solutions that are flexible and offer increased levels of immunity to hydrologic cycle

We need to change the default setting for sustainable water management

- **Recognise** the complex value of water and encourage a systems view to better capture the diverse benefits & spill-over effects

- **Stimulate** innovation & investments by coupling a better articulation of the values of water with related policy instruments

- **Embed** all the above into institutional strengthening & building

- **Support** the trail-blazers – share success stories with others

Choices Before Us