



# Presentation

[Event where presentation is held, date, location]

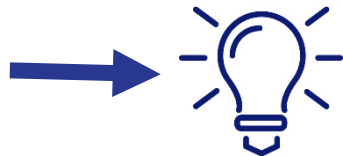
# INCOVER Concept

## The challenges:

- Main pressures on water resources : climate change, pollution, urbanisation, water scarcity...
- Expensive cost of operation and maintenance of wastewater treatment

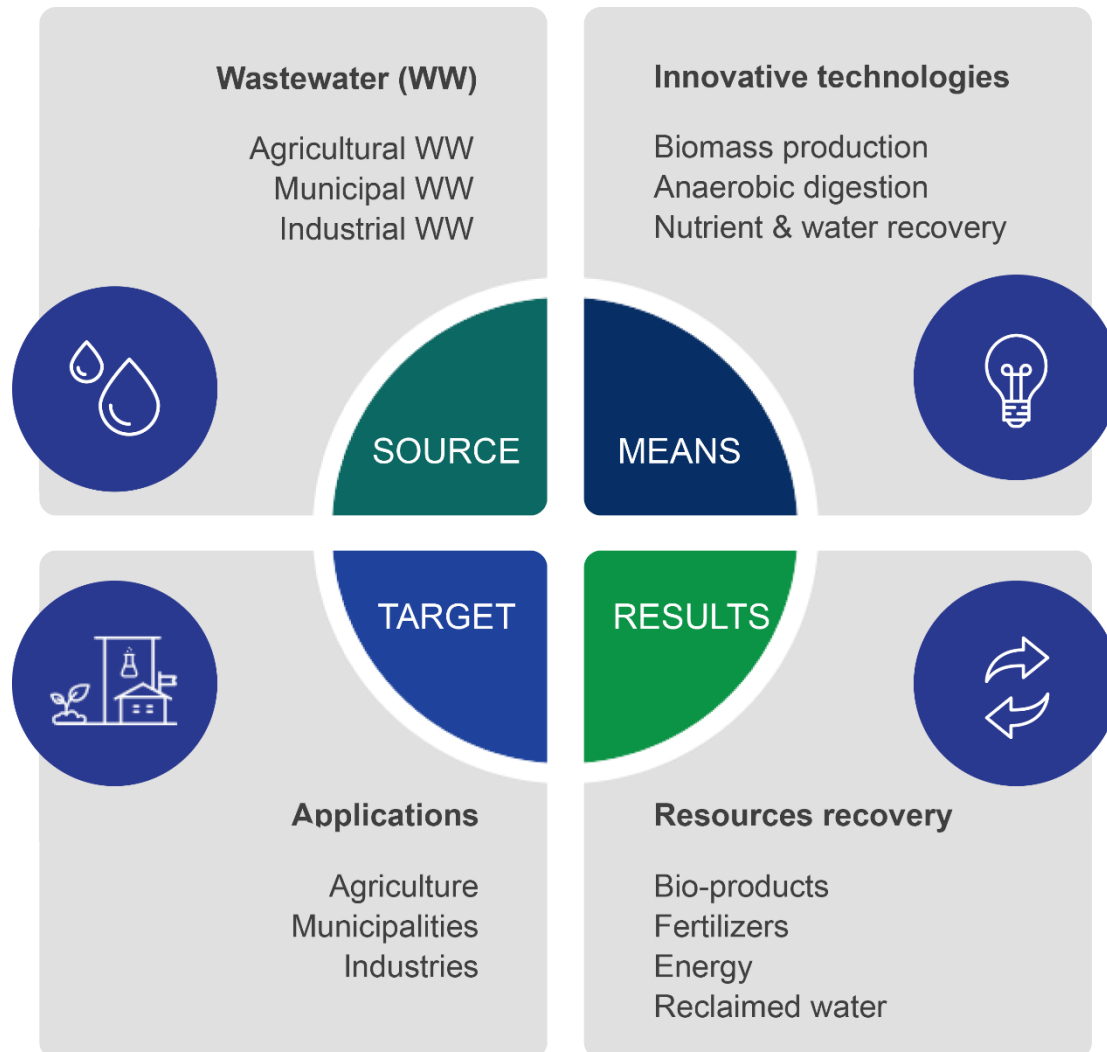


