

διαδύμα

ΔΙΑΧΕΙΡΙΣΗ ΑΠΟΡΡΙΜΜΑΤΩΝ
ΔΥΤΙΚΗΣ ΜΑΚΕΔΟΝΙΑΣ Α.Ε.

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

CHANIA, 21 June 2023

Periklis Kafasis

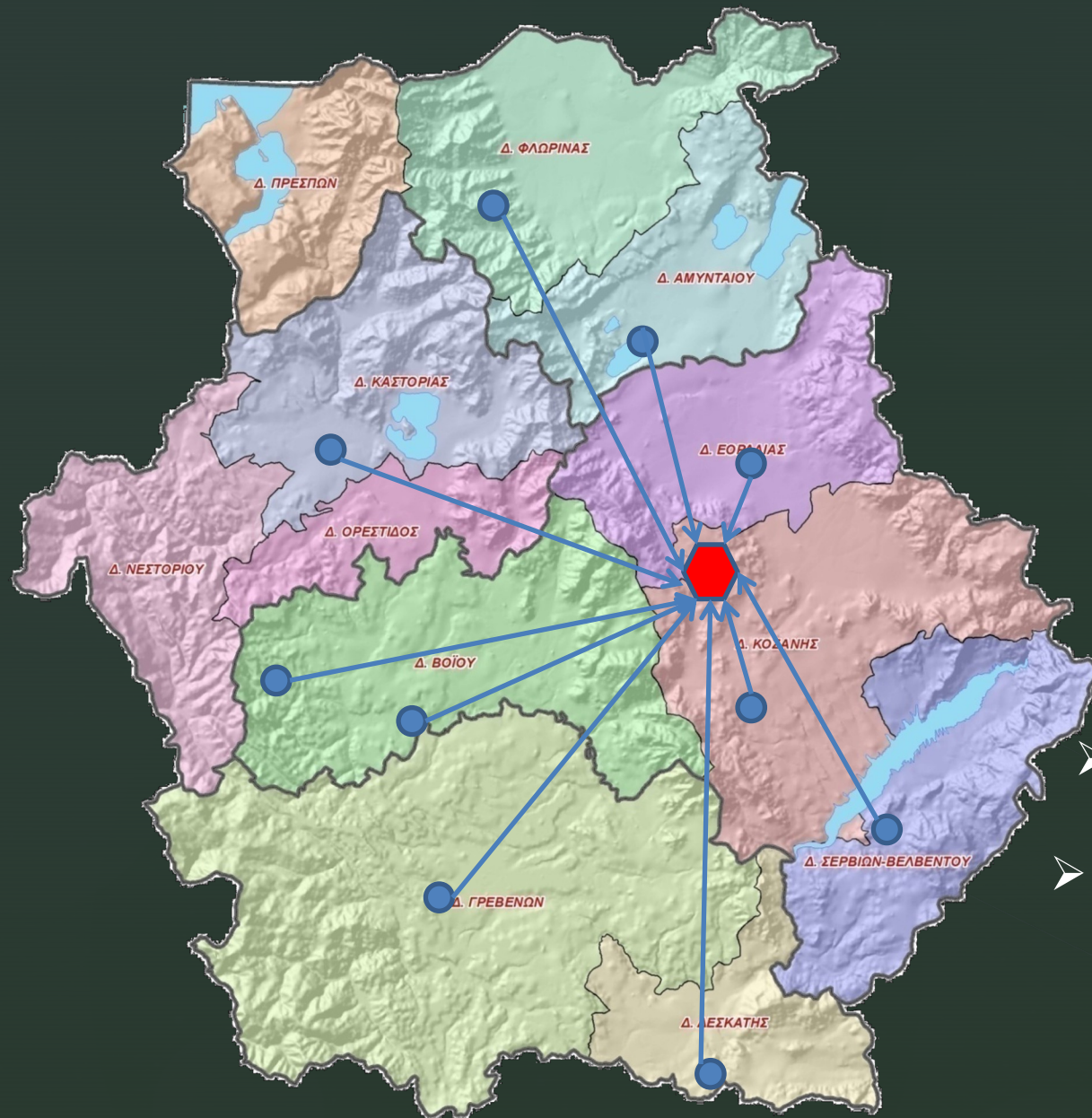
**Director of Supplies-Services-
Programs**



The Waste Management Agency of the Region of Western Macedonia (DIADYMA SA)

- 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



Region of Western Macedonia

- 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

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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



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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/drasesis/euprograms/>

Interreg - IPA CBC 
Greece - Albania
WASTE RREACT





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CIUBE

Bioeconomy & Environment Cluster
Western Macedonia



2) Circularity through Entrepreneurship and Reuse

- Reuse center of Florina becomes Repair and Reuse center
- Companies are registered for material match making
- Digital platform is transformed into a Symbiosis platform
- More information

<https://diadyma.gr/en/draseis/euprograms/>

Interreg - IPA CBC
Greece - Republic of North Macedonia
BeCircular

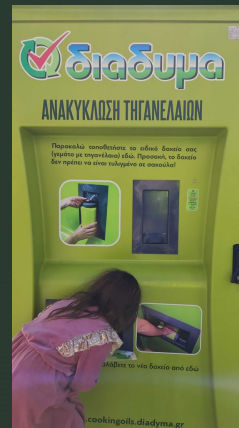


3) Circularity through biowaste valorization – Used Cooking Oils

- 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

<https://diadyma.gr/en/draseis/eurograms/>



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Western Macedonia

In2UCO
Ολοκληρωμένη καινοτόμος πιλοτική
διαχείριση τηγανελαιίων
με τη συμμετοχή πολιτών και μαθητών

