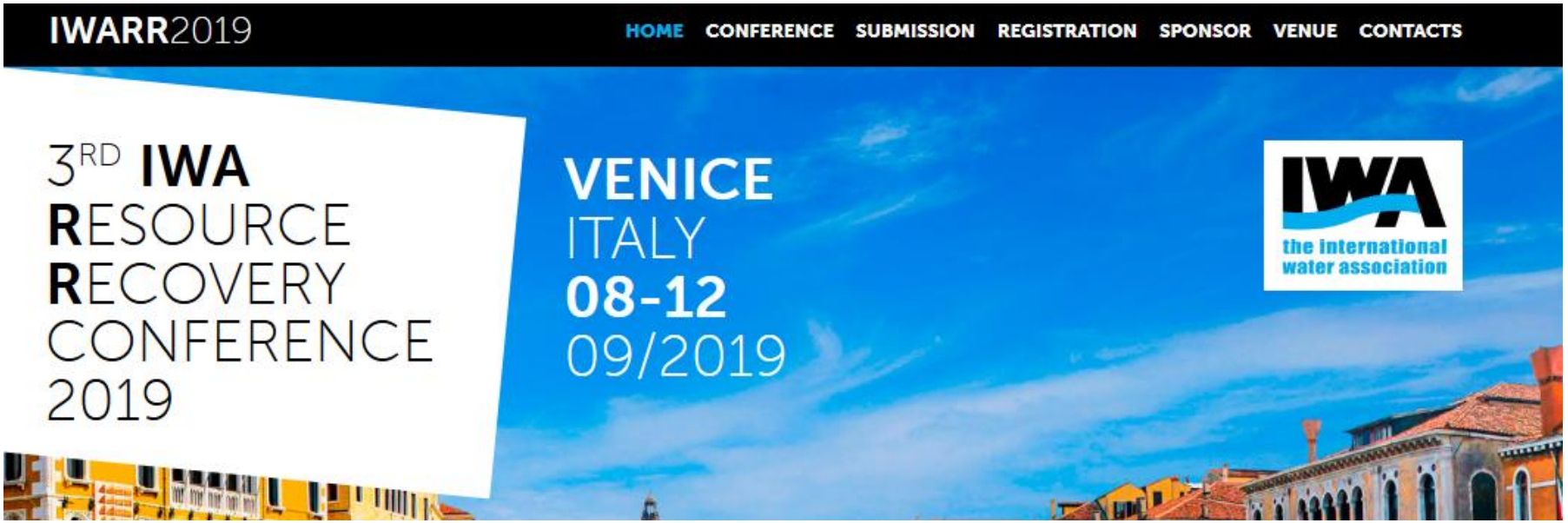
FESTIVAL dell'ACQUA

UTILITALIA
imprese acqua ambiente energia

VENEZIA
10-11 OTTOBRE 2019
Fondazione Querini Stampalia

VERITAS

Outcomes of the conference: following



https://www.iwarr2019.org/

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3RD IWA Resource Recovery Conference 2019

Co-organized by

H2020 Water Innovations for sustainable impacts in industries and utilities

post-conference workshop @ IWA RR 2019, Venice (IT) 11/09/2019
chaired by H2020 projects SMART-Plant, Hydrousa and NextGen
co-organized by EASME

The workshop include:

- Pitch presentations showcasing the outcomes/progress of innovative H2020 projects in front of selected audience of utilities and industries for circular economy solutions in the water sector.
- Discussion with panel of experts with a strong focus on the viewpoints of the end-user / consumer and the regulator in relation with (but not limited too) water & energy, water reuse, nutrients recovery, organics recovery, C-footprint and integration in the water tariff.
- Break-out session to discuss opportunities and challenges related to the market uptake of the proposed circular economy solutions, replication and widespread adoption of resource recovery from water in urban water management.

Target participants:

We encourage researchers, utilities, water professionals, technology providers, policy makers, consultants to participate in this workshop as well as market segments and industries outside of the water sector that can valorize the recovered resources.

