



stozre Synergic
TPAD and
O₃ process in WWTPs for
Resource
Efficient waste management

LIFE STO3RE PROJECT

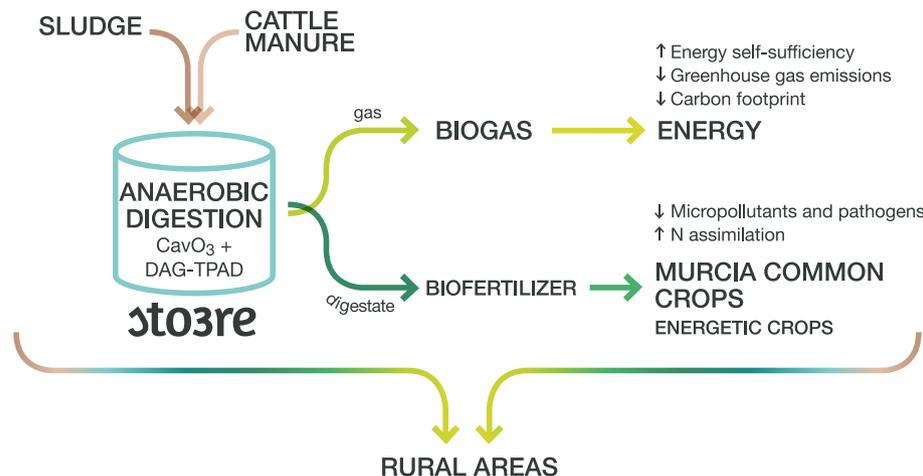
LIFE STO3RE is an innovative demonstration European Project, framed within the LIFE 2014 call, with a total budget of 1,957,874 €. The project lasts 40 months, from September 2015 to December 2018.

The main objective of **LIFE STO3RE** project is to protect the aquatic environment from pollution caused by nitrates, pathogens and organic micropollutants arriving from excess sludge produced in wastewater treatment plants (WWTP) and livestock farms wastes. To this end the project will develop a new joint management model of these wastes, obtaining a high environmental quality “biofertilizer”.



LIFE STO3RE will implement an innovative and cost effective technology: **ozone oxidation** and **hydrodynamic cavitation** (CavO_3) in combination with **dual acid-gas temperature phased anaerobic digestion** (i.e., thermophilic digester followed by mesophilic digester) (DAG+TPAD). Ozonation and hydrodynamic cavitation will be applied as pre-treatment of co-substrates in order to increase solubilization and partial oxidation of the organic matter that will be treated in the anaerobic co-digestion process. The aim of this process is to separate the main stages of the anaerobic digestion to maximize the biogas production.

This technology will provide two valuable products: biogas and biofertilizer. On the one hand, **biogas** will be used as a renewable energy source to achieve total energy self-sufficiency on the **LIFE STO3RE** demonstrative plant. On the other hand, **biofertilizer** will be used on common crops in Murcia (e.g., almond tree) on which the effect of sanitized sludge will be analyzed.



LIFE STO3RE is focused on treating problematic wastes in rural areas (i.e., WWTP sludge and pig slurry) with centralized management, in order to reduce investment and operating costs. The demonstration plant will be located in Totana WWTP and will treat sludge from 6 small and medium WWTPs and pig slurry from 5 nearby livestock farms.

SPECIFIC OBJECTIVES

- **To reduce the impact of WWTP sludge and pig slurry** on water bodies.
- **To reduce carbon footprint and greenhouse gas emissions** produced by manure storage.
- **To design a joint management model** of sludge and pig slurry for rural areas, in order to reduce investment and operating costs.
- **To maximise biogas production** by the synergic effect of dual acid-gas temperature phased anaerobic digestion, hydrodynamic cavitation and ozonation.
- **To ensure a high quality biofertilizer** that meets the new legal regulations of sludge application in agriculture.
- **To study the effect of the biofertilizer** obtained in crops from the surrounding area.

PROJECT PARTICIPANTS

LIFE STO3RE will be developed by the consortium integrated by five Spanish partners of the scientific, public and private sectors (FACSA, ESAMUR, IPROMA, AINIA and CEBAS-CSIC).





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More information about LIFE STO3RE:

www.lifesto3re.com

Address: Av. del Mar 53

12003 Castellón (Spain)

e-mail: ezuriaga@facsa.com

Phone: +34 964 255 063