



EU-funded nutrient R&D projects and perspectives for future funding

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What I will cover

- *H2020*
 - *Projects of potential interest to participants*
 - *future calls of potential interest*
- *Horizon Europe*
 - *New structure (clusters), missions, partnership*
- *New political framing to inform roll out of HE*

Horizon 2020

- *projects from call: WATER-1b-2015 focus on EIP-Water priorities, including resource recovery (in particular SMART-Plant and INCOVER)*
- *projects from call: CIRC-2-2016 -circular economy water projects that focused on nutrient recovery (Run4Life and Water2Return).*
- *projects from call: CIRC-2-2017 (Project O, Hydrousa, NextGen) are circular economy water projects that develop large demonstrations (including water services) that address the different water value chains -which includes nutrients.*
- *Linked to water EIP and circular economy - political priorities at the time*

H2020 projects on nutrients recovery from waste water

Acronym	Topic	EU contr	End date
INCOVER	finished recently. Developed sol gel coated calcite a typical soil improver with beneficial influence on plant growth.	€7.2 mln	July 2019
SMART-Plant	Scale-up of low-carbon footprint material recovery techniques in existing wastewater treatment plants	€7.5 mln	May 2020
RUN4LIFE	Nutrient recovery, based on a decentralised treatment of segregated black water, grey water and organic kitchen waste.	€6.2 mln	May 2021
Water2Return	Recovery and recycling of nutrients from slaughterhouse wastewater in the framework of a Circular Economy model	€5.9 mln	Dec 2020

H2020 projects on nutrients recovery from waste water

Acronym	Topic	EU contr	End date
Project O	Demonstrates the benefits of local, small loops of water management. Nutrient recovery is part of this. One of their technological innovations is the SALTECH treatment module for recovering nutrients including phosphorous.	€9.3 mln	May 2022
NextGen	Project demonstrates nutrient mining and reuse, manufacturing new products from waste streams, regenerating and repurposing membranes to reduce water reuse costs, and producing activated carbon from sludge to minimise costs of micro-pollutant removal.	€10 mln	June 2022
HYDROUSA	Demonstrates closing water loops in Mediterranean water scarce areas including NBS in the context of circular economy. Nutrient recovery /reuse primarily through cost efficient treatment and fertigation. Relevant innovations include UASB combined with constructed wetland, Bio-diverse constructed wetlands, Compost cultivator.	€10 mln	Dec 2022

Challenges and opportunities identified by the projects

- Complex **regulation**, e.g. end-of-waste processes and decisions in countries/regions vary
- The potential of the **new fertilising products regulation** and the importance of a coherent implementation across Europe
- **Public acceptance** related to risks for recovered products and with availability of market for recovered products.
- Lack of benchmarked large scale operations data and issues with logistics and small scale production
- The potential of product certification schemes and investment /financing incentives for addressing the market barriers

Upcoming nutrient-related calls for proposals in Horizon 2020

Societal Challenge 2

- *CE-RUR-08-2018-2019-2020: Closing nutrient cycles*
 - **Bio-based fertilisers from waste water and sewage sludge (RIA, € 6 mln)**
 - **Application period: 15 Oct 2019 – 22 Jan 2020**
 - Developing techniques for nutrients recovery **from waste water** and processes upgrading recovered nutrients; urban and industrial sectors waste water and sewage sludge
 - Environmental aspects are key: monitoring and mitigation of **contaminants**, environmental impacts assessment of products and processes on a life-cycle approach, **energy** consumption, waste production, etc

Horizon Europe

THE NEXT EU RESEARCH & INNOVATION
INVESTMENT PROGRAMME (2021 – 2027)

#HorizonEU

Based on the Commission Proposal for Horizon Europe, the common understanding between co-legislators and the Partial General Approach, both approved in April 2019



Horizon Europe structure



Pillar 1 Excellent Science

European Research Council

Marie Skłodowska-Curie
Actions

Research Infrastructures



Pillar 2 Global Challenges and European Industrial Competitiveness

Clusters

- Health
- Culture, Creativity and Inclusive Society
- Civil Security for Society
- Digital, Industry and Space
- Climate, Energy and Mobility
- **Food, Bioeconomy, Natural Resources, Agriculture and Environment**

Joint Research Centre



Pillar 3 Innovative Europe

European Innovation Council

European innovation
ecosystems

European Institute of
Innovation
and Technology

Widening Participation and Strengthening the European Research Area

Widening participation and spreading excellence

Reforming and Enhancing the European R&I system

Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment

Areas of intervention:

- Environmental observation
- Biodiversity and natural resources
- Agriculture, forestry and rural areas
- **Seas, oceans and inland waters**
- Food systems
- **Bio-based innovation systems**
- **Circular systems**

Adaptation to climate change, including societal transformation



Healthy
oceans,
seas,
coastal
and inland
waters

**Mission
areas**



Cancer



Climate-neutral
and smart cities



Soil health
and food

European partnership for a Circular Bio-based Europe

- Objectives:
 - Replacing non-renewable fossil and mineral resources for the production of renewable products and nutrients from biomass and waste
 - Recovering 40-45 % of the demand of nutrients from waste by 2030
- Public consultation open until **6 Nov 2019**
- Currently an impact assessment is being prepared
- Partnership expected to start in 2021

Steps towards the first Horizon Europe work programme



Summer
2019

Early involvement and exchanges with Member States, consultation with stakeholders and the public at large. Establishment of Mission Boards

Autumn-
winter
2019/2020

Co-creation at R&I Days 24–26 Sept.
Extensive exchanges with the new European Parliament
Establishment of new Commission - envisaged endorsement of Strategic Plan

2020

Drafting of first Horizon Europe Work Programme on the basis of the Strategic Plan

2021

Start of Horizon Europe

Future R&I priorities for N and P flows

- Applying the safe planetary boundary concept for nutrients to regional/river basin level
- Build on nutrient budget work developed so far (for N^r to map flows and determine the nutrient surplus reduction needed across all sectors to live within safe operating space (meet ENV objectives – e.g. P standards of the WFD but also biodiversity and air objectives))
- Map pathways to deliver solutions at scale needed (e.g. substitution of organic for inorganic fertilizers), control on livestock density
- Support integrated large-scale demonstration actions in regions willing to address problems and involve all necessary actors
- **NEW POLITICAL PARADIGM** : European Green Deal – (climate, biodiversity, zero pollution, farm to fork initiatives)



European
Commission

Thank you!