## The solution:



**Transform wastewater from a waste stream into a source of new added-value products**

# INCOVER Concept



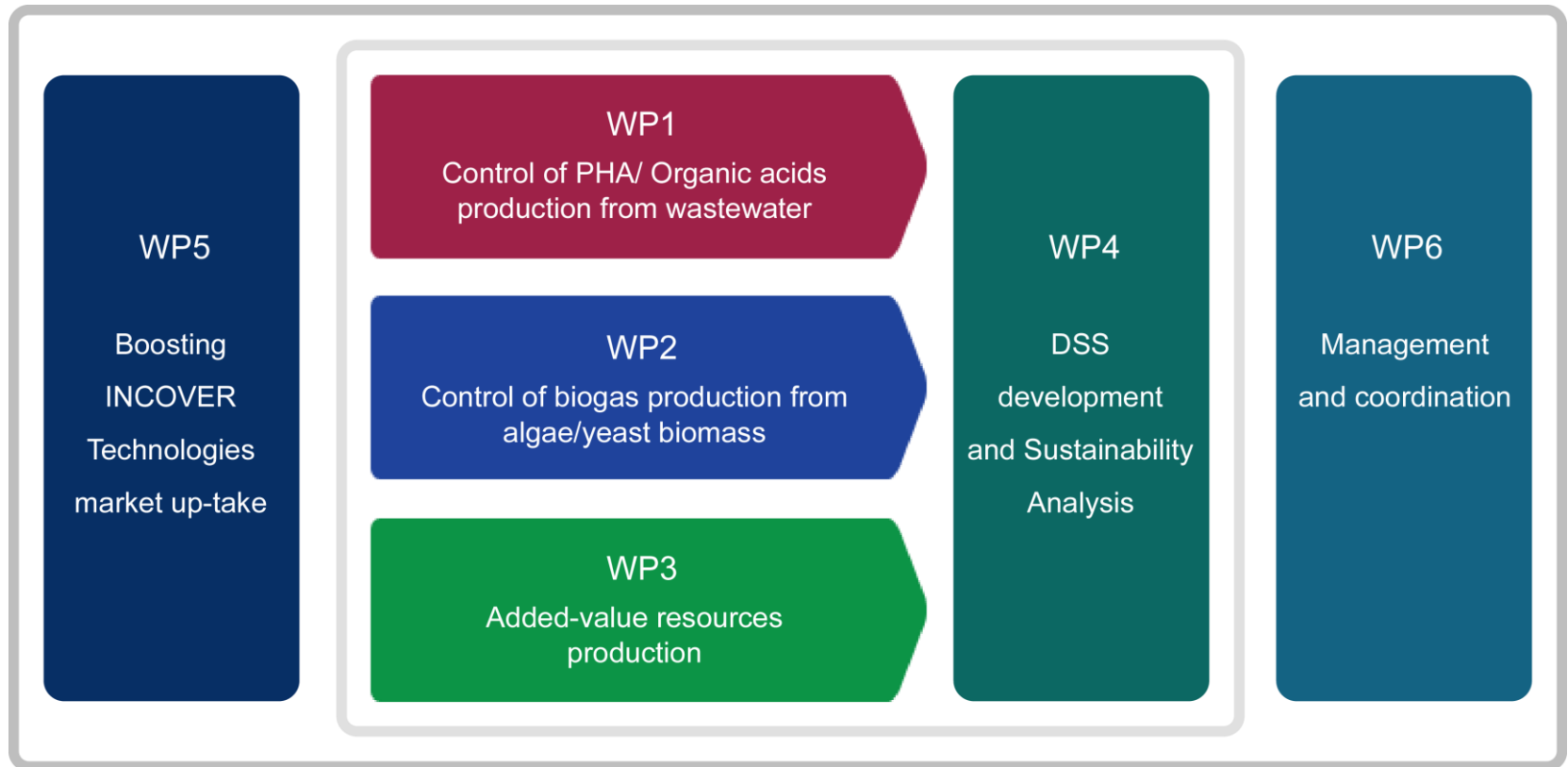
# INCOVER Objectives



Main objective: To reduce the overall Operation and Maintenance (O&M) costs of conventional WW treatment by 50% and alleviate water scarcity.

