



"Treasure in the toilet"

some examples from source separated sanitation in Europe

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DeSaH B.V.



- Consultancy, engineering and contracting firm
- Founded in 2005
- Sustainable and innovative Sanitation
- Operation & Maintenance
- Leading

Basic principles of DeSaH

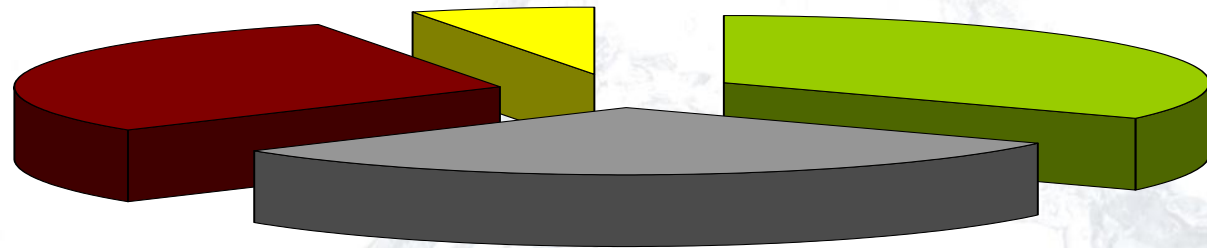


- Keeping concentrated wastewater separated from diluted wastewater.
- Concentrated wastewater is much easier and (cost-) effective to treat
- Two separate sewers are installed; for concentrated and for diluted wastewater
- Diluted wastewater can after treatment be reused f.i. for irrigation purposes or toilet flushing

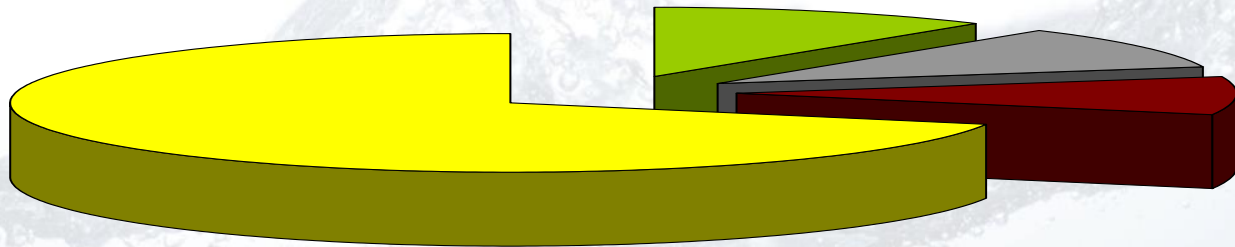
Charact. of wastewater flows



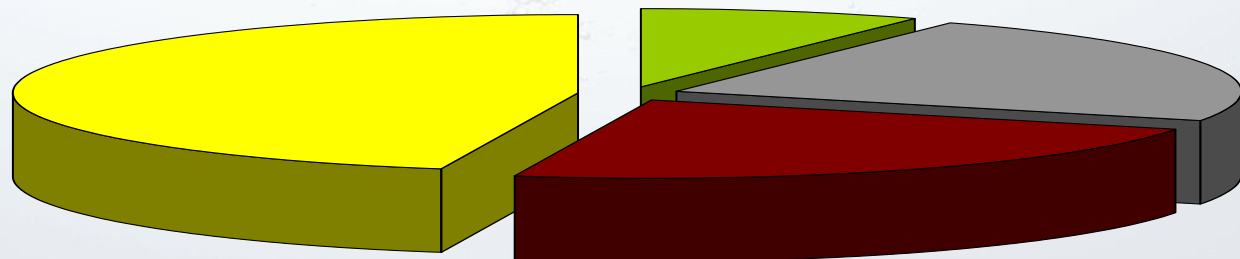
Organic
material
(energy)



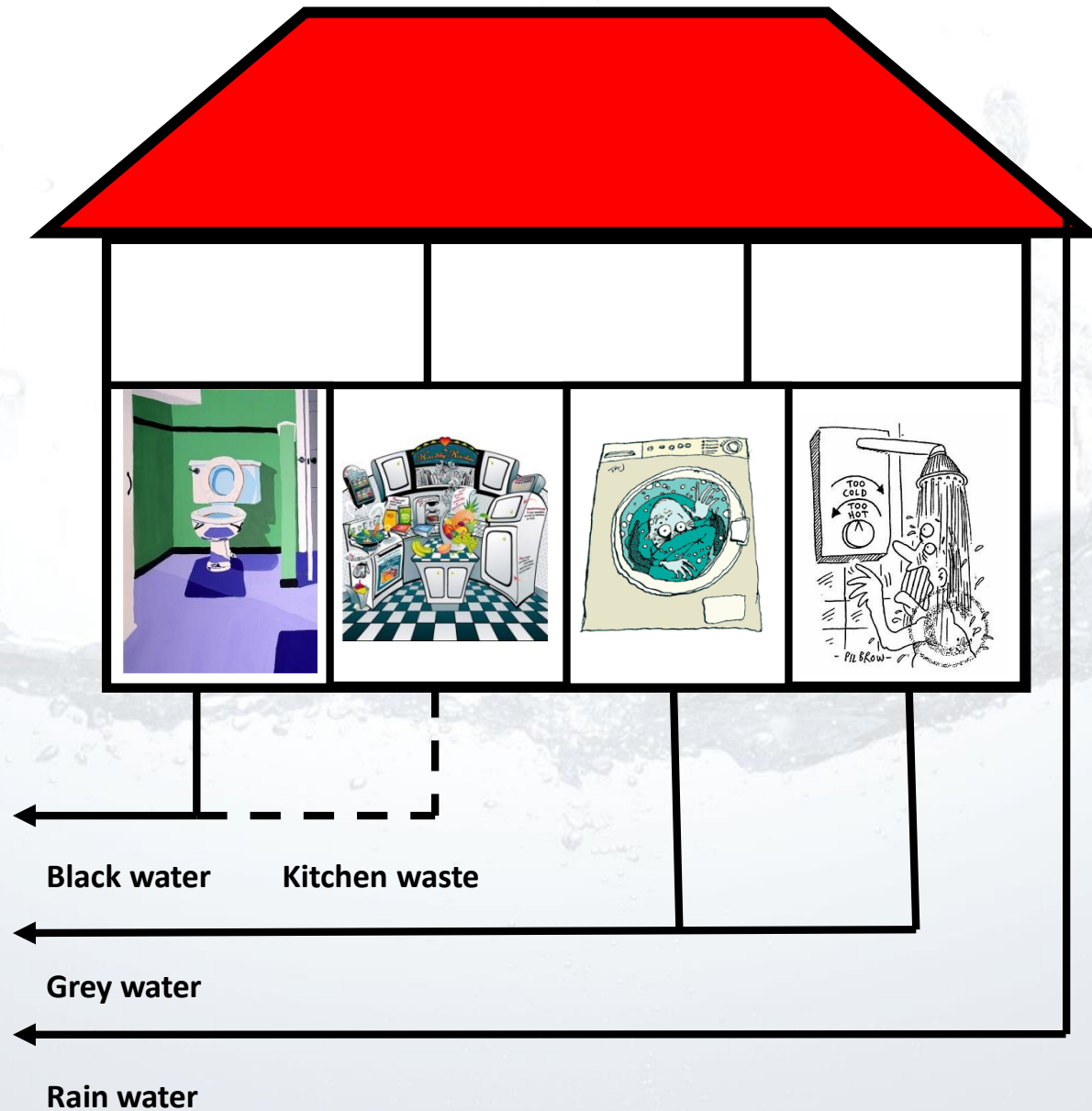
Nitrogen



Phosphorous



DeSaH

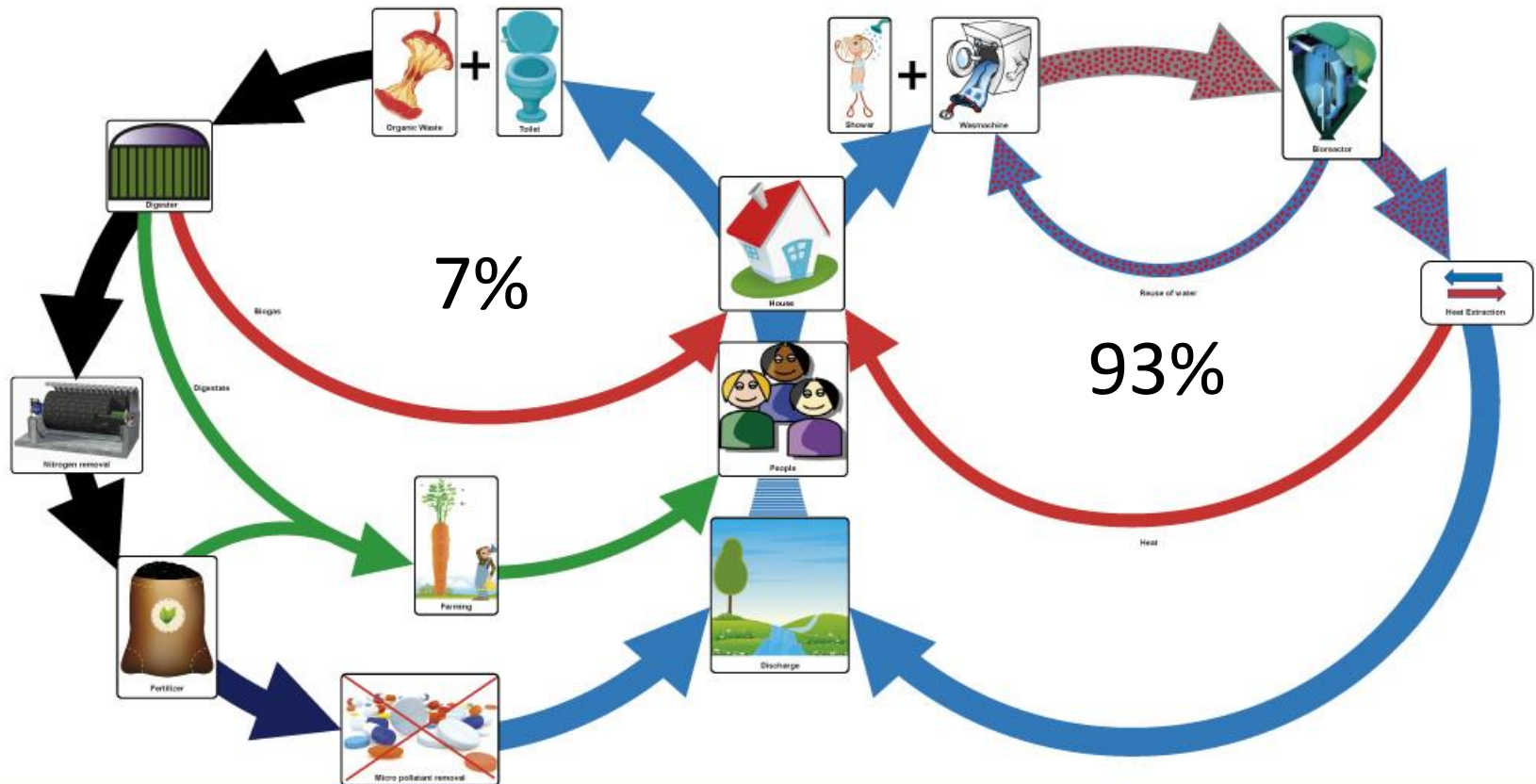


Schematic overview

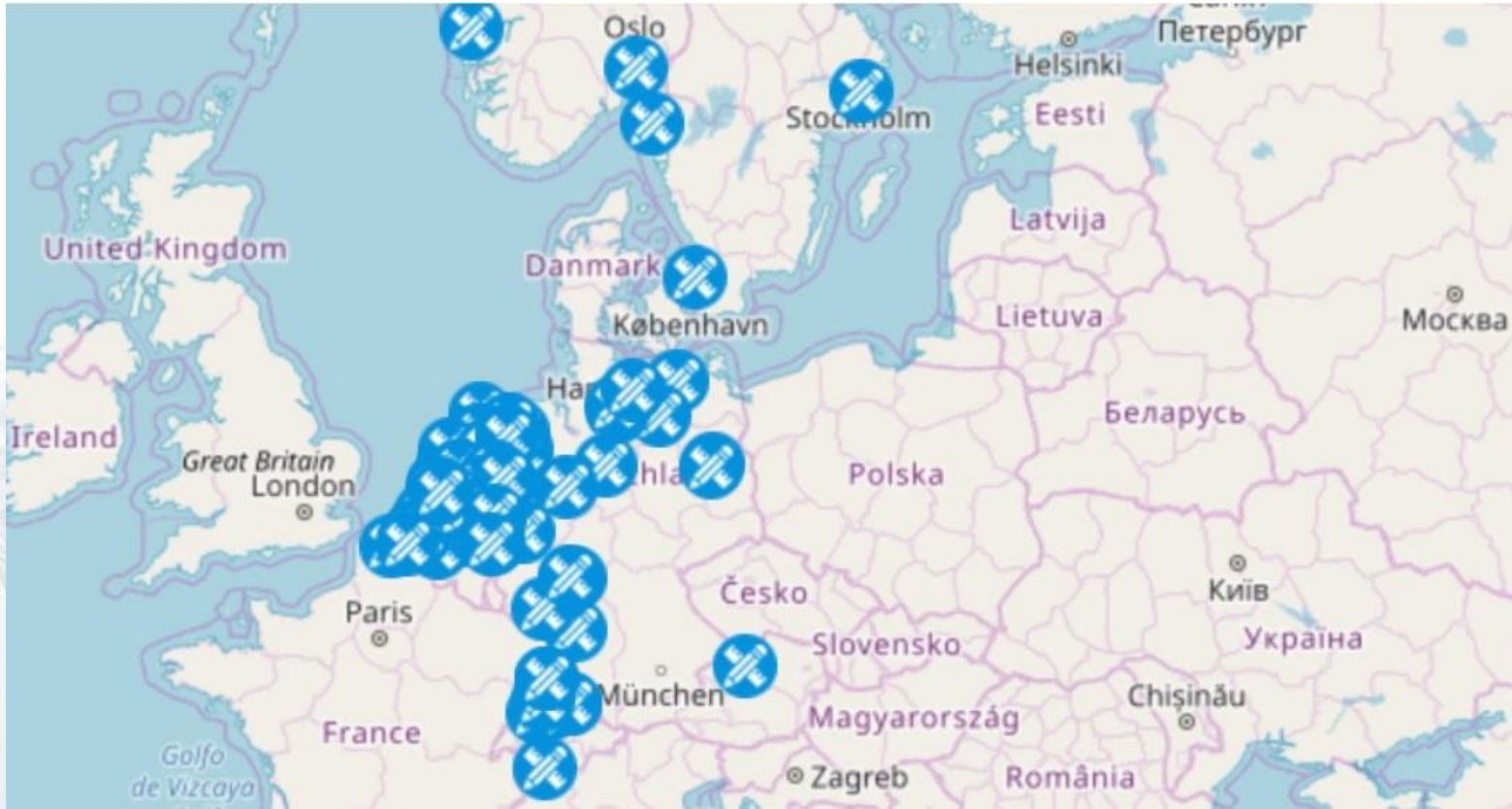


Sustainable Sanitation Concepts

based on energy and nutrient recovery and water reuse



Project overview Europe



Most projects are executed in North West Europe (especially Scandinavia, Swiss, Germany and The Netherlands)

Project overview Netherlands



implementation projects with more than 200 PE connected (design and commissioned) in The Netherlands

Run4Life – European project



Funded by the European Commission
under the framework of H2020
with GA730285



3 launching customers



2 existing demo sites, 2 new built



multiple wastewater flows

Why?



Wastewater has value and should not be wasted



Wastewater is a dependable source of water, nutrients and energy.



No dependance on extensive infrastructure



Much more cost effective than competing on site treatment systems (like MBR)

Where?



Buildings (e.g. hotels, resorts, office buildings and recreational facilities) and housing estates



Remote locations (e.g. oil and gas drilling sites, mining sites and army bases) and rural areas

Where?



New tower buildings within densifying cities that lack capacity of existing infrastructure. As an alternative to extension of existing infrastructure.

1.5 million people are added to the global urban population **every week**



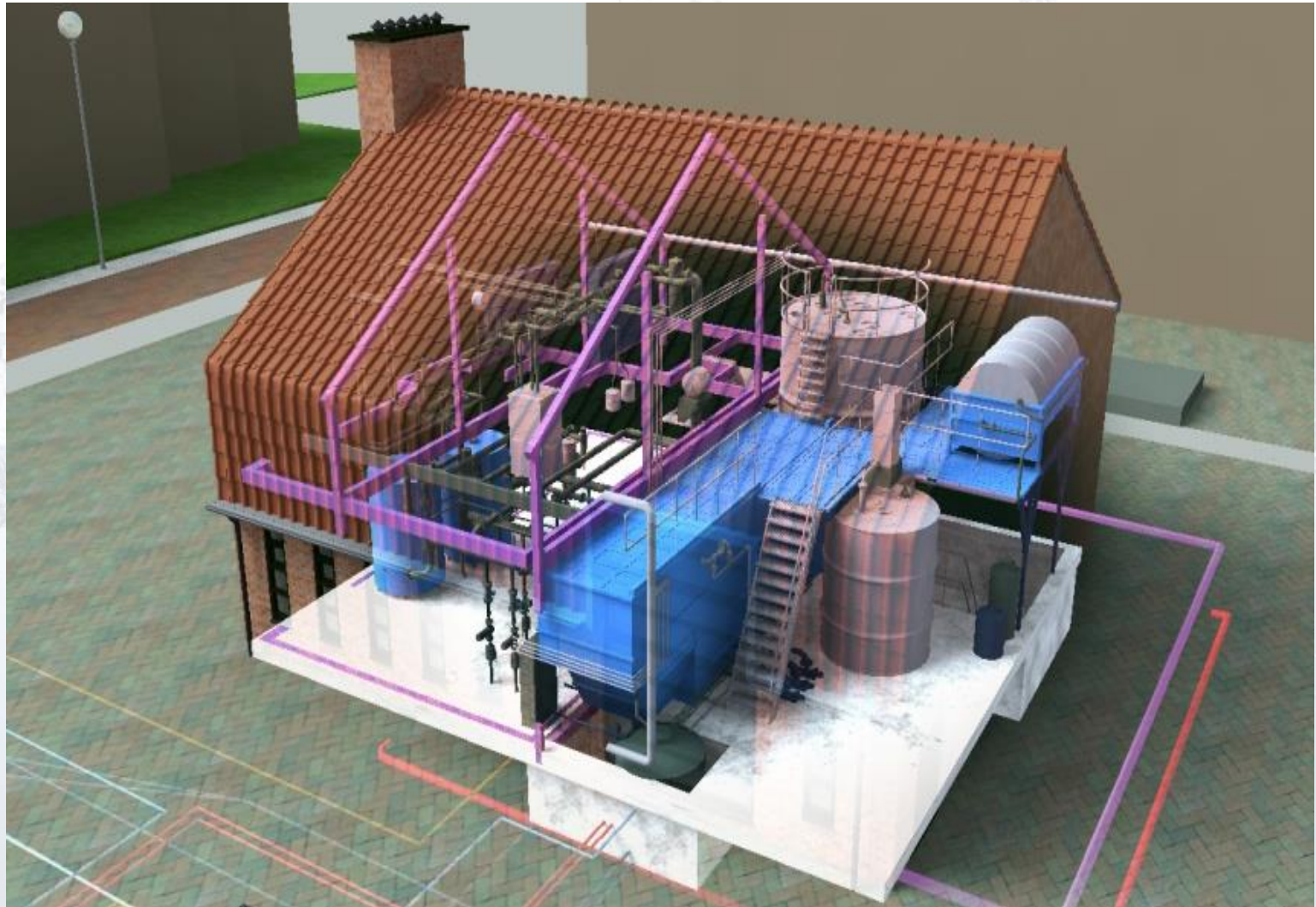
PwC analysis (United Nations Population Division (2014))

\$8 trillion in infrastructure spending will be needed in **New York, Beijing, Shanghai** and **London** over the next **10 years**











Source: PwC analysis

How does it look?

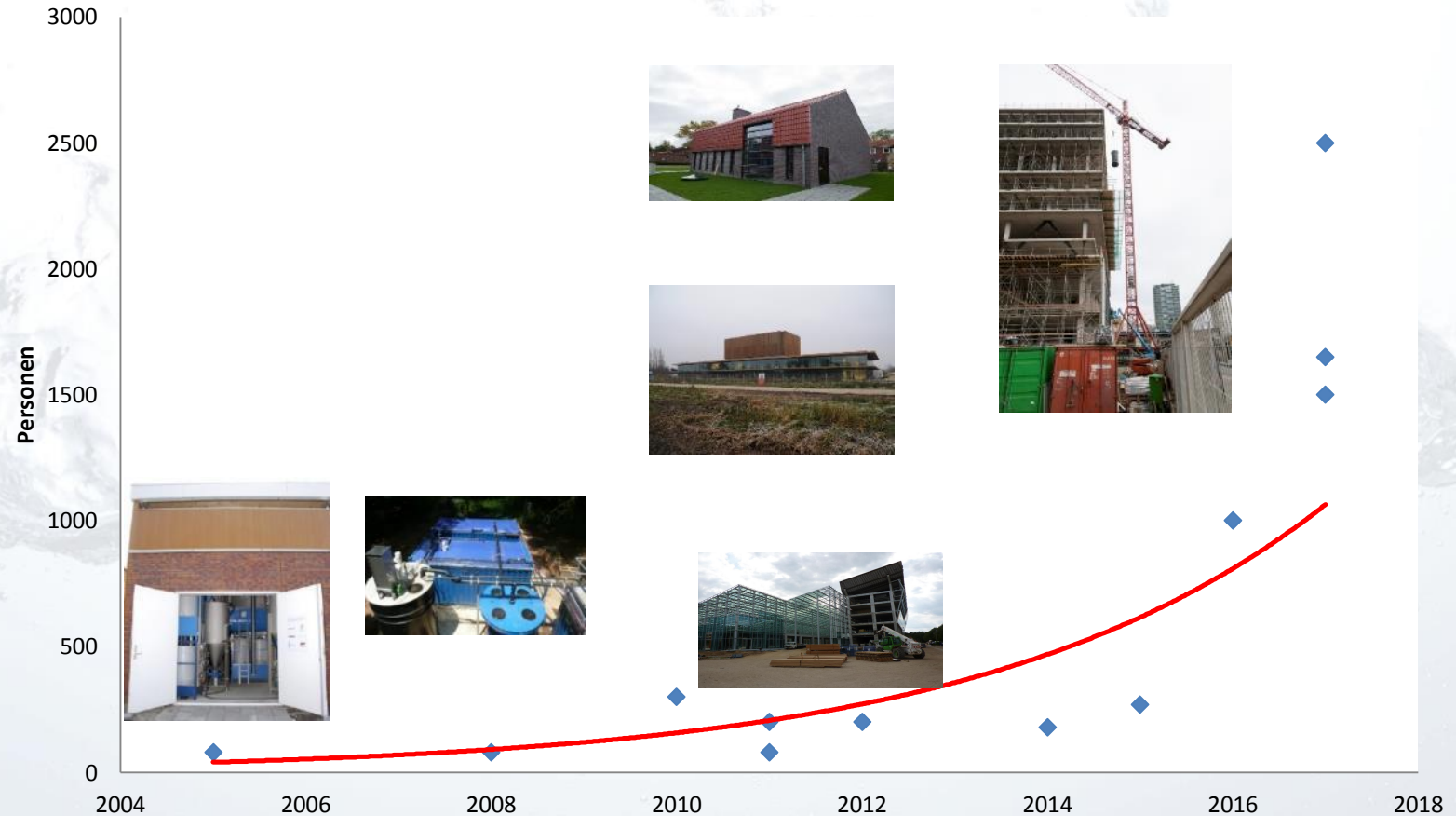


Advantages DeSaH



-  Energy production
-  Water saving of at least 25%
-  Treatment of wastewater and organic waste
-  Closing energy and nutrient loop
-  No harmful by-products
-  Very high removal efficiencies
-  More cost effective on the long run
-  Its operation generates money in stead of consuming

References of DeSaH B.V.



NIOO, Wageningen



Villa Flora, Venlo



Noorderhoek, Sneek



Rijnstraat 8, Den Haag