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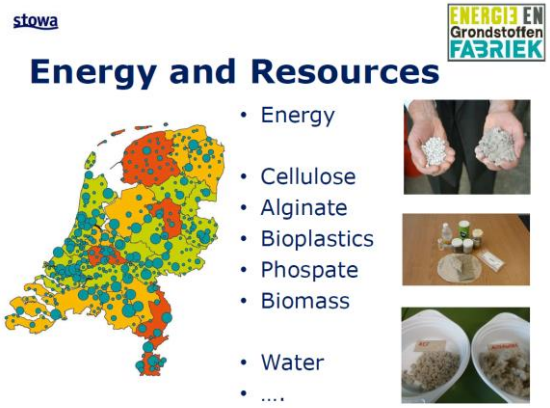
Some scattered steps towards “standard practice”:



Recovery potential at regional scale

Innovative sustainable planning

D.Lgs.·xxx¶

Disciplina·della·gestione·dei·fanghi·di·depurazione·delle·acque·reflue·e·attuazione·della·direttiva·86/278/CEE·concernente·la·protezione·dell'ambiente,·in·particolare·del·suolo,·nell'utilizzazione·dei·fanghi·di·depurazione·in·agricoltura¶

e)· promuove· il· recupero· ed· il· riciclo· di· altre· risorse· di· valore· (biopolimeri,·cellulosa,·nutrienti)·da·fanghi·e·a·tal·fine·entro·5·anni·dall’entrata· in· vigore· del· presente· decreto· valuta· l’opportunità· di· modificarlo·al·fine·di·inserirvi·disposizioni·specifiche·per·incentivare·il·succitato·recupero·sostenibile·ed·il·riciclo·in·sicurezza·di·altre·risorse·di·valore¶

Italian national (draft) decree on sludge management and decrees for P recovery

Legislation and regulation

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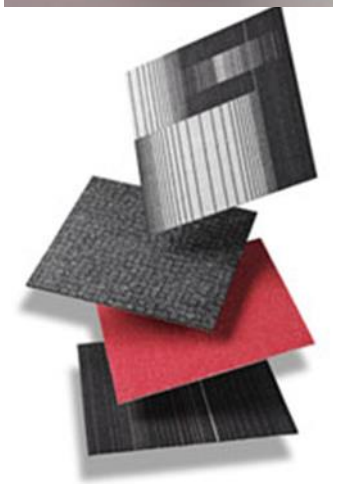
Example: calcite from softening drinking water

aqua minerals

Courtesy of



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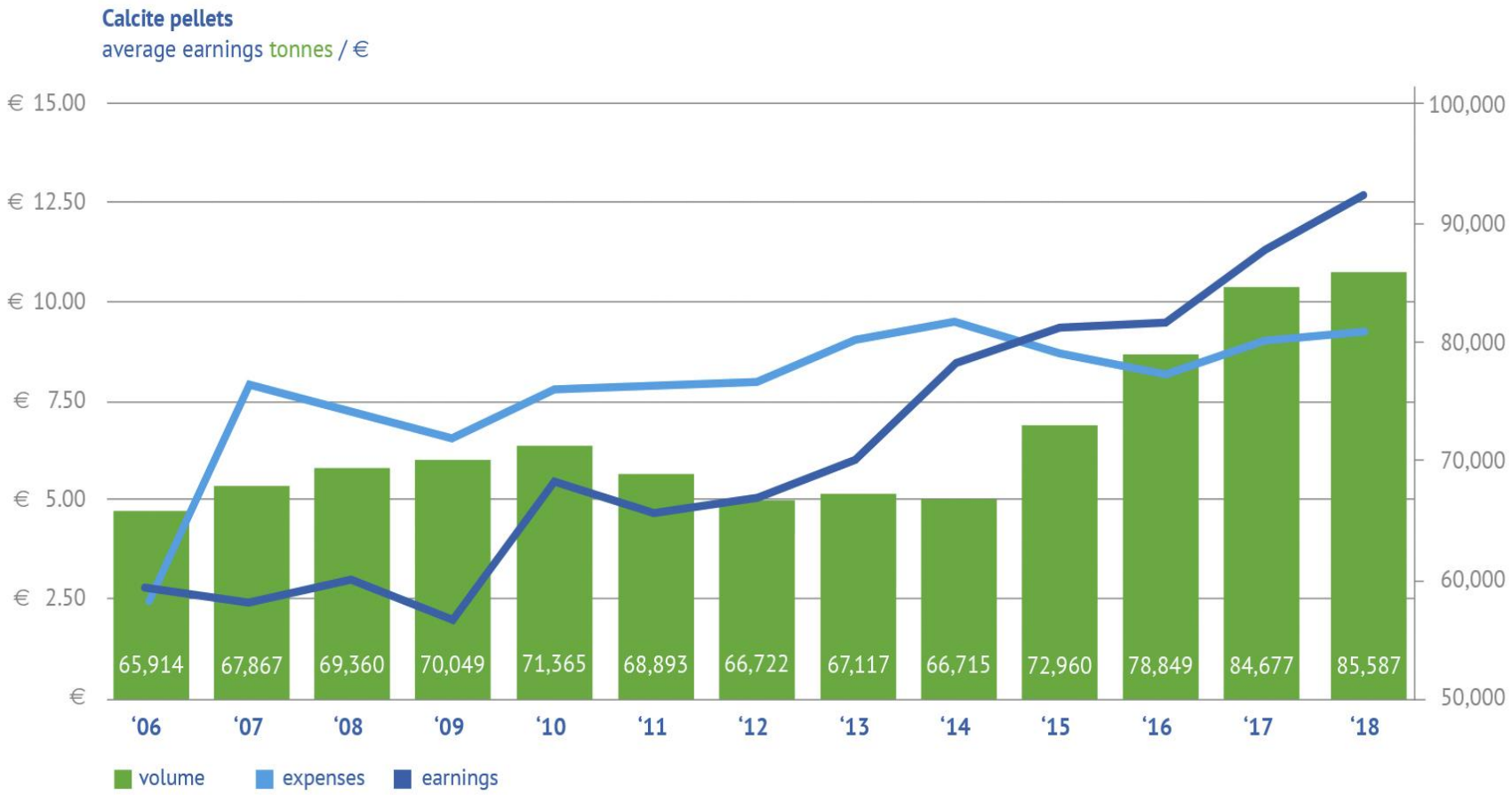
Economics: positive business cases