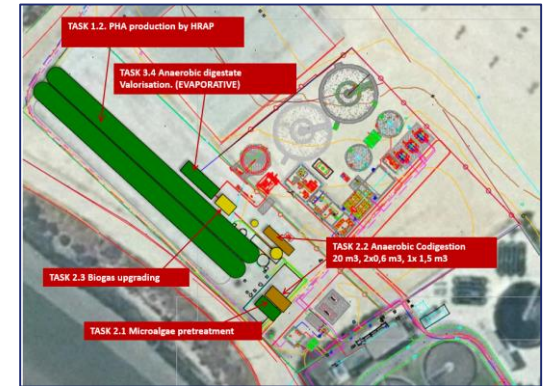
- **Validate innovative technologies** at demonstration scale to obtain bio-products
- Develop **innovative monitoring techniques**
- Assess their **cost-effectiveness** and **sustainability**
- Develop a tailored **Decision Support System (DSS)** for a holistic wastewater management approach
- Develop strategies to facilitate **rapid market access**

# Workplan



# INCOVER activities

- Implement **3 added-value wastewater treatment plants**
  - Operate and assess at real scale (TRL 7-8),
  - Optimize with **innovative monitoring techniques** based on optical sensing and soft sensors
- Develop the **DSS** and a **Sustainability tool** through Life Cycle Assessment.
- Implement a **structured dissemination and exploitation plan** to ensure **market uptake** (market analysis, communication platform and documents i.e. website, leaflet, flyer etc.)



Case study 2 - Chiclana

# Case studies

## Case study 1



- Universitat Politècnica de Catalunya (Spain)
- Lead by UPC
- Treating municipal WW

## Case study 2



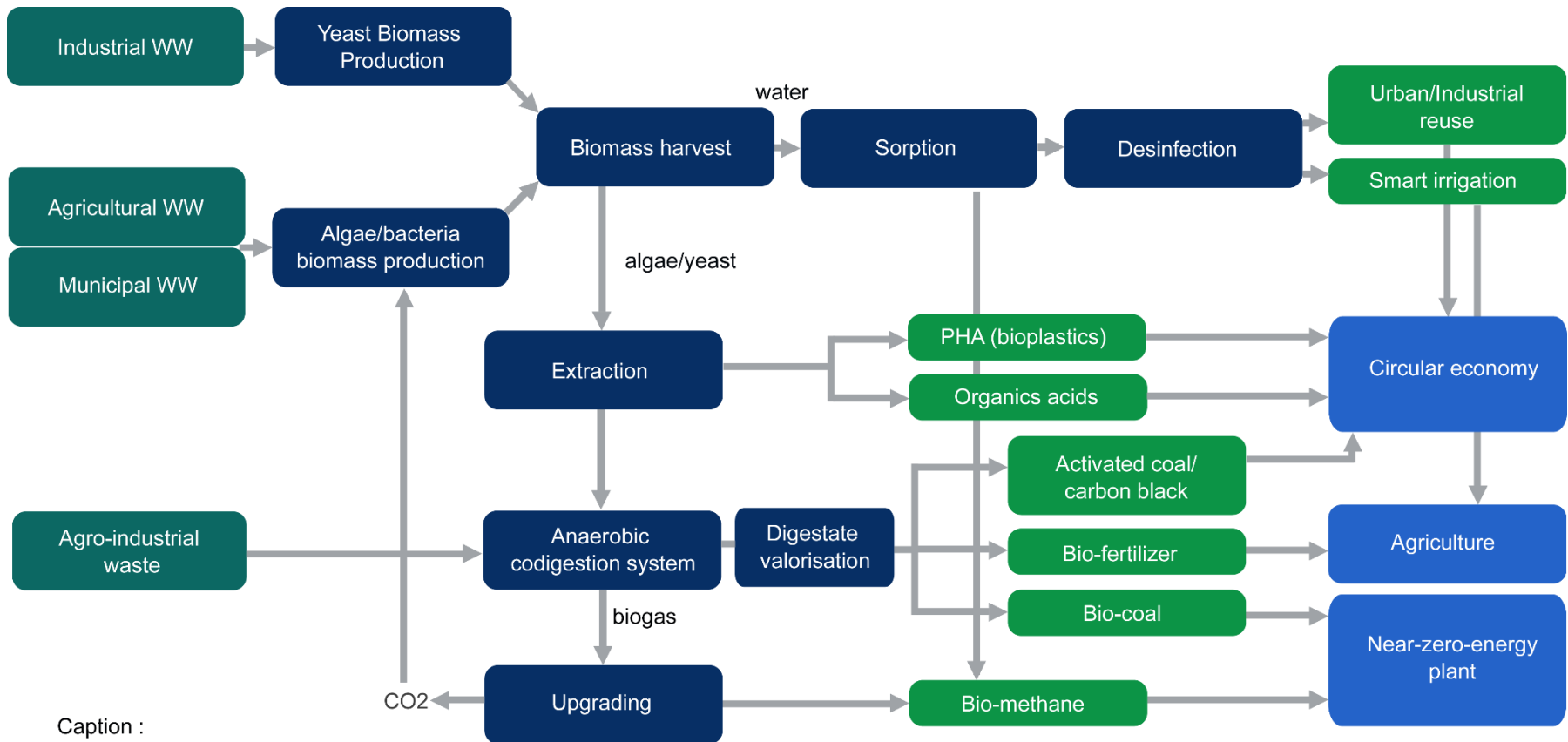
- Chiclana and Almeria AQUALIA facilities (Spain)
- Lead by AQUALIA
- Treating municipal and agricultural WW

