

Energy Efficiency

Nutrient Recovery

Biopolymers Production

Cellulose Recovery

Nine pilot systems

Low carbon footprint



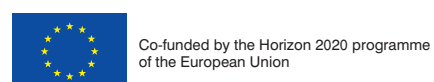
Eco-innovations pointing way to circular economy

SMART-Plant aims to support the water sector to deliver circular economy and ensure environmental protection, become more adaptive, and respond to contemporary environmental and societal challenges by introducing innovative technological solutions, moving towards resource recovery approaches in wastewater management. To accomplish this, nine innovative pilot systems will be developed and optimized across Europe to recover valuable resources from sewage.

The SMART - Plant Consortium



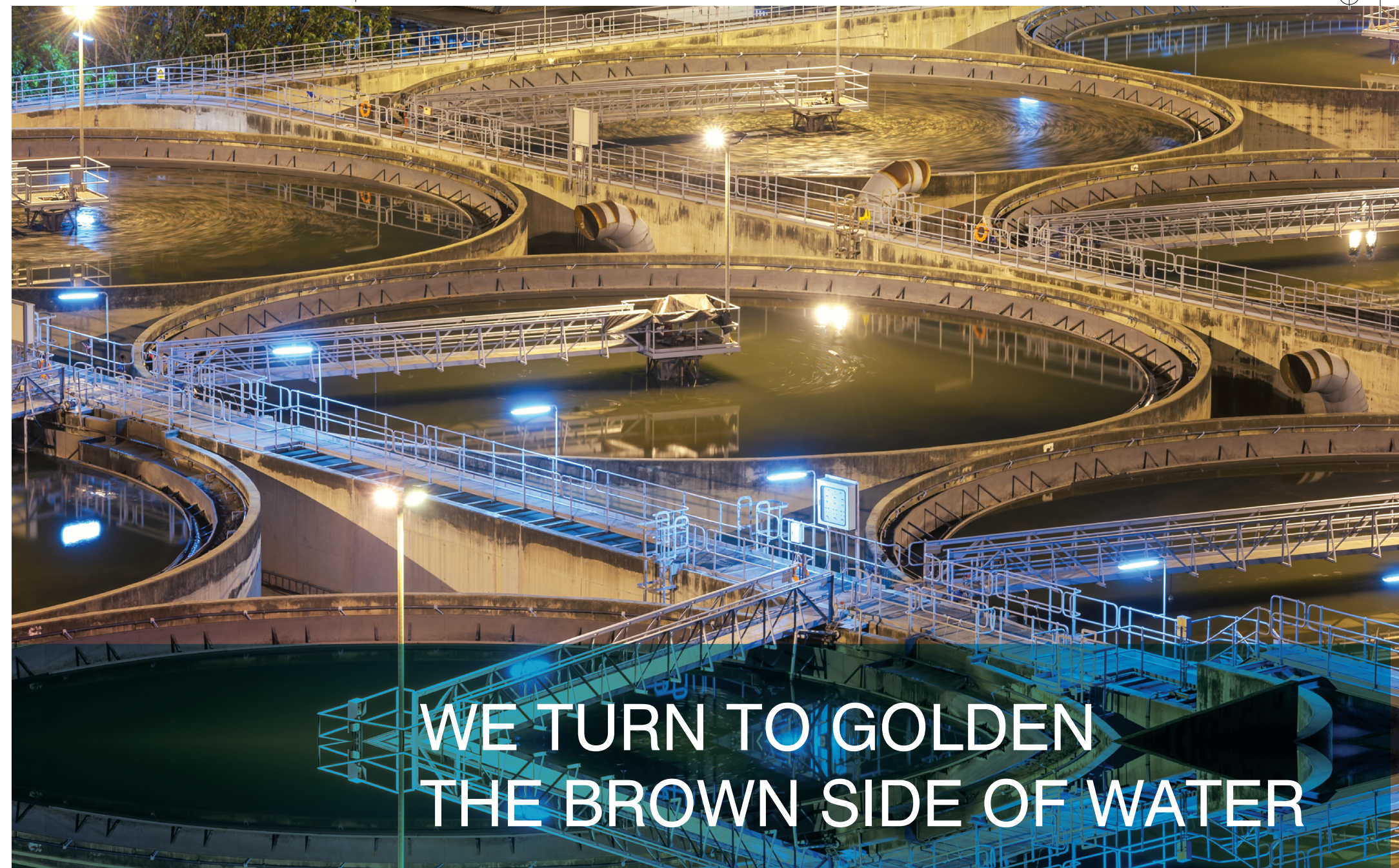
SMART-Plant



The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690323.

www.smart-plant.eu

For further information contact the coordinator, Prof. Francesco Fatone, at Università Politecnica delle Marche smart-plant@univpm.it or f.fatone@univpm.it, or Dr. Simos Malamis, leading on dissemination of the project outcomes, at the National Technical University of Athens, smalamis@central.ntua.gr.



WE TURN TO GOLDEN THE BROWN SIDE OF WATER

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



WE TURN TO

GOLDEN THE BROWN

SIDE OF WATER

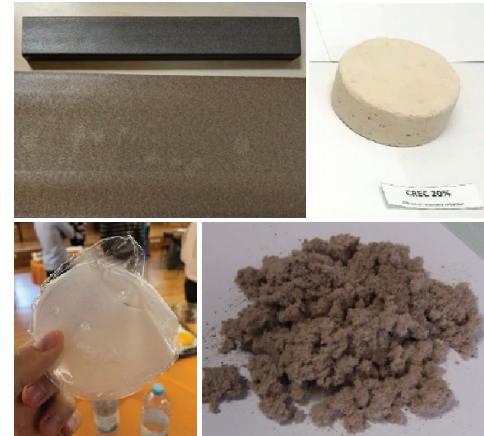


WE TURN TO CLEAN WATER

SMART-Plant offers innovative technologies for energy-efficient and low carbon water reuse

WE TURN TO FERTILIZER

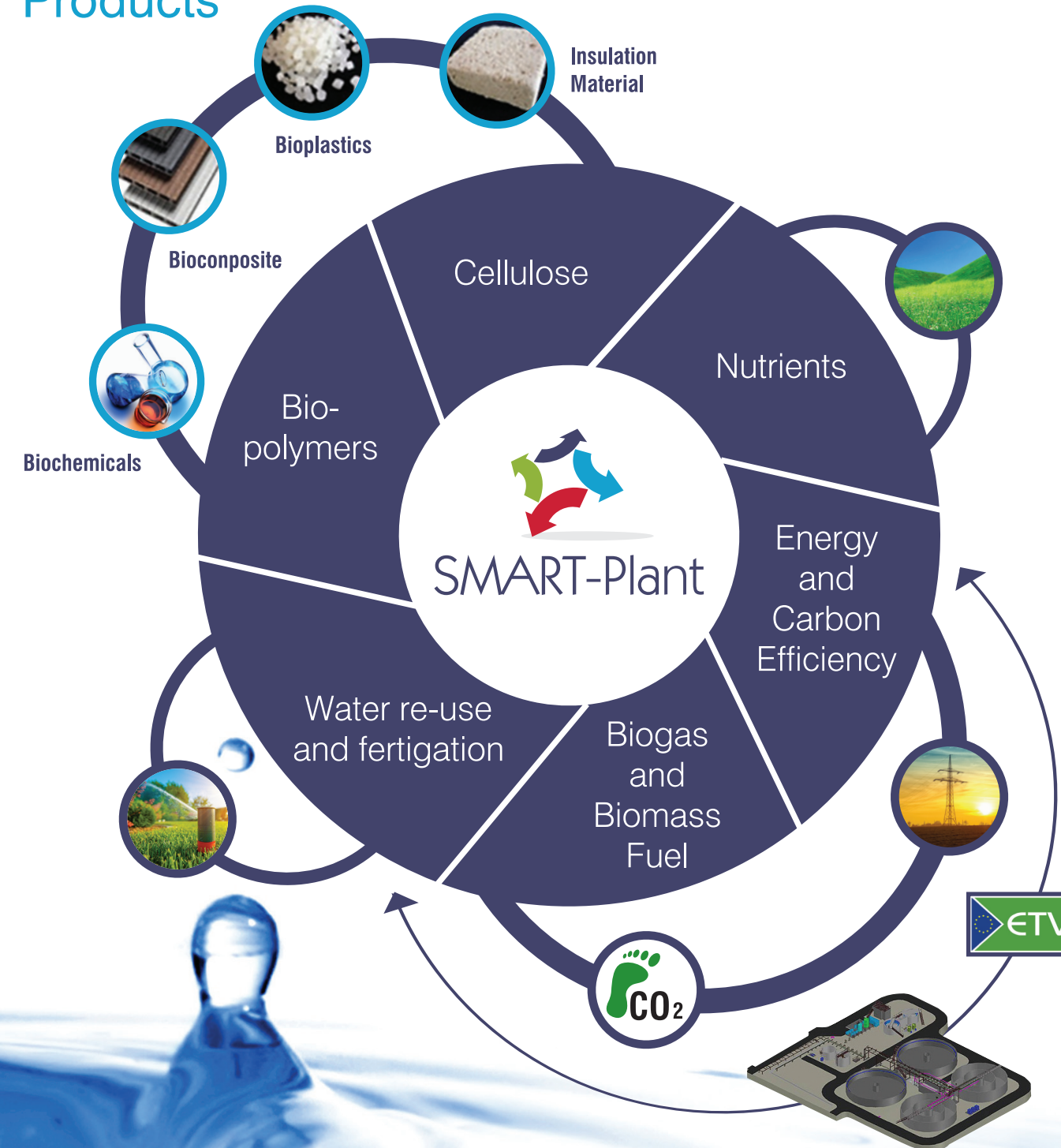
SMART-Plant demonstrates the energy-efficient recovery and reuse of phosphorus and ammonium based fertilizer with high agronomic value.



WE TURN TO INDUSTRIAL BIOPRODUCTS

SMART-Plant offers the energy-efficient recovery of safe cellulose, bio-polymers and biomass fuel that is used to produce bio-composites and construction materials.

Consumer/ Industrial Products



7+2 Pilot Systems

SMARTech1
Primary Upstream
Geestmerambacht,
Netherlands



Extracting about 400 kg of pure marketable cellulose from raw sewage, through a fully automated pilot installation while saving energy and chemicals in downstream processes.



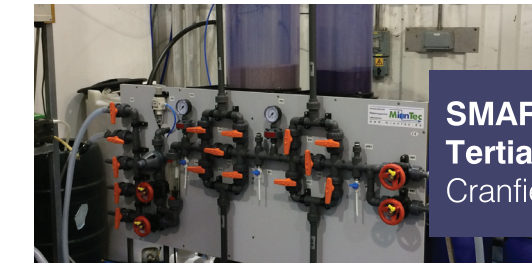
SMARTech2a
Secondary Mainstream
Karmiel, Israel

Promoting secondary biogas recovery from small-medium municipal WWTP where irregular organic-load peaks occur.



SMARTech2b
Secondary Mainstream
Manresa, Spain

Efficient nitrogen and phosphorus removal from urban wastewater while recovering PHA-enriched sludge and struvite from the water line of WWTP.



SMARTech3
Tertiary Mainstream
Cranfield, UK

Recovering nitrogen and phosphorus from mainstream wastewater flows as high purity chemical powders whilst decreasing energy consumption and sludge production.



SMARTech4a
Sidestream
Carbonera, Italy

Production of low cost carbon source from sewage sludge to enhance the biological nitrogen and phosphorus removal via nitrite from reject water.



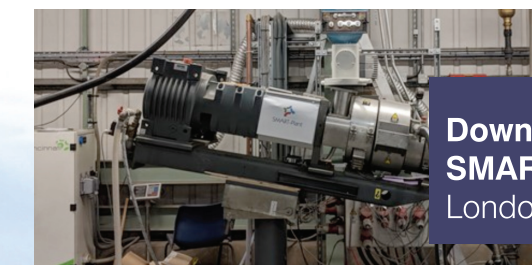
SMARTech4b
Sidestream
Psyttalia, Greece

Enhancing circular economy through developing a novel and energy efficient process for the removal of nitrogen and phosphorus from reject water



SMARTech5
Sidestream
Carbonera, Italy

PHA biopolymer and struvite production by integrating the recovery of cellulosic primary sludge and efficient nitrogen removal from reject water.



Downstream SMARTechA
London, UK

Turning secondary raw materials from WWTP, such as sludge cellulose and PHA biopolymers, into extrudable, viable and sellable construction products.



Downstream SMARTechB
Manresa, Spain

Sustainably producing biomass fuel and high quality P-rich biofertilizers from sewage sludge.