aqua minerals
Courtesy of



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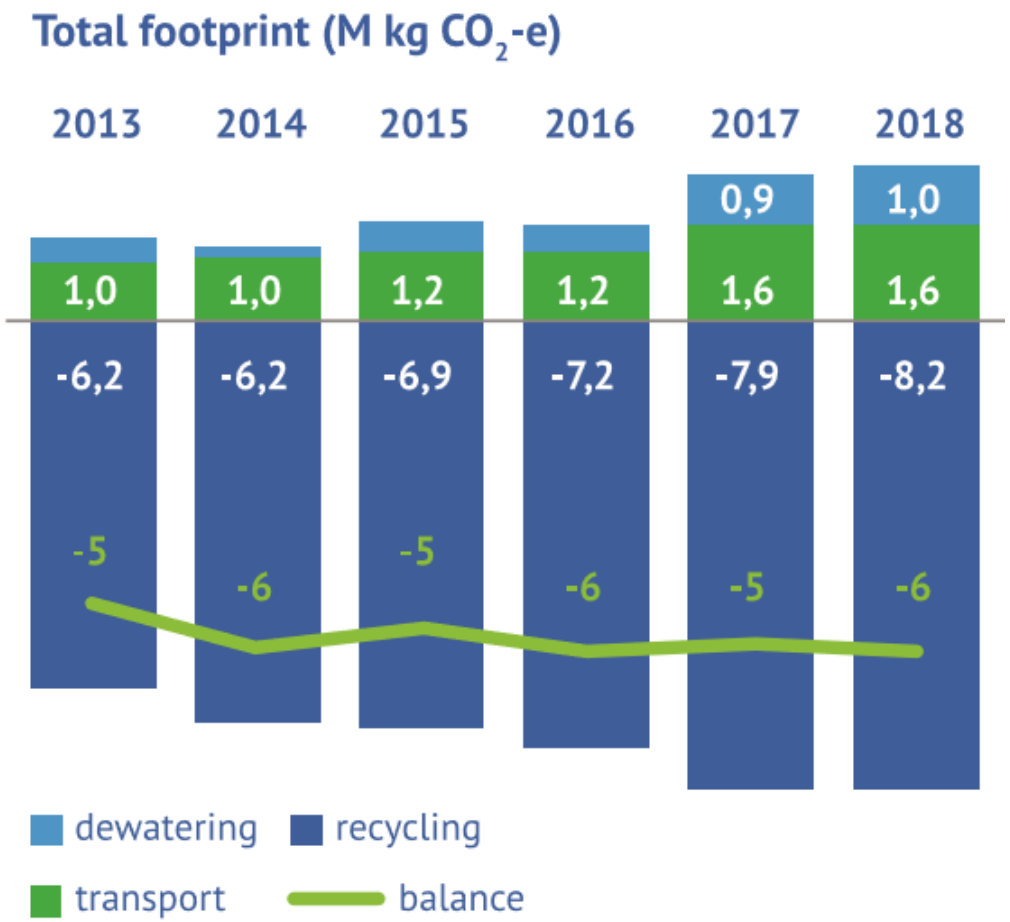
Economics: positive business cases

aqua minerals
Courtesy of



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Example: cellulose from wastewater

aqua minerals

Courtesy of

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What about the circular cities?

