

# JETS

## Bærekraft i praksis

Øyvind Tørlen, CEO

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# The Jets™ story

- Established in 1986 by Olav Hofseth and the Gjerde brothers
- Started as a supplier to the maritime markets
- Successfully expanded into several other markets
- Built on technological innovations





Daily savings of **20 mln litres**  
of drinking water\*



**80% export sales**



**500.000**  
vacuum toilets sold



Over **40.000** installations  
worldwide.



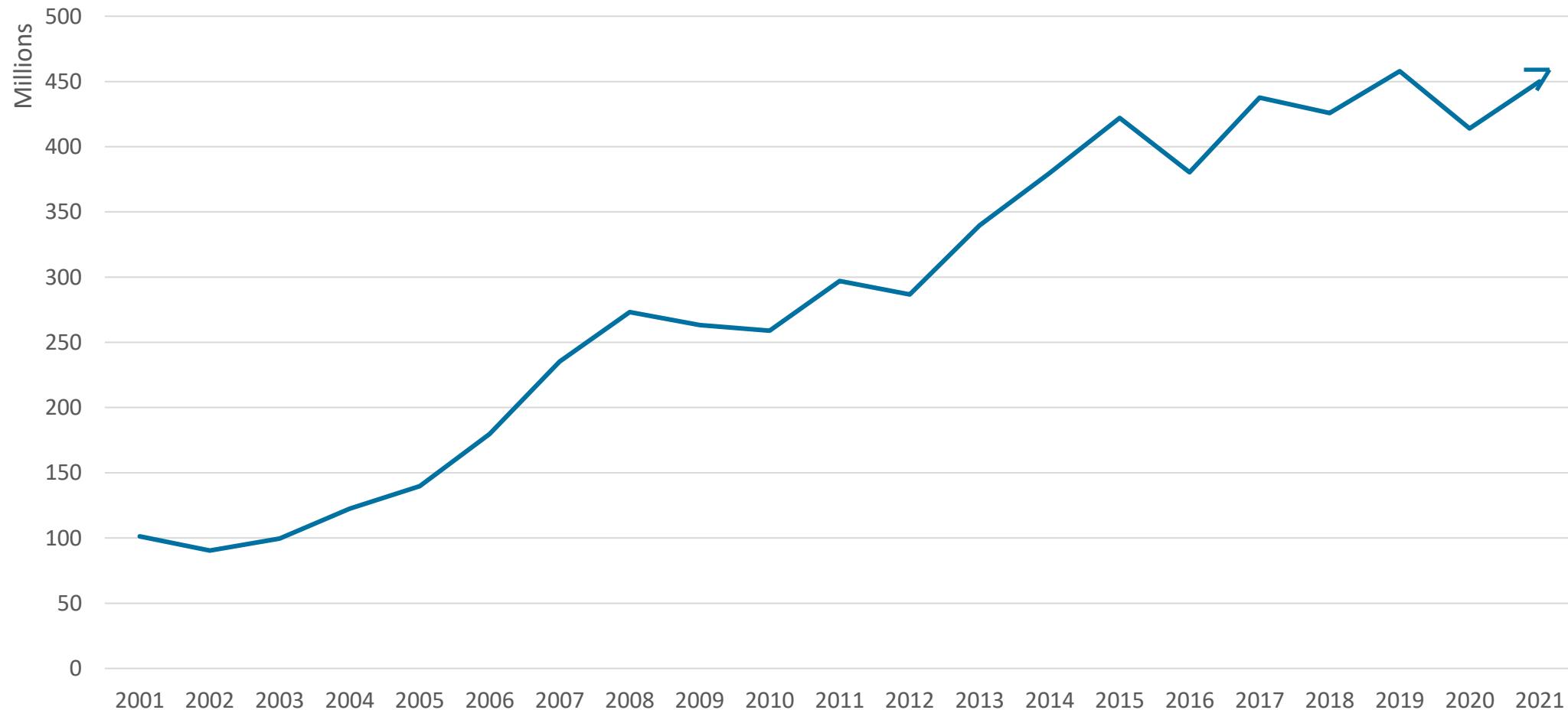
**Global** presence and network  
of representatives



**175** employees

\*Compared to traditional gravity toilets.

## Jets turnover 2001 - 2021





## JETS VISION AND PURPOSE

### VISION

Improving the world through pioneering technology that minimises stress on the planet's most vulnerable resources.

### PURPOSE

We help save our planet by reducing the world's water and energy consumption.

