Circular Bio-based Europe Joint Undertaking

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Researching Today, Creating the future

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Ceit is a **non-profit technology center**, created on the initiative of the University of Navarra in 1982, and whose main task is to carry out industrial research projects in close collaboration with the R&D departments of the companies.

Creating knowledge and for more than 40 years

Scientific production **+ 1,300 publications and 2,000 contribution to international congresses**

PhDs and researchers transferred to the industry **+350 PhDs and 400 researchers (+60% locally)**

New jobs created in spin-offs **+ 300 employees**

Accumulated incomes of spin-offs **+ 200 M€**

Number of EU projects **> 100**

Funding and Key Figures

Funding sources

Competitive public funding (EU, Central Gov., Basque Gov.) 34%
Base funding Basque Gov. 20%
Industry / Private 46%

Personnel

Total: 224
Doctors: 95
PhD students: 39

Annual Scientific production

Journal papers: > 60
Conferences: > 75
PhD theses: >10

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Ceit capabilities for the CBE programme

Lab- and Pilot-scale experimentation.

- Valorisation of organic by-products (agri-food by-products, microalgae, by-waste, etc.) using different technologies.
  - Recovery and Extraction of valuable bioproducts by different technologies:
    - (MF/UF/NF) filtration
    - Solvent extraction
    - Subcritical/supercritical extraction
  - Production of biobased compounds from sugar rich substrates by fermentation:
    - Anaerobic/aerobic processes
    - Pure or mixed culture systems
    - Optimization of operating conditions
  - Production of biofuels from organic by-products:
    - Production of bio-methane
    - Production of bioethanol
    - By-hydrogen production

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Ceit capabilities for the CBE programme

Mathematical Modelling, Digital Tools and Data Management.

- **Mathematical modelling and simulation.**
  - Mathematical modelling for bioprocess optimisation and scalability analysis.
  - Mathematical modelling of processes/solutions/systems for the integral analysis of different technological solutions/value chains, considering technical, economic and environmental aspects.
- Extensive experience in the development of **Digital tools for optimal water, gas and residual streams management.**
  - Development of tools for resource management and/or system optimization.
  - Development of decision support tools: technical optimization, logistics, costs, etc.
  - Development of tools for data management and processing.

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Experience in Bio-Based Circular projects

Model2Bio – Coordinator **2020-2023**

MODEL2BIO aims to develop and validate a Decision Support System tool for managing residual streams produced in agri-food companies. This will be an innovative concept that using predictive models, will be able to select the best ways for valorising agri-food residual streams considering their composition, seasonality, and industry location.

Digestair - Coordinator **2019-2022**

The DIGESTAIR approach seeks to promote a technological solution to improve waste management on board by taking advantage of anaerobic digestion process.

CircRural4.0 - Coordinator **2018-2021**

Towards sustainable solutions for waste and wastewater management in rural areas.

REPAPEL - Partner **2021-2023**

The project seeks the recovery and use of high value-added compounds present in waste streams from pulp and paper manufacturing as raw material for other industrial sectors.

CIRCULAR BIOBASED - Partner **2021-2023**

Circular Biobased focuses its activity on the development of biorefinery processes and new products from whey by-products.

Other Experience in Bio-Based Circular projects

AWAR - Partner **2020-2022**

Circular design of a new bio-stimulant product for agricultural application based on the use and biotechnological revaluation of own agro-industrial effluents through physicochemical treatments.

VIRAL - Partner **2020-2022**

Development of the Virtual Reactor in WWTP: The use of Artificial Intelligence and CFD modeling for the development of a new paradigm of on-line management and control.

Bio-Economy - Gipuzkoa - Partner **2020-2021**

Technical assistance for the definition and design of a Bio-economy model for Gipuzkoa.

MICROALGAE - Partner **2017-2019**

Circular Economy applied to water treatment: Processes based on microalgae.

LIFE MCUBO - Partner **2016-2020**

Modelling, Measurement and Improvement of the water management environmental impact in the food industry.

ANADRY - Partner **2015-2019**

Dry anaerobic digestion as an alternative management and treatment for sewage sludge.

IC-CONTROL - Partner **2013-2015**

Design and development of a control product for autonomous and efficient operation of IC anaerobic reactors for wastewater in the paper industry.

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