Netherlands circular by 2050

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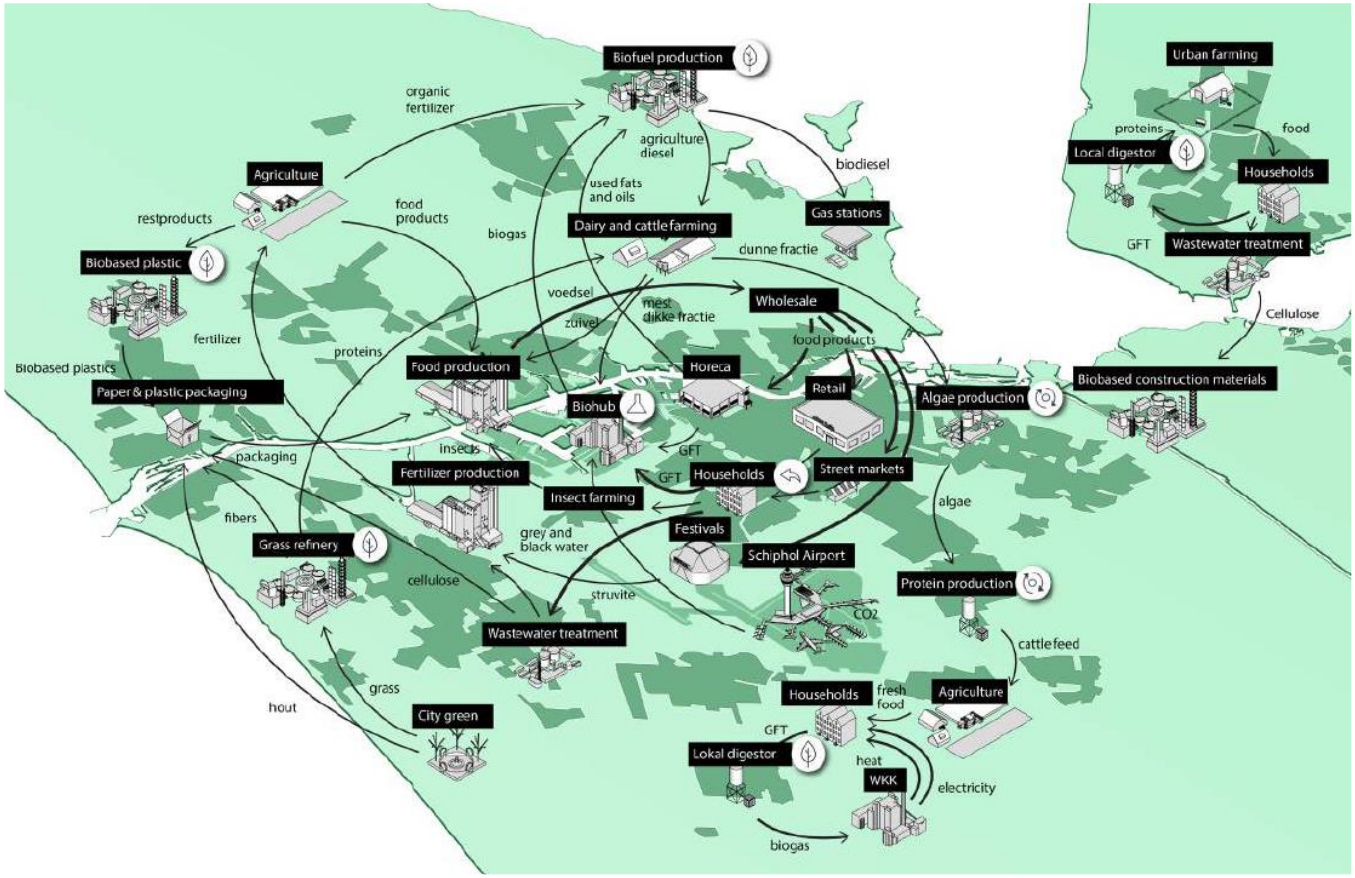
Vision of the organic residual stream