**Pioneering  
eco-efficient  
technology**



## Water down the drain

A modern WC typically flushes 6L of water down the drain

A JETS toilet typically uses only 0,8L of water





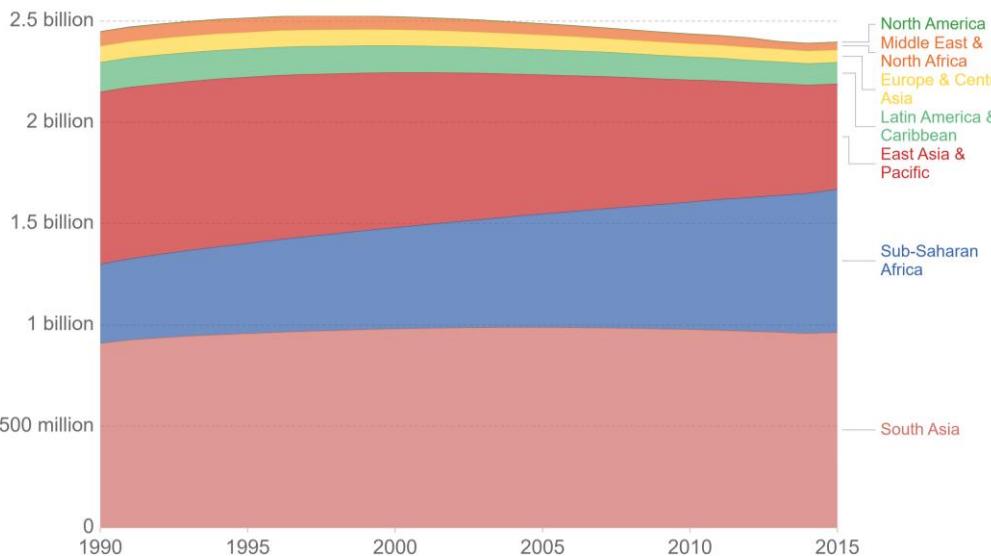
# Market Segments

LAND MARKETS	MARITIME MARKETS	AFTERMARKET
     	     	 <p>Spare parts Retrofits Upgrades Service and warranty</p>

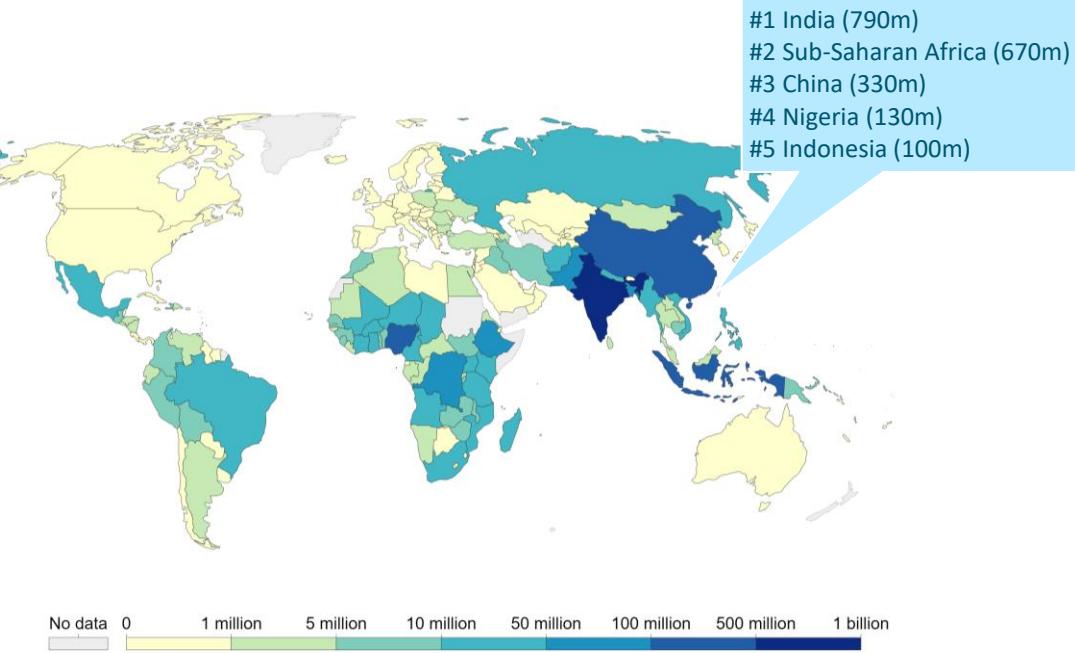
Over the last 25 years, the number of people without access to improved sanitation has been stable at ~2.4bn, mostly living in Asia and Africa

### Number of people without access to improved sanitation facilities, 1990-2015

*Improved sanitation facilities includes flush/pour flush (to piped sewer system, septic tank, pit latrine), ventilated improved pit latrine, pit latrine with slab, and composting toilet*