## Case study 3



- UFZ - Helmholtz – Centre for environmental research (Germany)
- Lead by UFZ
- Treating industrial WW

# INCOVER solutions process



Caption :

- Feed
- Incover technologies
- Incover bio-products
- Incover applications



# INCOVER main technologies

- PHA production

  - PhotoBioReactor system (PBR)

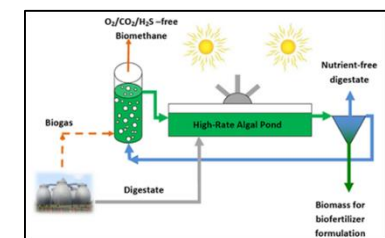
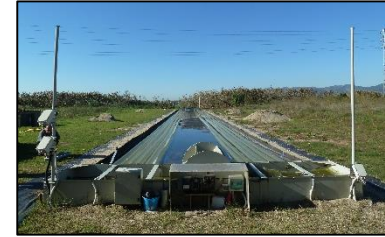
  - High Rate Algae Pond (HRAP)

- Organic acid production

- Physical and thermal pre treatment

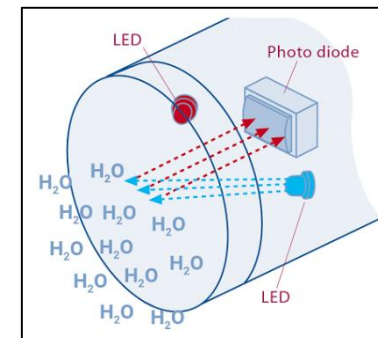
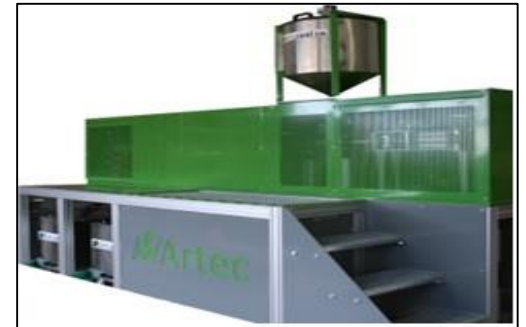
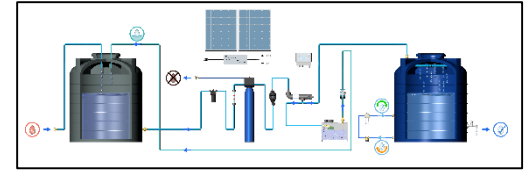
- Anaerobic codigestion process