Interreg - IPA CBC
Greece - Albania
LESS WASTE II

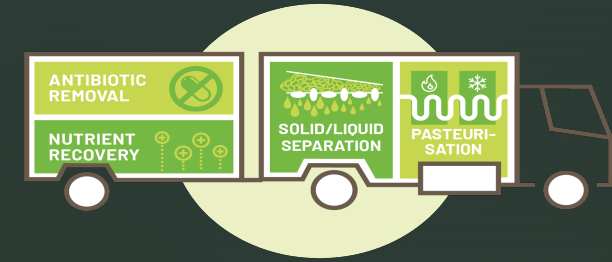
4) Circularity through biowaste valorization – Spent Coffee Grounds



- 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/>

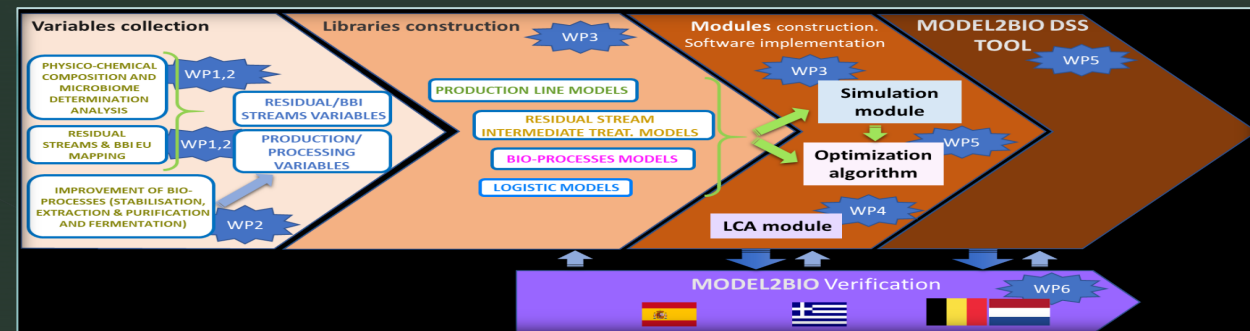
5) Circularity through biomaterials upcycling

- 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/>

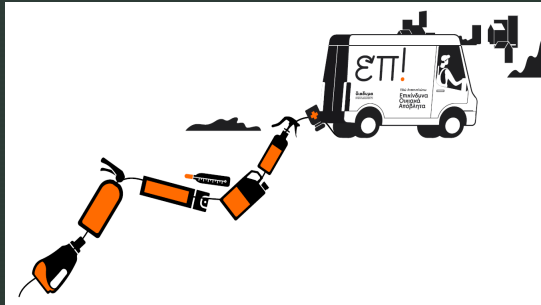


6) Circularity through agri-food by-products valorization

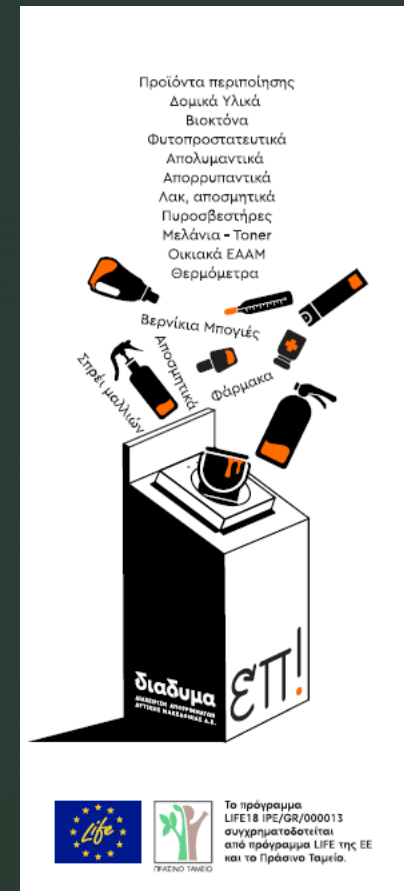
- Development and validation of the MODEL2BIO Decision Support System tool
- Innovative concept based on predictive models will estimate:
 - the agri-food industry residual streams composition (considering the seasonality, territorial features and origin)
 - the best valorization ways
- Prioritization 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 entrepreneurs
- Planning of Treatment facility
- More info here: <https://circulargreece.gr/>



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LIFE18 IPE/GR/000013



8) Circularity through the management of Pesticide Packaging Waste

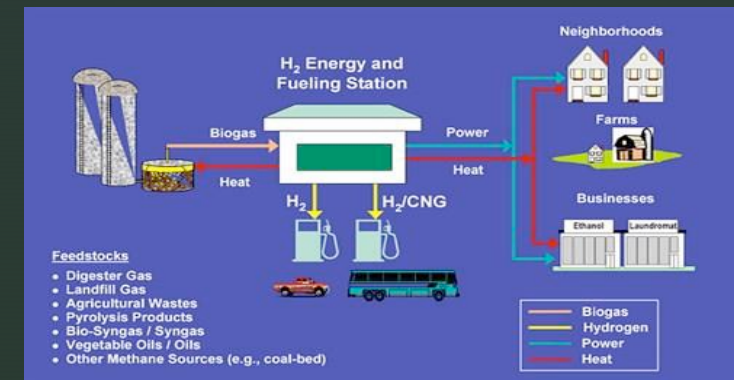
- Development of a collection network at regional level
- Planning of a treatment facility
- Reuse of plastic pesticide packaging for the development of new products through 3D printing

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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



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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

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Thank you for your attention!

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