Innovative circular economy activities of the Integrated Waste Management System (IWMS) of DIADYMA – Western Macedonia Region, Greece

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Established in 1998, with the participation of the 61 "Kapodistrian" Municipalities and Communities of the region, constituting one of the largest inter-municipal collaborations in the country.

Shareholders (today): The 13 Municipalities of the Region of Western Macedonia - Amynteo, Argos Orestiko, Velvento, Voio, Grevena, Deskati, Eordaia, Kastoria, Kozani Nestorio, Prespa, Serbia & Florina.

The main object of the company is the design, implementation, and operation of the regional Integrated Waste Management System (IWMS) of Western Macedonia, with the implementation of sustainable management methods, to achieve the objectives of National and European legislation, minimizing the cost for the citizens.
IWMS PLANNING

- Planning at regional level
- One agency for the design, the development and the operation
- 255,000 thousand inhabitants
- 96,000 tons of waste/year

FACILITIES

- 10 Local Waste Management Units
- 1 Central Waste Management Facility
- 1 Industrial Waste Disposal Site
Local Waste Management Unit

- Mixed Waste Transfer
- Reuse Center
- Recycling Items Transfer
CENTRAL WASTE MANAGEMENT FACILITIES

AREA  830,000 m²
WASTE TREATMENT PLANT – LANDFILL OF RESIDUES

MECHANICAL - BIOLOGICAL PROCESSING UNIT – MBT
Capacity: 120,000 t/y
What we achieved so far...

- Restoration of 207 uncontrolled dumpsites in 2005
- Implementation of Collection at Source programs for 4 streams of recyclable packaging materials (paper, plastic, metals and glass) since 2009
- Recycling of app. 18,000 tn/year of packaging materials since 2020 (75% of target, 30% from collection at source systems)
- Treatment of >65% of biodegradable fraction since 2017 and 82% since 2020
1) Circularity through Reuse

- Three big reuse centers under operation
- Three small reuse centers under implementation
- Two reuse centers until mid 2024
- Already reused 41,125 items (59%)
- One digital reward platform
- More information
  https://diadyma.gr/en/draseis/euprograms/
2) Circularity through Entrepreneurship and Reuse

- Reuse center of Florina becomes **Repair** and Reuse center
- Companies are registered for material matching
- Digital platform is transformed into a Symbiosis platform
- More information
3) Circularity through biowaste valorization – Used Cooking Oils

- Establishment of 15 ATMs for UCO’s collection and distribution of special bottles to households
- 555 households registered so far
- Digital award platform developed

More information
4) Circularity through biowaste valorization – Spent Coffee Grounds

- Hub of Circular Cities Boosting Platform to Foster Investments for the Valorization of Urban Biowaste and Wastewater (Horizon 2020 Project ID: 101000836)

- Spent Coffee Grounds (SCGs) from local coffee shops for valuable compounds extraction for cosmetics or pharmaceuticals

- More info here: http://www.hoopproject.eu/
5) Circularity through biomaterials upcycling

- Support of a vibrant organic circular economy model using integrated and mobile technology
- A small-scale tech solution designed to recover nutrients from digestate producing high-quality bio-fertiliser products
- Expansion of circular enterprise opportunities by diversifying the range of organic products derived from digestate
- Replication in 4 countries (Greece, UK, Italy and Malta) using different digestate sources (animal residues & manure, food waste, crop waste and municipal wastewater, respectively)

More info here: https://www.projectnomad.eu/
6) Circularity through agri-food by-products valorization

- Development and validation of the MODEL2BIO Decision Support System tool
- Innovative concept based on predictive models will estimate:
  - the agri-food industry residual streams composition (considering the seasonality, territorial features and origin)
  - the best valorization ways
- Prioritization of the valorization possibilities through an holistic perspective considering technical, economic and social criteria
- More info here: https://www.model2bio.eu/
7) Circularity through the management of Hazardous Household Waste

- Development of collection network from households and entrepreneurships
- Planning of Treatment facility
- More info here: [https://circulargreece.gr/](https://circulargreece.gr/)
8) Circularity through the management of Pesticide Packaging Waste

- Development of a collection network at regional level
- Planning of a treatment facility
- Reuse of plastic pesticide packaging for the development of new products through 3D printing
9) Circularity through the valorization of sewage sludge for H2 production

- Study for the treatment of sewage sludge for biogas production
- Advanced technology unit for H2 production
- Use of H2 for the mobile equipment of waste management
10) Planning and development of a CIRCULAR ECONOMY PARK

- Recycling and Recovery Plant
- Treatment plant of non-hazardous solid waste
- Treatment plant of hazardous solid waste
- Circular Innovation Center
Thank you for your attention!

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www.diadyma.gr