- Integral biogas upgrading

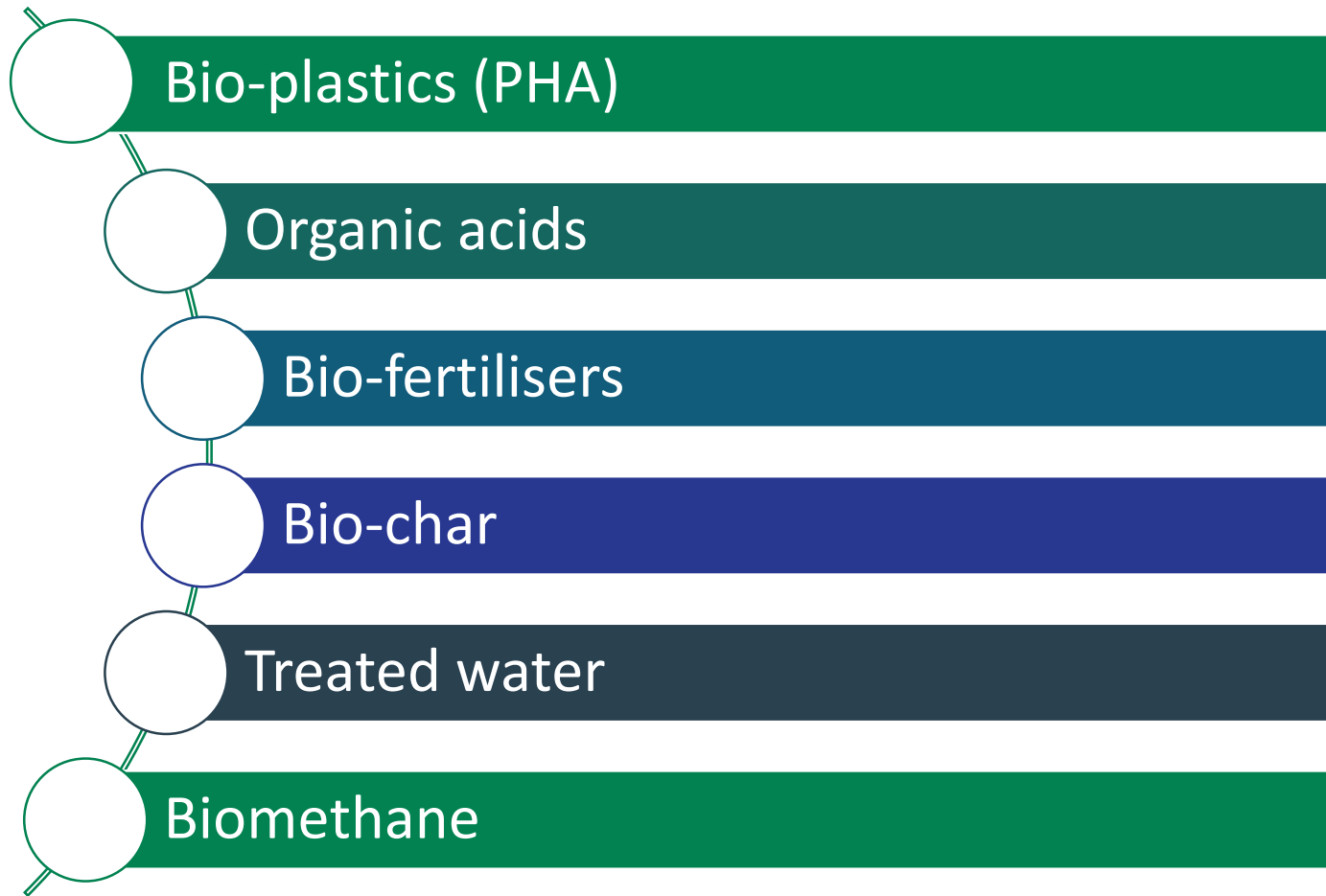


# INCOVER main technologies

- Nutrient recovery :
  - Adsorption columns
  - Planted filters
- Solar-driven disinfection :
  - Anodic oxidation
  - Ultrafiltration
- Smart irrigation system
- Anaerobic digestate valorisation:
  - Sludge treatment wetlands
  - Evaporative systems
  - HTC process
- Optical sensing and monitoring