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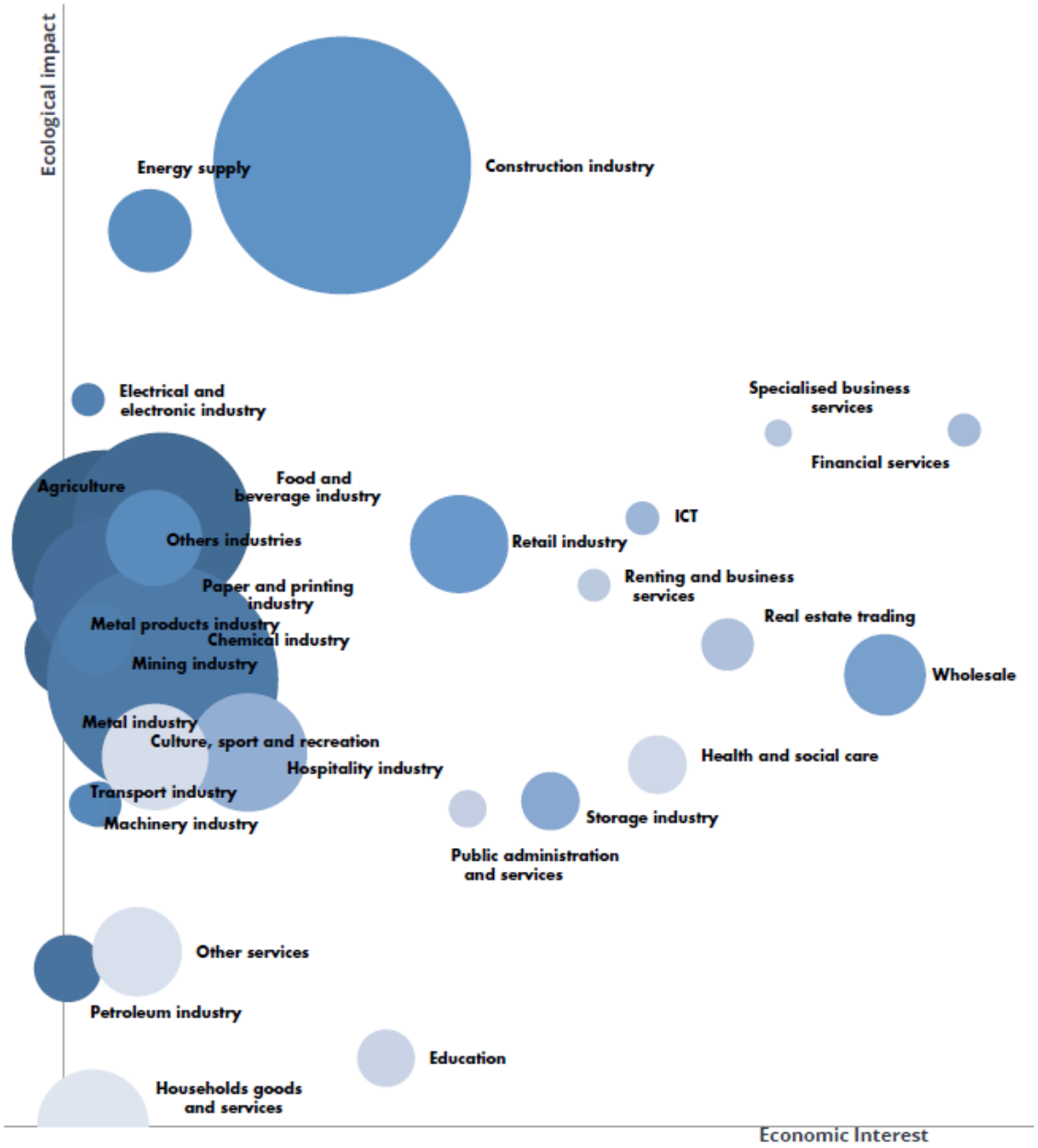

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Water and/or wastewater central in the "Circular Economy Package"?

Circular Economy Package mainly aim at <u>facilitating water reuse</u> - this will include a legislative proposal on **<u>minimum requirements for reused water, for example for irrigation and groundwater recharge</u>**

Source: https://www.eip-water.eu/water-%E2%80%9Ccircular-economy-package%E2%80%9D