### Number of people without access to improved sanitation facilities, 2015



# But it is not only a challenge in developing countries

– 20% of Americans are responsible for their own sewage-disposal

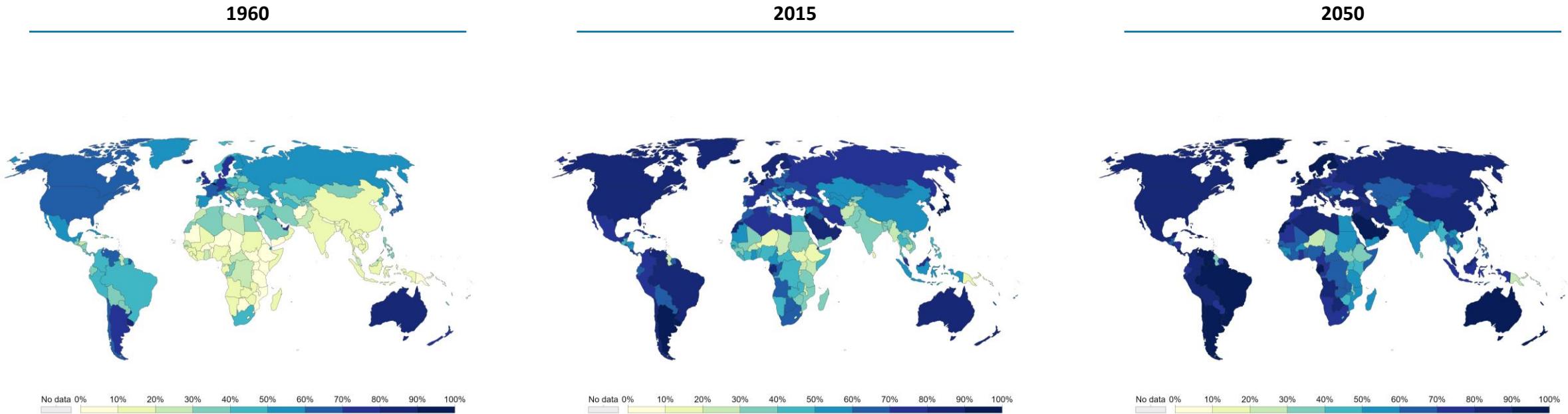
- 2m** More than 2m Americans live **without basic access to safe drinking water and sanitation**
- 44m** More than 44m people are served by **water systems that recently had health-based Safe Drinking Water Act violations**
- 20%** 20% of Americans are septic tank owners - they are **responsible for the maintenance of their own sewage-disposal system**
- 12%** 12% of people living in rural areas **report issues with their sewage system**
- 50k** 23 000 to 75 000 **sanitary-sewer overflows** happen per year (11-35 billion liters of untreated waste)

Water access challenge in the US



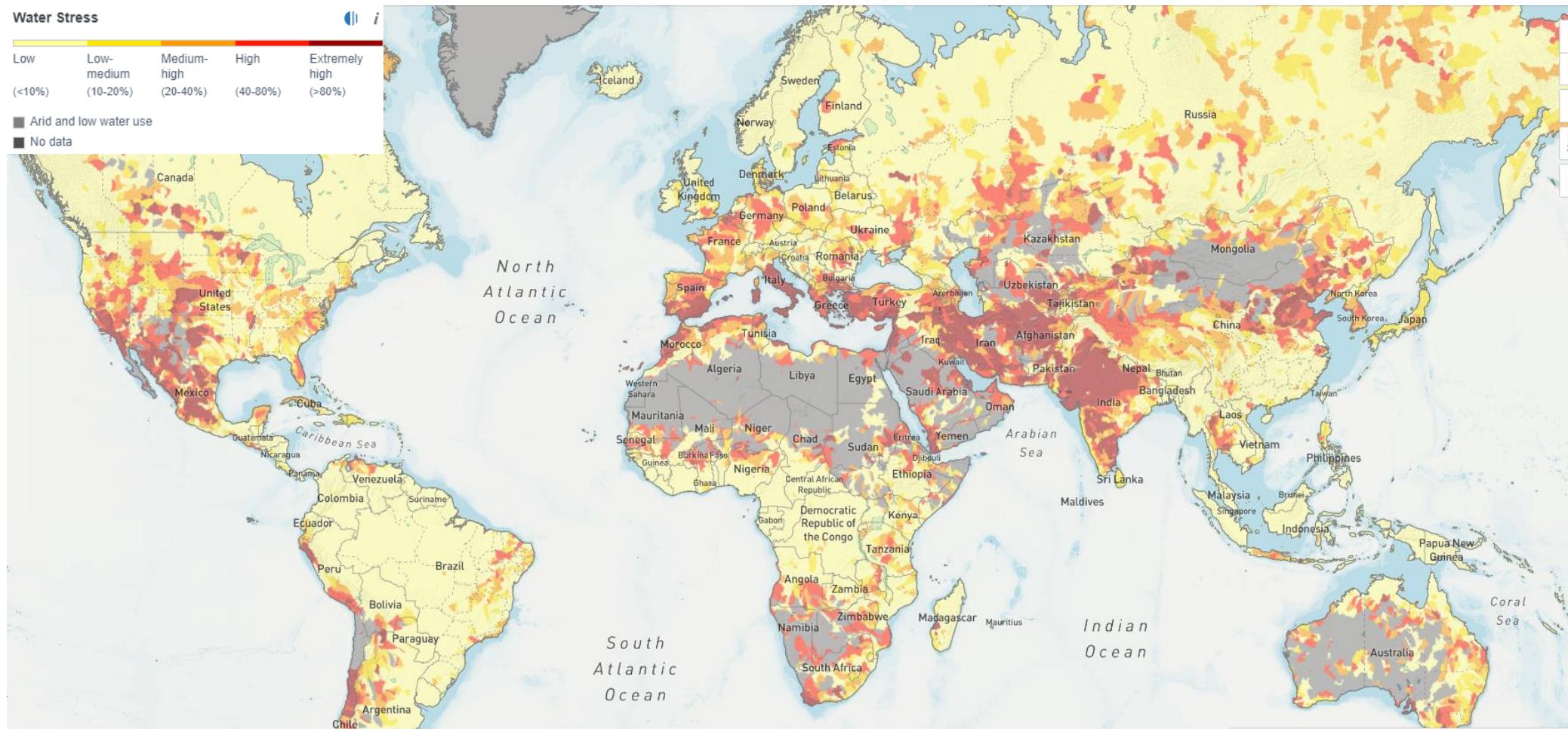
However, with continuous urbanization, increases also the challenges of access to clean water and sanitation, especially in developing countries ...

Share of population living in urban areas

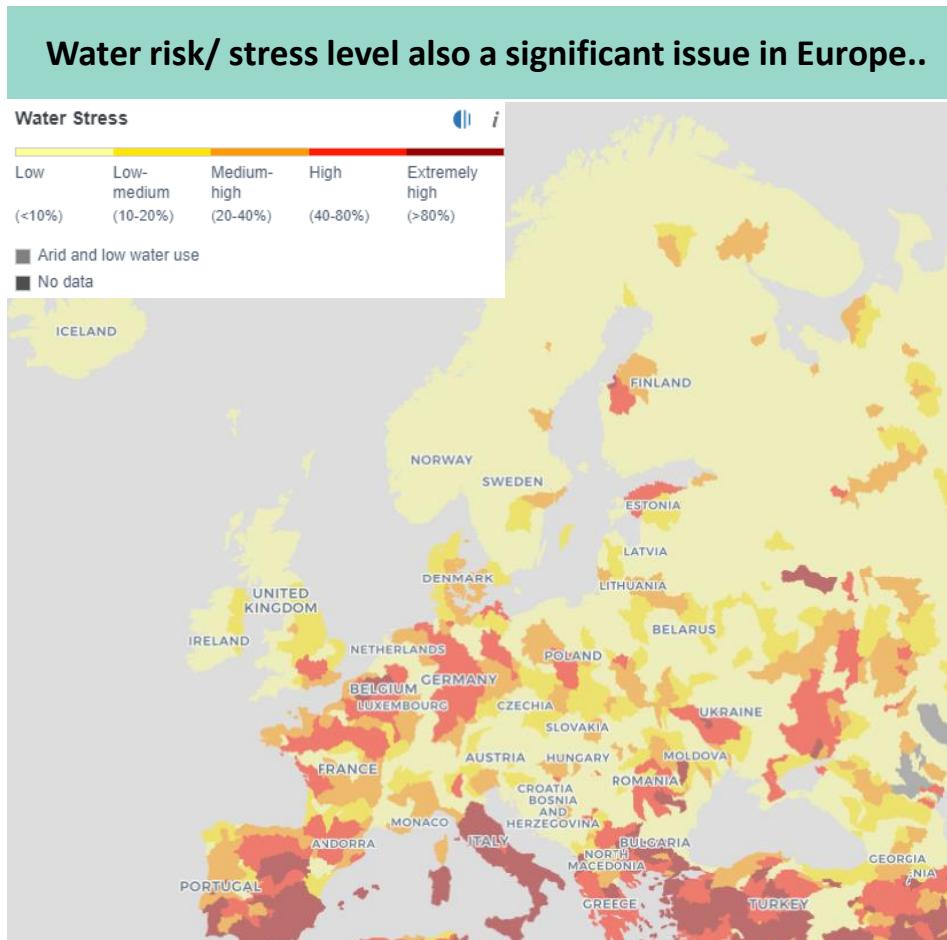


Source: Our World In Data

... and water stress levels are a major global issue...



# ... and also an increasing issue in Europe



Source: Water Reuse Europe; World Resource Institute

**... and expected to continue to grow in the coming years**

**More than 50%** of EU river basins expected to be affected by water scarcity by 2030

**Industry (55%)** is the biggest abstractor of water in Europe, followed by **agriculture (24%)**, although agricultural use is predicted to increase sharply over the coming years

Annual renewable freshwater resources per inhabitant decreasing due to several reasons:



Climate change



Growing industry requirements



Population growth/  
urbanization



Individuals' increasing water footprint

**Less than 3%** of urban wastewater is reused in the whole of Europe

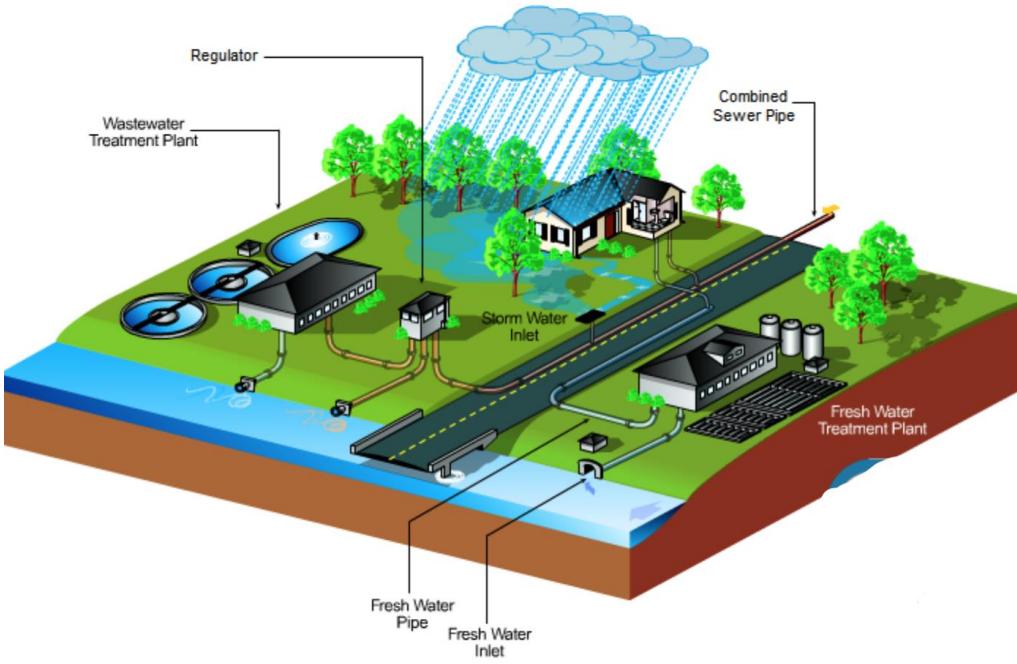
# Source separation



 **JETS™**

# Traditional sewage systems in most developed countries do not separate greywater and blackwater

Traditional sewage system

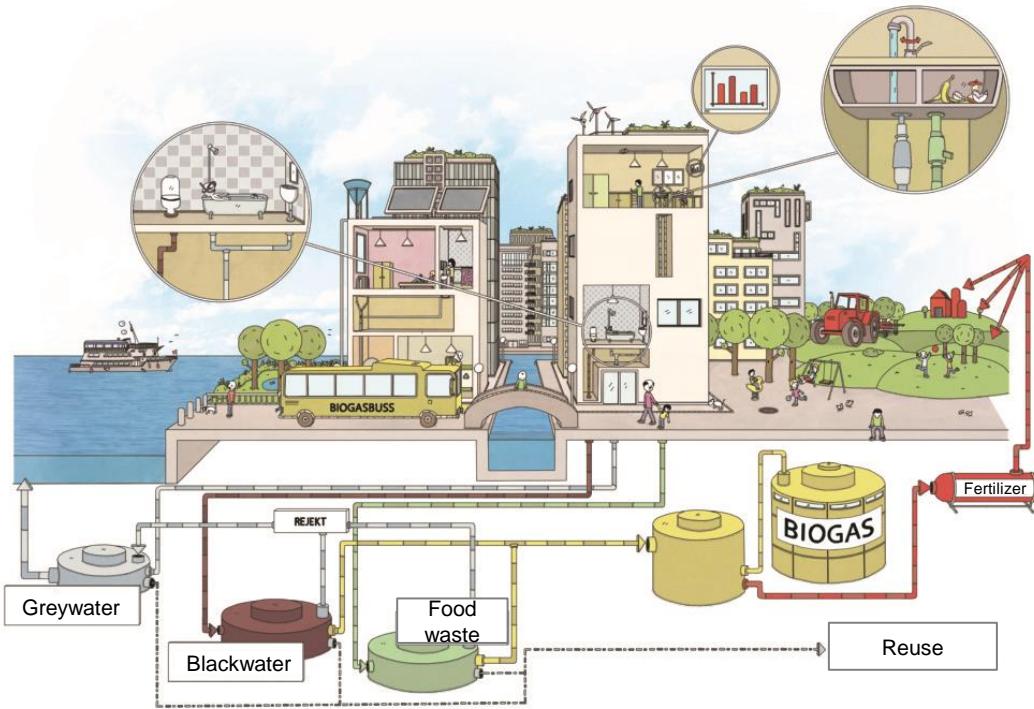


What are the disadvantages with today's system?

- ❖ High availability of water required (high water consumption)
- ❖ Efficient only in concentrated settlements
- ❖ Long planning horizons and slow population growth required
- ❖ High (up-front) investments in central infrastructure with long construction/lead times
- ❖ Inflexible system with fixed capacity and transport over long distances
- ❖ Elimination of nutrients instead of reuse  
(in Germany traditional WWTP need to be upgraded to recover valuable materials)
- ❖ Diverting water from sources of origin  
(dilution of groundwater sources)
- ❖ Risks of overflows and contamination/pollution when combined sewer system cannot handle storm water

# New Sanitation as circular and more sustainable concept...

New Sanitation System



What is different compared to the traditional system?

- ✓ Circular and more sustainable system
- ✓ Source separation (greywater and blackwater) to reduce water, energy and CO<sub>2</sub> and reuse and recover materials and energy
- ✓ Reuse food waste onsite, increasing nutrient content of concentrated blackwater and reduced waste management cost
- ✓ Reuse heat from greywater to provide heat to households
- ✓ Vacuum toilets to reduce water and concentrate blackwater
- ✓ Lower infrastructure cost requirements for newbuilds/greenfield investment

# ... aims to mitigate significant issues with existing water and sanitation infrastructure and provides opportunities for innovation and growth

Still many with limited access to sanitation and clean water ...

- An estimated **2.4 billion** people are still without improved and **13%** of the population lives without any form of sanitation
- Poor sanitation cost the world around **USD 223 billion** in 2015

... in a world that faces increasingly shortages of water, ...

- 22%** of the world's water basins are stressed today, accounting for **51%** of withdrawn water volume
- Water scarcity to intensify over next 20 years, esp. across countries with limited scarcity today



... relying mostly on costly and aging water and wastewater infrastructure ...

- The EU 28 estimates that it will be necessary to invest ca. **EUR 25 billion** annually to rehabilitate and construct new sewers and wastewater treatment plants

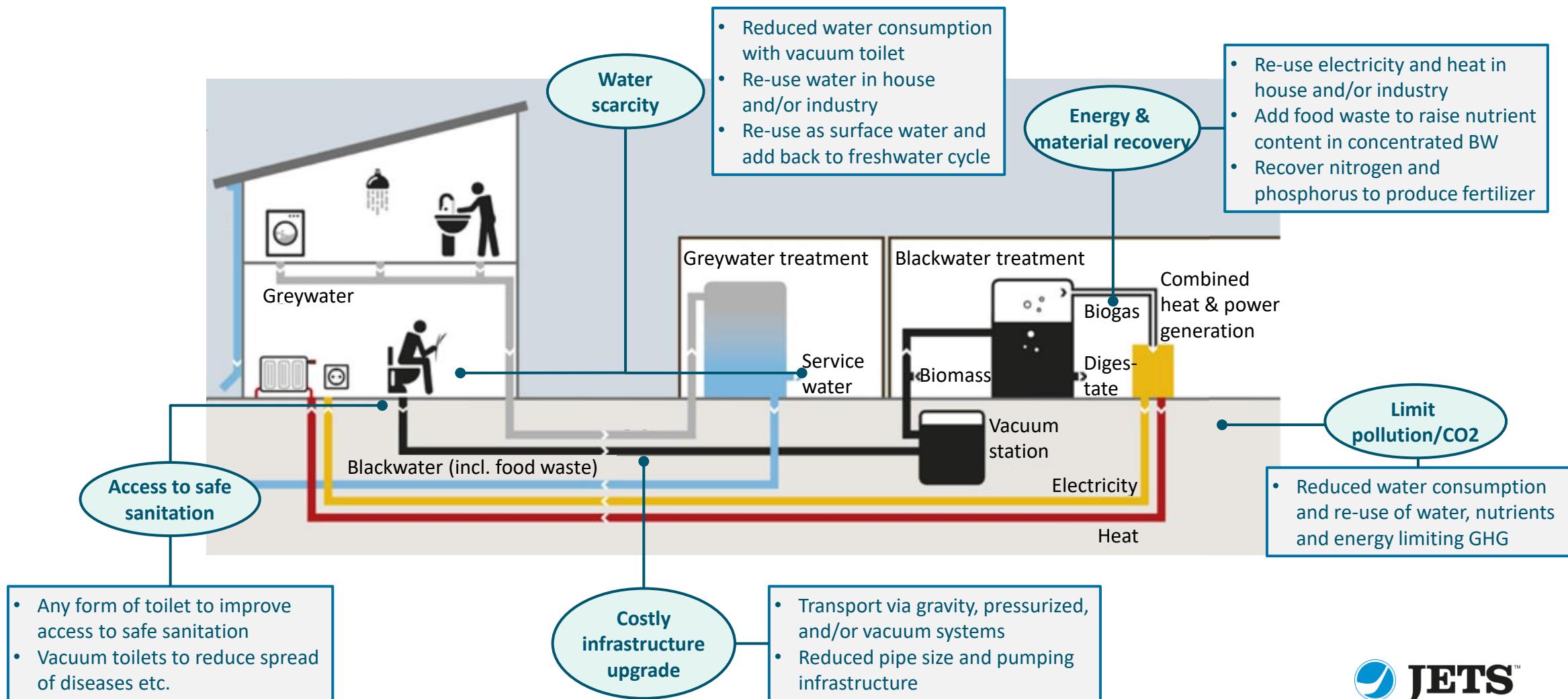
... as well as the opportunity to mitigate climate change.

- Wastewater treatment plants account to **3%** of greenhouse gas (GHG) emissions globally
- Treating wastewater reduces its GHG emission by **one-third**

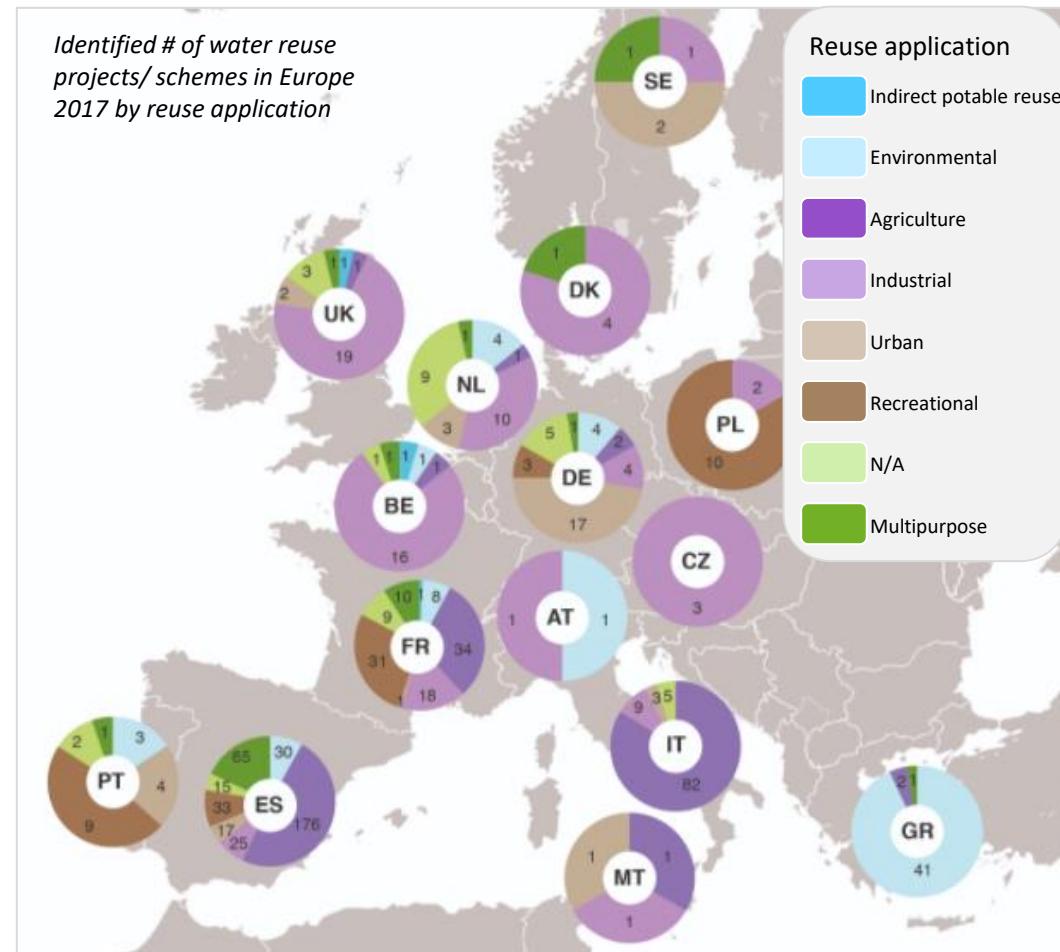
... and ignoring the untapped potential of material and energy sources ...

- Only **0.9bn out of 40bn m<sup>3</sup>** treated wastewater is reused in the EU
- Greywater accounts for **75% up to 90%** of wastewater volume per household

# Five main issues underly the new sanitation trend



# Projects/schemes for water reuse in Europe starting to pick up pace



**Reuse application**

- Indirect potable reuse
- Environmental
- Agriculture
- Industrial
- Urban
- Recreational
- N/A
- Multipurpose

**Reuse application in Europe mainly agriculture and industrial<sup>1</sup>**

**Vast majority of current projects focused on southern Europe/ Mediterranean**

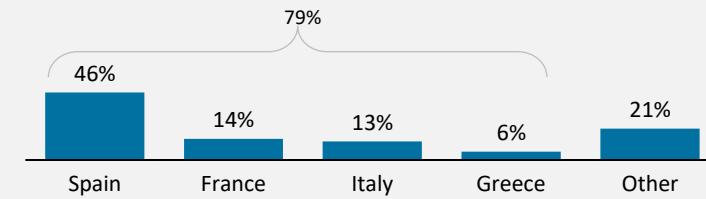
**Significant growth in installed water reuse capacity per year**

**# of projects by Reuse application**

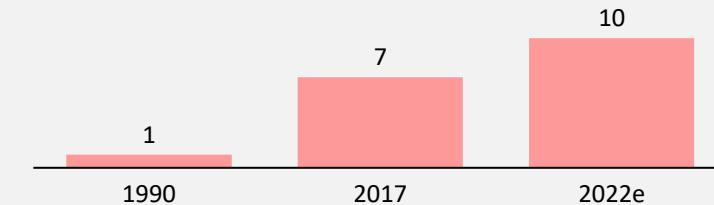
Agricultural	304
Industrial	113
Recreational	91
Environmental	91
Multipurpose	87
Urban	51
Indirect Potable Reuse	3
N/A	44

*N = 784 projects*

**% of schemes/ projects**

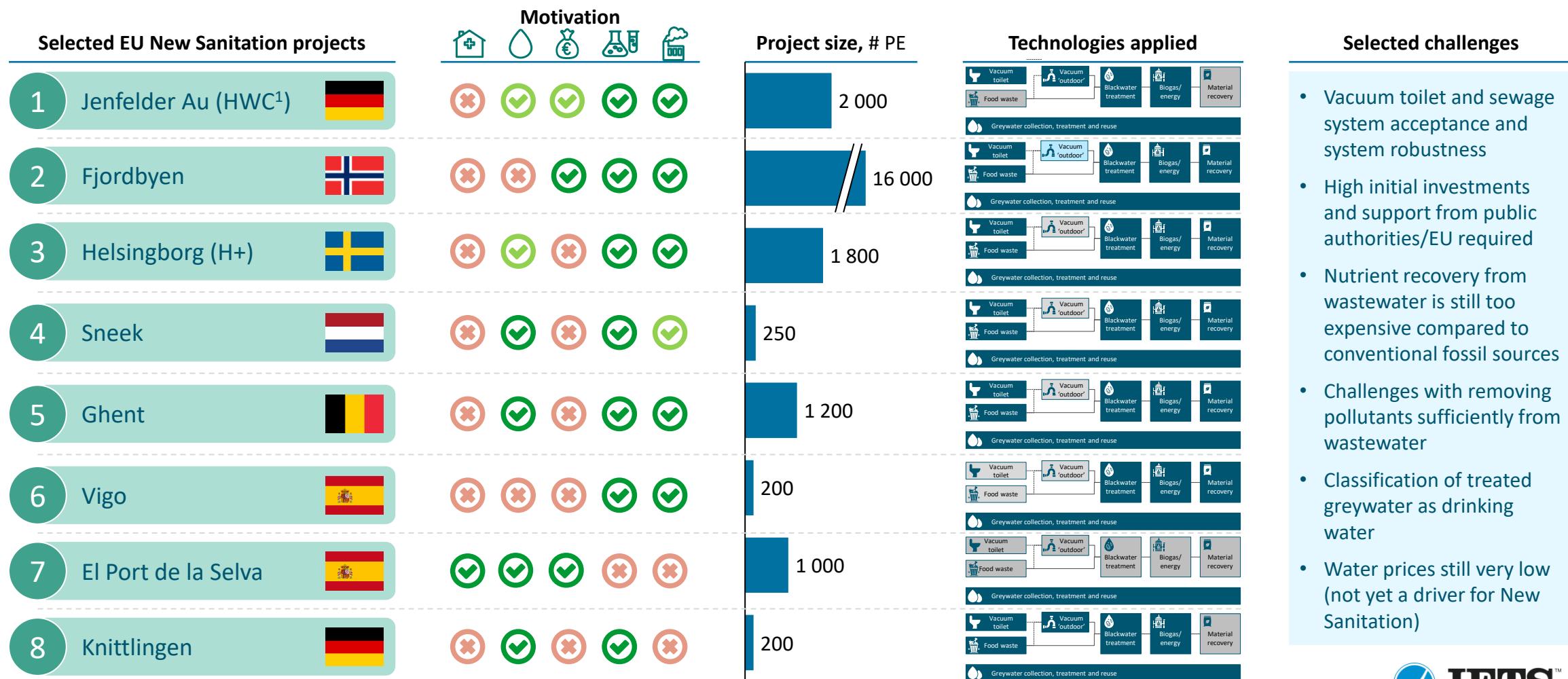


**Global growth in million m<sup>3</sup> / d water reuse capacity installed p.y.**



1. Review of sector in 2017 by Water Reuse Europe  
Source: Water Reuse Europe state of the sector 2020;

# Looking at selected projects in Europe, most New Sanitation elements are being implemented in combination



1) HWC = Hamburg Water Cycle; PE = Person Equivalent



Pioneering  
eco-efficient  
technology

# JETS™ Solutions



## Toilet systems

- Water saving
- Reliable operation
- Hygienic



## Greywater treatment

Safe and environmentally friendly wastewater solution for cabins and homes.



## Sewage treatment

Designed to minimize the impact that humans have on the oceans and marine life.



## Discharge stations

Marina pump-out stations can be scaled to suit any harbour - using the same core technology.



## Condensate water removal

A smarter, simpler and more profitable system for transporting condensate water.

# Jets™ Vacuum Toilets



JETS™ JADE wall



JETS™ JADE floor



JETS™ PEARL



JETS™ CHARM

## VACUUMARATOR™ PUMPS BY JETS™



JETS™ ULTIMA



JETS™ EDGE SMALL



JETS™ EDGE MEDIUM



JETS™ EDGE LARGE



JETS™ EDGE X-LARGE