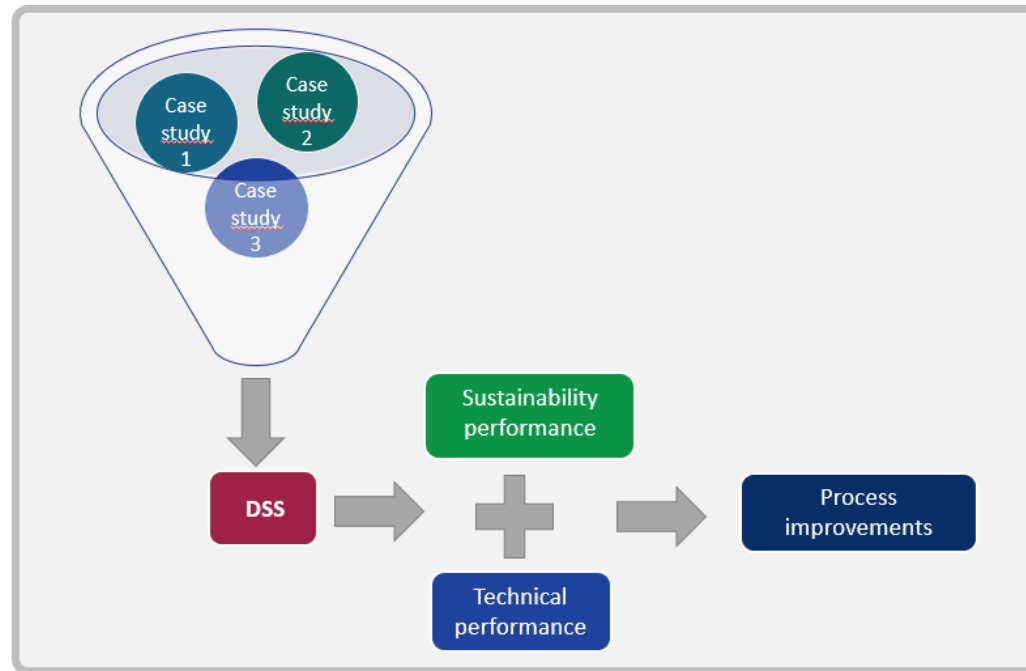
# INCOVER main bio-products



# Life-cycle approaches and DSS tool

- Life Cycle Assessment (**LCA**) : Environmental assessment
- Life Cycle Costing (**LCC**) and social Life Cycle Assessment (**sLCA**)

**Life Cycle  
Sustainability  
Analysis  
(LCSA)**



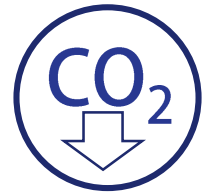
- ➔ Assistance to authorities at comparing various technology alternatives based on their technical performance and sustainability properties
- ➔ Assistance to facility managers, through choosing optimal technologies
- ➔ Communicate the benefits of INCOVER technologies

# Technology end-users and key stakeholders

	Municipalities	Agriculture	Industry
Waste & wastewater treated	Wastewater	Wastewater	Wastewater
	Wastewater sludge	Crops residues	Food and beverage waste
		Manure	Organic waste
Raw materials produced	Bio-plastics	Bio-plastics	Organic acids
	Bio-methane	Bio-methane	Bio-methane
			Bio-coal
	Fertilizer	Fertilizer	Carbon black
	Irrigation water	Irrigation water	Activated coal
			Irrigation water
Needs as end-users	Innovative technologies and processes to improve their operations - Proven INCOVER technologies	Fertilizer	Bio-plastic
		Irrigation water	Organic acids
			Bio-methane
	Bio-coal		
	Carbon black		
	Bio-methane	Bio-methane	Activated coal
			N and P

# INCOVER main impacts

- **Reduction of energy demand** (at least of 50%) of WW management
- **Cost reduction** of municipal and industrial WW management
- **Reduction of GHG emissions** by up to 80% using CO<sub>2</sub> sequestration processes
- Improving skills and knowledge of innovative WW technologies
- Provision of cost-effective water reuse methodology in water scarce countries
- Foster the awareness on **the benefits of using reused water** and bio-products



# INCOVER project details

- **Duration:** 3 years (2016 – 2019)
- **Funding:** European Commission H2020, € 7.2 millions
- **Project coordinator:** AIMEN Centro Tecnológico, Spain
- **Consortium:** 18 partners from Spain, UK, Greece, France, Germany, Denmark, Portugal.

