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The case of LIPOR: optimising the management of the organic fraction in the Greater Porto area

Working for a circular bioeconomy at local and regional level

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AGENDA

- 1. PICTURE OF LIPOR**
- 2. LIPOR FRAMEWORK**
- 3. LIPOR BIO-WASTE STRATEGY**
- 4. LIPOR IN THE NEAR FUTURE**

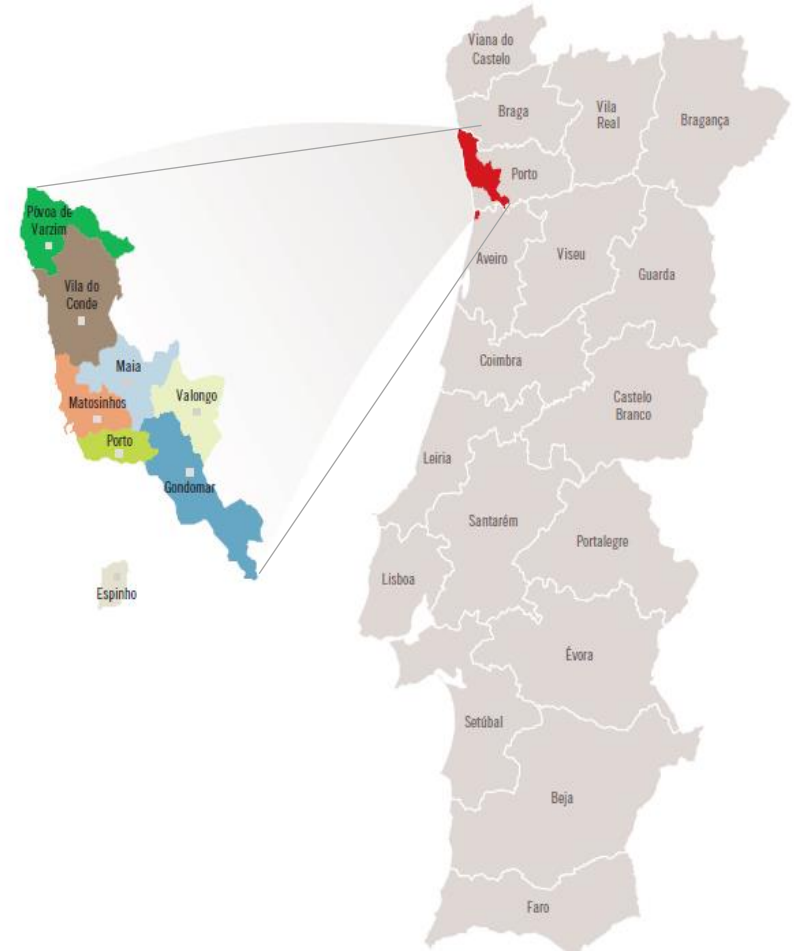


PICTURE OF LIPOR

PICTURE OF LIPOR

LIPOR - Intermunicipal Waste Management of Greater Porto, responsible for the management, recovery and treatment of MSW produced by the 8 Associated Municipalities.

Founded in 1982 as an Association of Municipalities. In 2017, LIPOR celebrated 35 years.



PICTURE OF LIPOR



8

Municipalities

1.000.000

Inhabitants

500.000 t

MSW Treatment



1%

Area

10 %

Population

12 %

MSW Annual production



LIPOR FRAMEWORK

LIPOR AND THE SUSTAINABLE DEVELOPMENT GOALS



In its strategy, LIPOR committed itself to sustainability and to the sustainable development goals.

Examples of LIPOR's involvement with the SDG are:

- ✓ implementation of a **R&D process**;
- ✓ compliance of the **Quality Management Systems**;
- ✓ development of the **Environmental Education Program**;
- ✓ promotion of the **Prevention of Waste Production**;
- ✓ implementation of the **Strategy LIPOR 3M**;
- ✓ **Biodiversity** Strategy;
- ✓ establishment of Multisector **Partnerships**.

**LIPOR
FRAMEWORK**

The Strateg

PERSU
MSW National
Strategic Plan

LIPOR PAPERSU
Action Plan

Prevention

improvement

LIPOR FRAMEWORK



**> 40% Bio-waste in
MSW**

**Bio-waste recovery
Decision making**

**> 60% of national soils
at risk of
desertification**



**Preparation for Reuse
and Recycling Target**



LIPOR BIO-WASTE STRATEGY

LIPOR FRAMEWORK

Treatment options



LIPOR

MAIN PROJECTS



Main projects implemented



- Separate collection for Green Waste
- Separate collection in cemeteries
- 5* Project: food waste separate collection for HORECA sector
- Bio-waste separate collection for Big Generators (Fresh markets, agrifood companies, ...)

5* Project : Main Results, 2017



- Number of Adherents > 1700
- Total amount Food Waste > **17.000 tonnes**
- % of impurities < 5%

LIPOR

MAIN PROJECTS

Separate collection for Households

2 Pilot projects in course (Valongo and Matosinhos)

Around 3,500

Implementation of bio-waste
separate collection in eight
municipalities of LIPOR by 2020

Collection of

Small bin for kitchen and another for collection



The Importance of Complementary Solutions



Horta à Porta

- Organic community gardens
- Start date: 2004
- 53 Organic community gardens
- More than 1,700 plots



Terra à Terra

- Promotion of Home Composting
- Start date: 2007
- More than 13,000 composters

LIPOR

BIO-WASTE STRATEGY

The Importance of Complementary Solutions

PROJECTS AND INITIATIVES AIMING TO PREVENT AND DECREASE THE PRODUCTION OF ORGANIC WASTE:

**DESPERDÍCIO
ALIMENTAR**

**DOSE
CERTA**

Embrulha.

**RAISING
AWARENESS**

**CHANGING EATING
HABITS**

**SUSTAINABLE
CONSUMPTION**

**REDUCE AND
COMBAT FOOD
WASTE
HEALTHIER MEALS**

COMMUNICATION TRAINING



REUSE WORKSHOPS

<u>Indicators</u>	<u>Results</u>
<u>Nr of Workshops</u>	55
<u>Nr of events</u>	7
<u>Nr of Participants</u>	2596



BIO-WASTE STRATEGY

The Importance of Complementary Solutions



BIO-WASTE STRATEGY

PREVENTION

- Initiatives against Food Waste:
 - Dose Certa
 - Embrulha.
- Home composting
- Community composting
- Natural gardens

BIO-WASTE RECOVERY

- Expansion of Separate collection of Bio-waste (Big Generators and Households)
- Expansion of Green waste separate collection

SUPPORT TOOLS

- Awareness and communication
- Implementation of PAYT systems
- Expansion of organic soil improver market with GPP



**LIPOR
IN THE NEAR FUTURE**

NEW PERSPECTIVES FOR THE MANAGEMENT OF THE ORGANIC WASTE FRACTION IN GREATER PORTO

The need to develop organic waste treatment solutions to meet EU goals for 2023 was identified

- Current composting platform not sufficient to treat all organic waste from Greater Porto (>150 kt/y).
- New solutions should be sustainable – economically, socially and environmentally.

The priority areas for R&D were identified

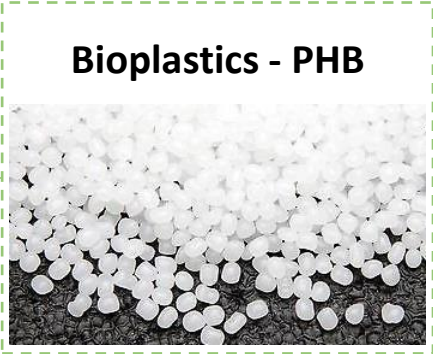
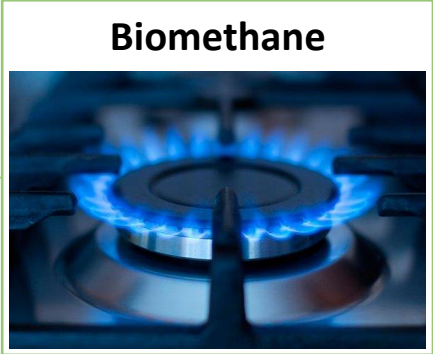
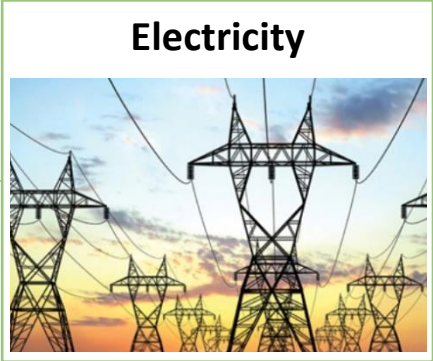
- Overview of available technologies – state of implementation, regulation, estimation of O&M costs and product profits.
- Anaerobic digestion; animal feed production; thermochemical conversion; de-centralized treatment.

Developing R&D projects in the identified areas

- Looking for partners and funding opportunities to develop projects in the priority areas identified.

ESTABLISHED SOLUTION

Anaerobic Digestion



- Established technology with high potential for innovation

Capital investment (€m)	10-20
Operational costs (€/t)	45.9
Product profits (€/t)	35.2
Balance (€/t)	-10.7

SOLUTIONS TO EXPLORE

Thermochemical Conversion



- Fast conversion method with potential for decentralization
- Process conditions determine proportions of products generated
- Need to evaluate applicability for organic waste treatment

Syngas



Bio-oil



Biochar



Animal Feed Production



- Animal feed can be produced from food waste – dehydration or BSF processing
- Methods established outside of Europe (Asia, USA)
- Legal framework highly restrictive in Europe.

LOCAL TREATMENT SOLUTIONS

Domestic composting



In-vessel composting



Composting islands

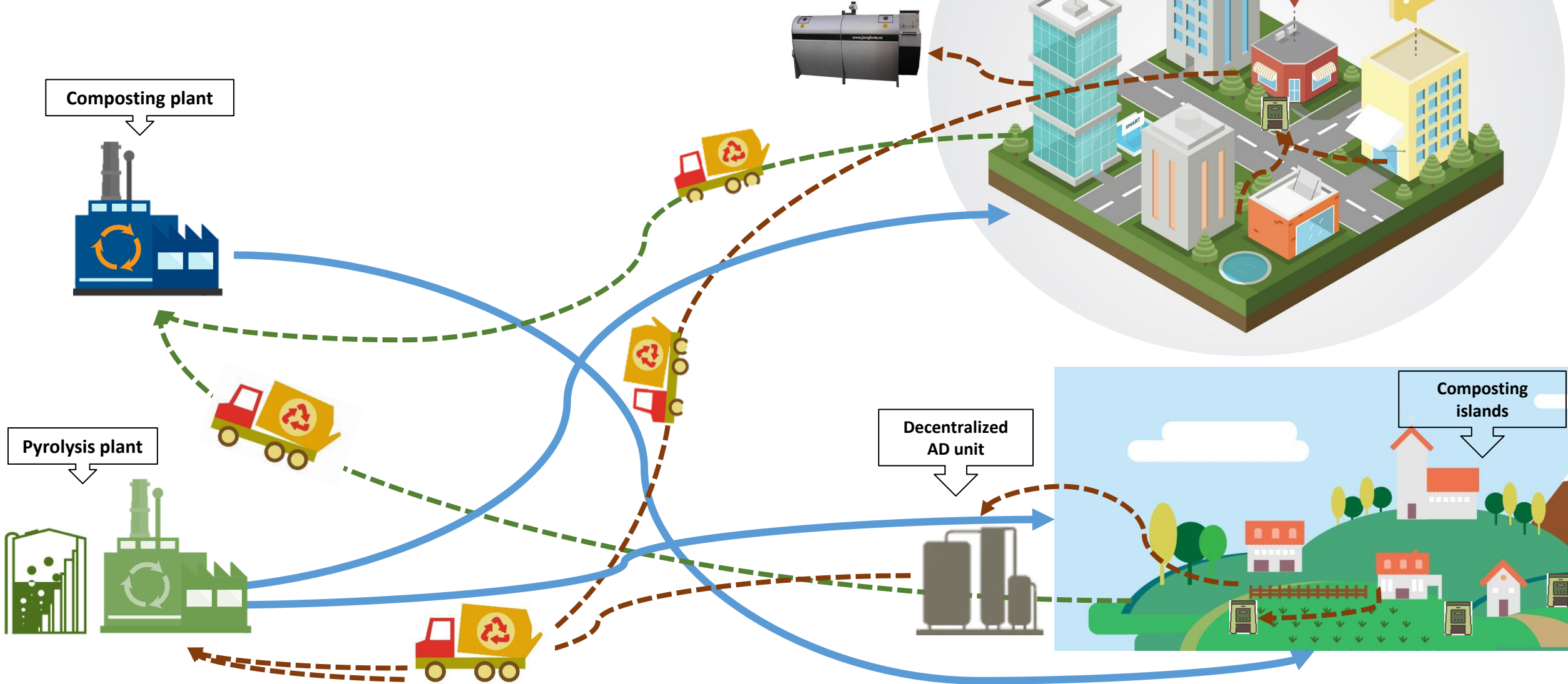
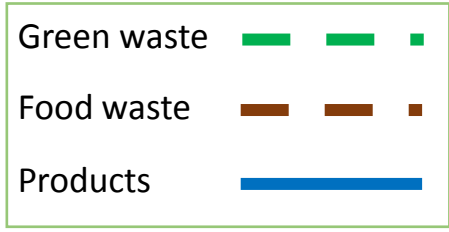


Modular AD



- Organic waste is treated locally, preventing the need for collection.
- Require the involvement of the citizens / residue producers.

VISION FOR 2030



LIPOR IS MEMBER OF...





Thank you!

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