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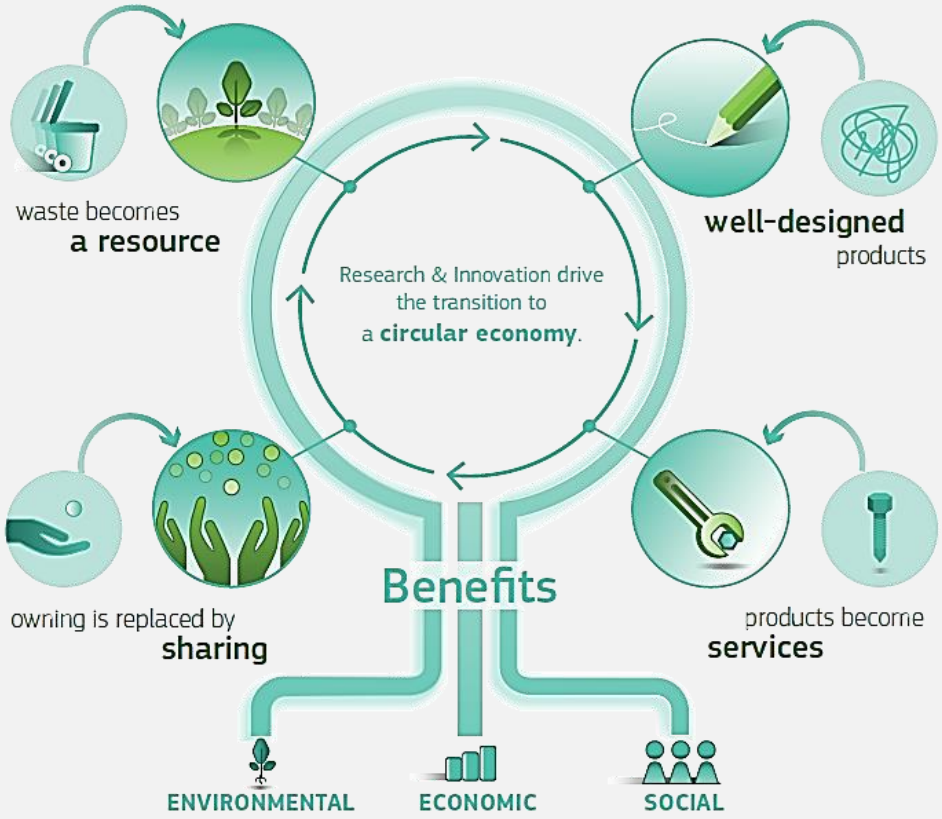
HORIZON 2020 SUPPORT TO CIRCULAR ECONOMY



- **Going beyond waste** - Interdependence across the Value Chain
- **All form of innovations:** (technological and non-technological)
- **Large scale demonstration project**
- **Focus on impact**

https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/ce_booklet.pdf

European Commission

"Waste" and "Water" focus areas
2014-2015: € 190 M

"Industry 2020 in the Circular Economy"
2016-2017: € 650 M

"Connecting economic and environmental gains – the Circular Economy"
2018-2020: € 940 M

65 Water Projects from SC5 H2020 2014-18
Total EU funding € 392 M

Executive Agency for SMEs

H2020
RR Water Projects

19 Projects from SC5
EU funding € 126 M
Private org.: 45.7%
SMEs: 27.97 %

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ZERO BRINE

Water2 REturn

INTEGROIL
WATER REUSE IN THE OIL&GAS SECTOR

INCOVER
Innovative Eco-Technologies for Resource Recovery from Wastewater

Project Ô

POWERSTEP

nextGen

RUN4 LIFE

AquaNES

INNOQUA
innovation for wastewater treatment

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SaltGae
algae to treat saline wastewater

ECWRTI

ITERAMS

iMETland

Sub Sol Subsurface Water Solutions

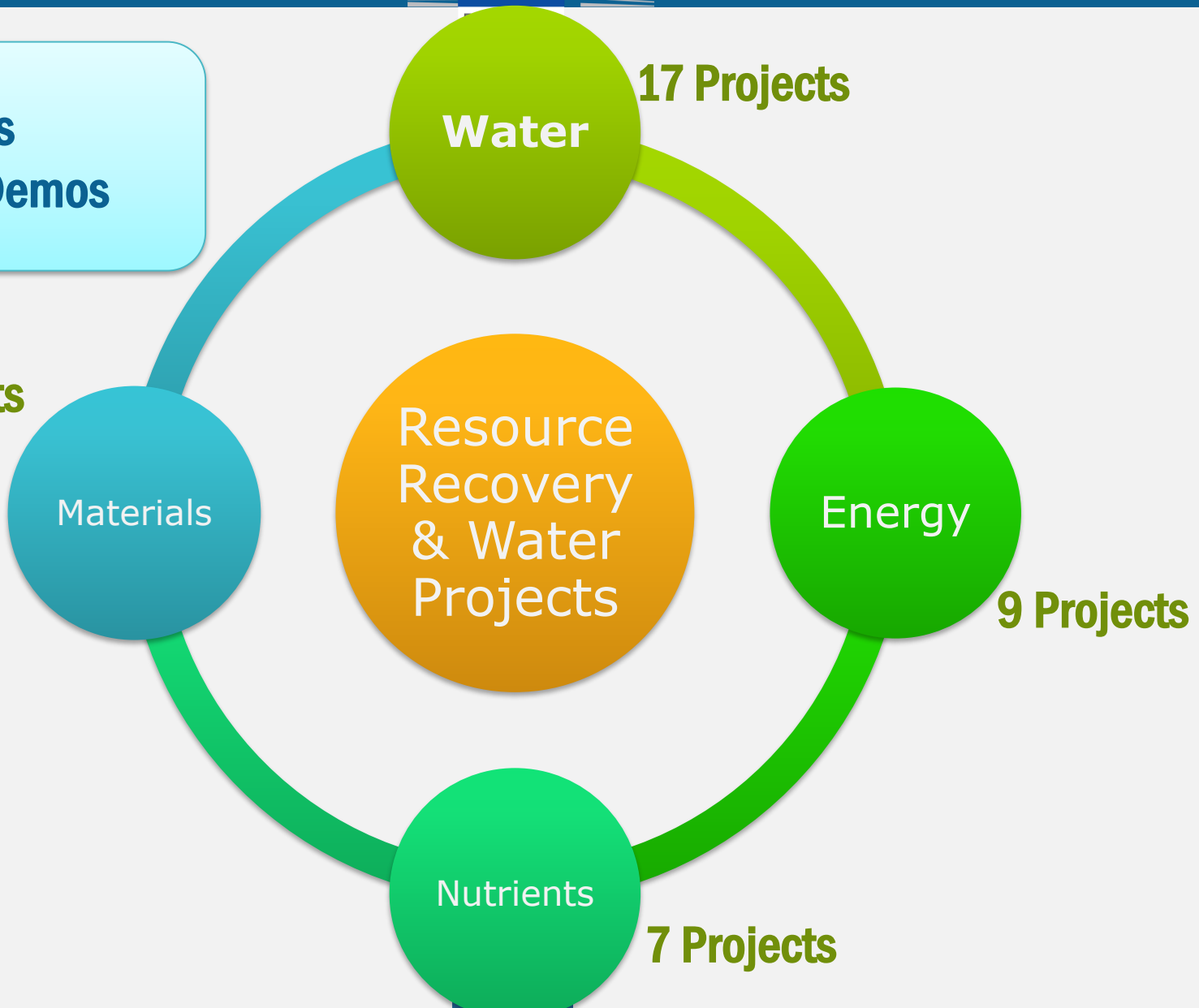
RESYNTEX

emeb
recycled membrane bioreactor

Executive Agency for SMEs

H2020
RR Water Projects

19 Projects
86 Large Demos



Scale-up of low-carbon footprint MAterial Recovery Techniques in existing wastewater treatment PLANTs

- Horizon2020 IA
- 9 demo SMARTechs
- Cross-sectorial value chain
- Innovation deal
- 26 partners
  - 19 SME or LI
  - 7 R&D Organization

Consumer/Industrial Products

Struvite
Calcium-P
P-Biofertilizer

Energy and Carbon Efficiency

Biogas and Biomass Fuel

Water re-use and fertigation

Bio-polymers

Cellulose

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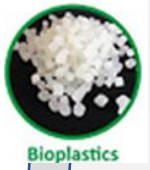

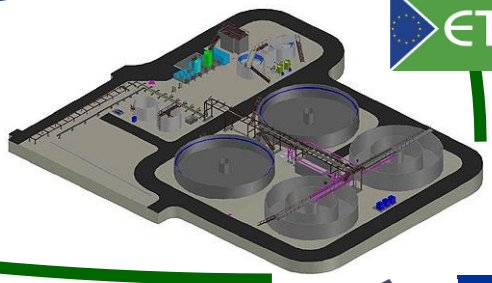

iwater
SALÓN INTERNACIONAL DEL CICLO INTEGRAL DEL AGUA
AWARD 2018

www.smart-plant.eu Start: 01/Jun/2016 – End: 31/May/2020

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SMARTechs integrated in existing WWTPs (revamped/upgraded to WRRFs)

SMARTech1 - Geestmerambacht WWTP (NL)


SMARTech2a – Karmiel WWTP (IL)


SMARTech2b and Downstream SMARTech B - Manresa WWTP (Spain)


SMARTech3 – WWTP at Cranfield University (UK)

SMARTech 4a and SMARTech 5 Carbonera WWTP (Italy)


SMARTech 4b - Psyttalia WWTP (Greece)

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Policy and barriers

- European policies, regulations and directives
  - Circular Economy Package
  - Proposed new Common Agricultural Policies (CAP)
  - New Fertilising Products Regulation (FPR)
- **Remaining barriers**
  - **No (apparent) willingness of customers to accept a premium for sustainability**
  - **Possible customer reluctance if waste raw materials are declared**
  - **Public procurement focusing on low cost instead of closed loops**
  - **Except for Fertilising Products Regulation, harmonized European regulatory framework missing**

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More direct Support Needed

- Targeted Circular Economy Directives with **clear targets** comparable to energy directives (REDII)
- More **harmonisation of regulation** in the EU
  - Free trade of secondary resources (e.g. ash) for recycling with tracing and tracking system and obligatory, proven recycling
- Making **P-recycling** mandatory like CH, DE
- Closing **binding** agreements with industry, municipalities like NL

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CHEMISTRY WORLD

The water industry has an interest in the circular management of wastewater, but the market isn't ready

FRANCESCO FATONE, MARCHE POLYTECHNIC UNIVERSITY, ITALY

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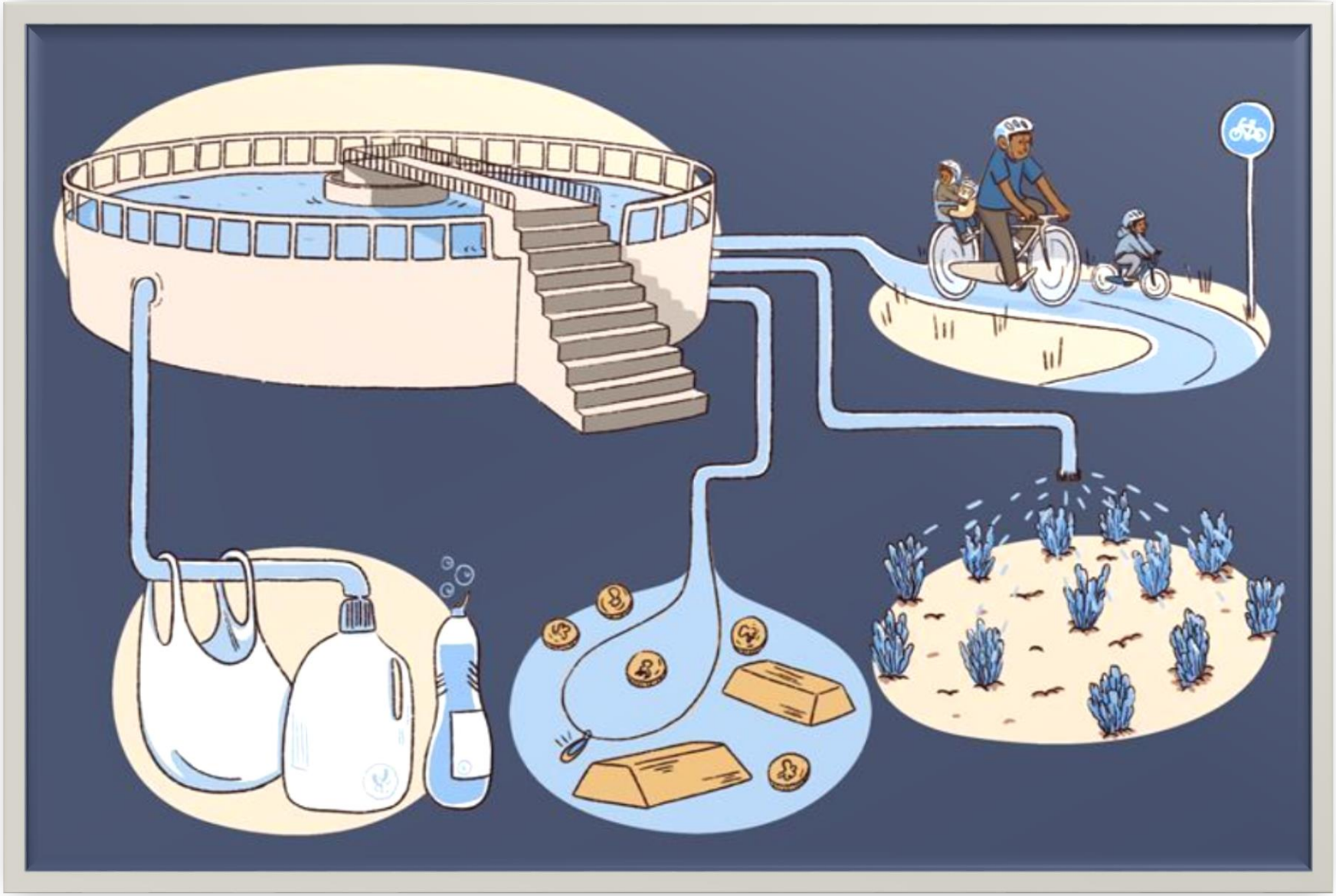
GRAZIE



Chemistry World (2019)