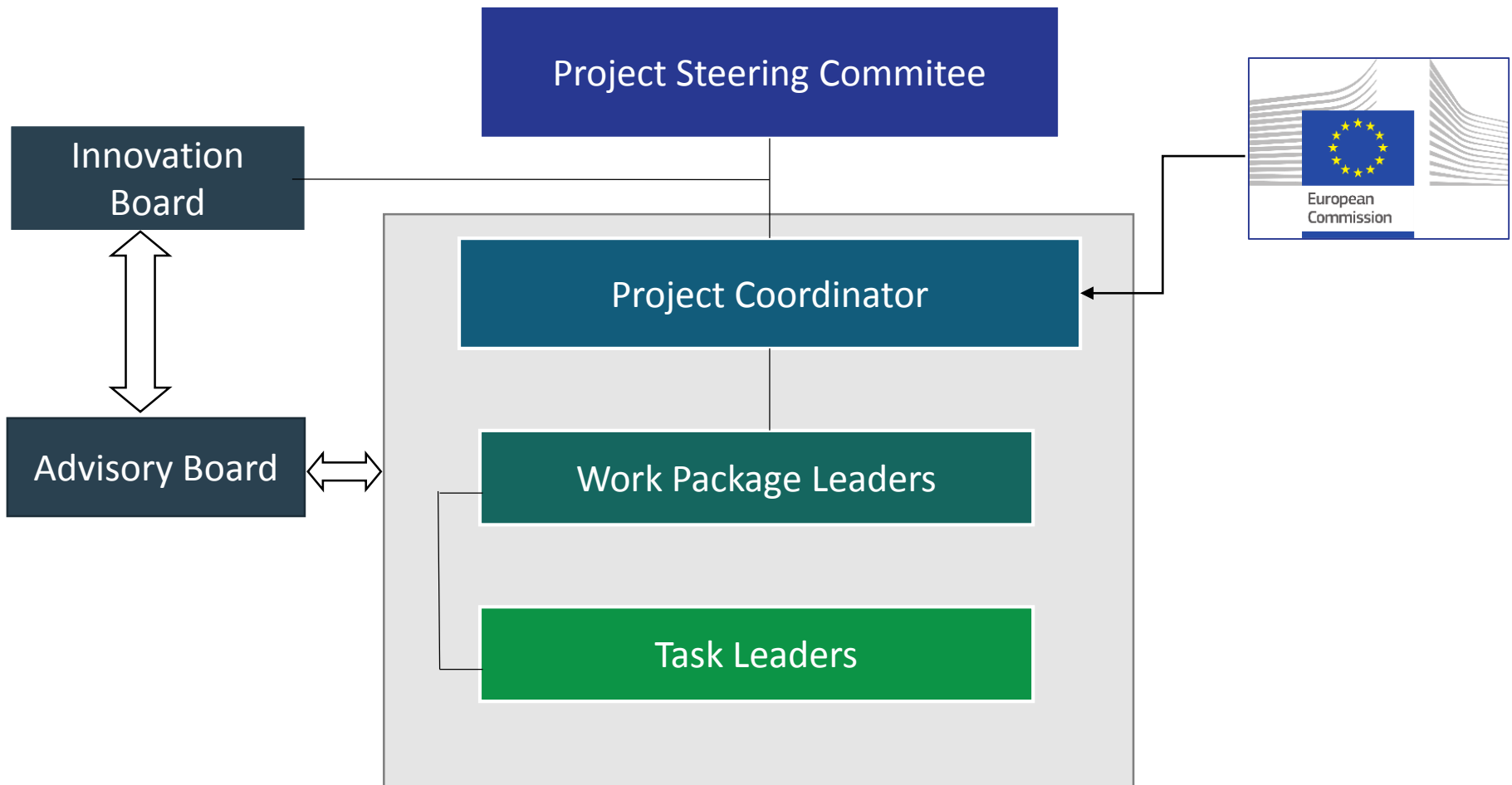
# INCOVER Consortium



**INCOVER**



# Project management structure



## More information



Visit our website

[www.incover-project.eu](http://www.incover-project.eu)



Twitter page : INCOVERproject



LinkedIn group: INCOVER



Contact us : [incover-project@oieau.fr](mailto:incover-project@oieau.fr)

# Thank you !



The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 689242. The dissemination of results herein reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains