

Dry anaerobic digestion as an alternative management & treatment solution for sewage sludge: LIFE-ANADRY



INTRODUCTION

The purpose of this project is to **demonstrate the technical and economic feasibility of the correct environmental management of sludge in medium and small sized wastewater treatment plants (WWTPs)** in order to transfer the obtained outcomes to other areas with similar problems at national and international levels. Anaerobic digestion (AD) technology under thermophilic (55°C) and mesophilic (35°C) conditions is being analysed as an alternative for the management of sewage sludge produced in these WWTPs.

Life-ANADRY will improve the sludge stabilization and hygienization and reduce the carbon emissions due to the **minimization of the use of inorganic fertilizers (i.e. recycling sludge as fertilizer)**.

LIFE-ANADRY demonstrates that such process offers a vast improvement in effectiveness, cost-reduction and sustainability over other methods for sludge treatment in small to medium sized WWTPs.

METHODOLOGY

The project takes place at Alguazas WWTP (Murcia, Spain) with 15.000 m³/d of capacity (currently it is treating 3500 m³/d) covering a population of approximately 60,000 inhabitants. Within the framework of LIFE-ANADRY project a 20 m³ prototype for dewatered sludge was constructed (Figure 1) and it is treating 20% of the sludge that is produced in Alguazas WWTP. This plant receives a high waste input from **agro-food** industries and operates with an extended aeration for the biological treatment.

ADVANTAGES OF USING SLUDGE FOR AGRICULTURE

- ✔ It improves **the physical, chemical and biological soil properties** thanks to the contribution of the three main nutrients: N-P-K.
- ✔ It contributes to the **soil moisture and input of organic matter**.
- ✔ It reduces the use of chemical fertilizers, thus it **decreases the risk of soil pollution**.
- ✔ It increases **the ability of adsorption and partial immobilization of the soil components**.

The Life- ANADRY project allows to:

- ✔ Obtain sludge **free of pathogens** such as E. coli and salmonella spp.
- ✔ Maintain the **content of organic matter and nutrients** in the sludge.
- ✔ **Facilitate the transport of the sludge and application** according to the type of crop.

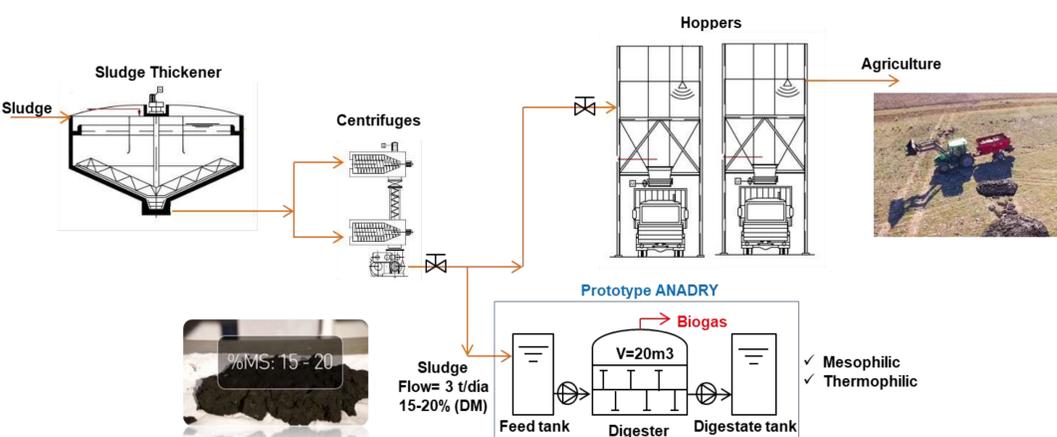


Figure.1 Current scheme in the Alguazas WWTP and LIFE ANADRY prototype

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Figure.2 Application of the sludge in agriculture

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