



BIO CIRCULAR CITIES

Exploring the circular bioeconomy potential in cities

First Living Lab

Current biowaste management system, challenges and best practices
in the Metropolitan Area of Barcelona

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Barcelona

Barcelona, 22 de març
de 2022



Living Lab #1 - Metropolitan Area of Barcelona

Current biowaste management system, challenges
and best practice

Metropolitan Area of
Barcelona (ES)

22
March
2022

Exploring the circular bioeconomy
potential in the cities

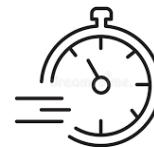


Presentation of local stakeholders

Mural platform: knowing the participants to the living lab

Explanation on how Mural is working

Each participant will drag a post it inserting under the logo of their entity, their name & surname and keys words on their expertise.



- 10 minutes:
- 2 minutes writing
- 8 minutes round table presentation



MURAL LINK:

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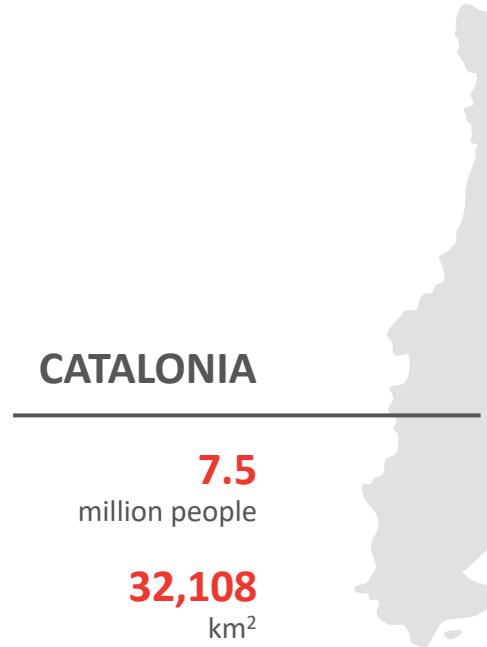
Biowaste: state of the art

Current MSW biowaste management in the Metropolitan Area of Barcelona

The pilot area AMB



Main characteristics of the area



7.5
million people

32,108
km²

236
inhabitants / km²

3,620,199
t_{MSW}

BARCELONA METROPOLITAN AREA

3.2 (42.6%)
million people

636 (1.9%)
km²

5,093
inhabitants / km²

1,416,763
t_{MSW}



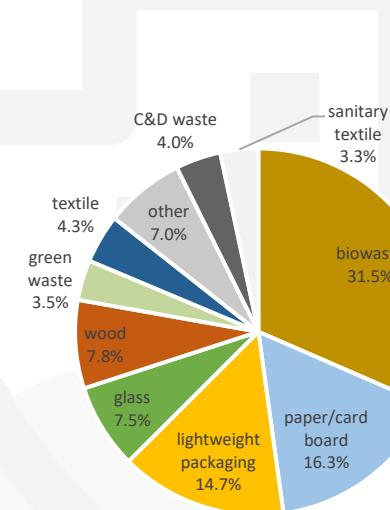
- 36 municipalities with competences on Waste collection
- AMB supramunicipal administration responsible for Waste treatment
- Industrial and service is the main economy
- Still important agriculture area
- Tourism has high economic importance
- Slow increase in population outside Barcelona

Description of the current biowaste management

Collected streams (2021)	tons	kg/inh/yr	%
biowaste	167.057,99	50,56	11,1%
glass	66.438,68	20,11	4,4%
paper/cardboard	99.428,98	30,09	6,6%
lightweight packaging	58.155,11	17,60	3,9%
bulky waste	78.403,49	23,73	5,2%
green waste	28.185,75	8,53	1,9%
other waste	62.057,89	18,78	4,1%
mixed waste	942.414,79	285,24	62,7%
total municipal waste	1.502.142,68	454,65	100,0%

Source: AMB 2022

Composition (2019)

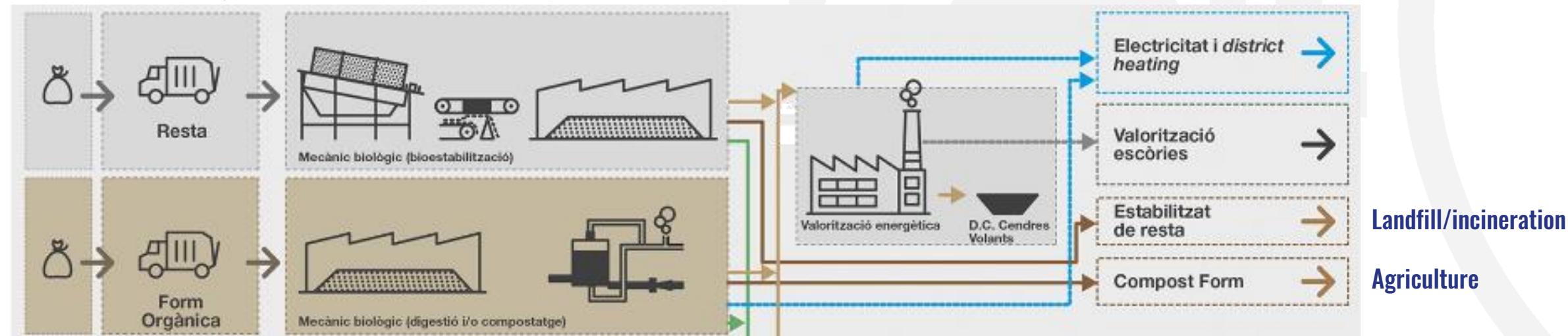


Source: AMB 2020

Description of the current biowaste management

Estimated production of 450.000 tons/year (60% households / 40% commercial activity)

Collection 300.000 tons/year



Collection 150.000 tons/year (16% impurities)

- Biowaste prevention measures: communication campaigns, certain local programmes.

Description of the current biowaste management



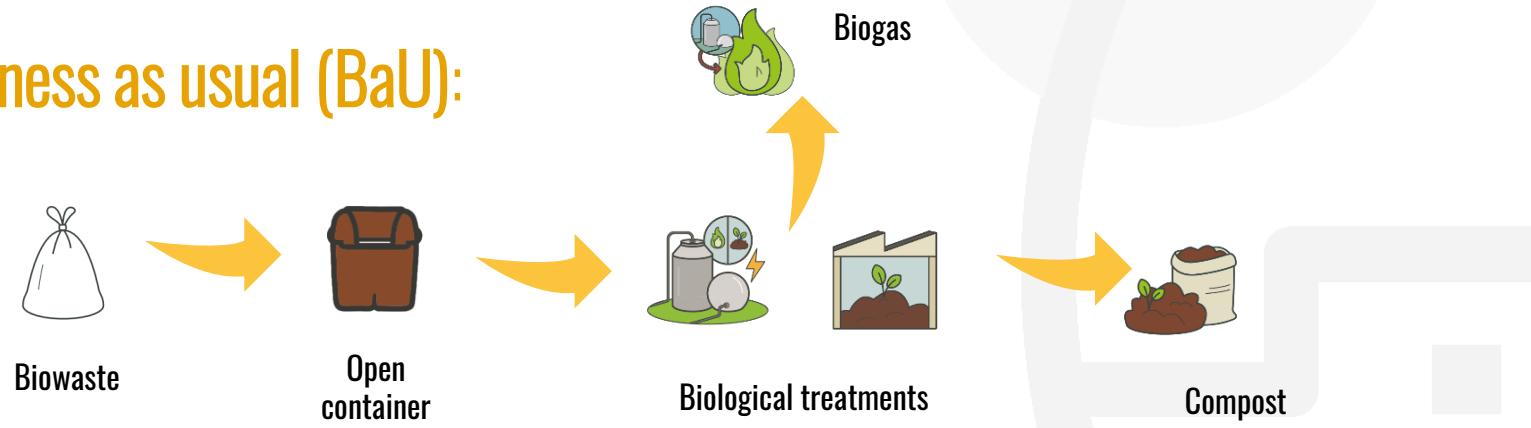
Selected biowaste chain

The Metropolitan Area of Barcelona pilot territory

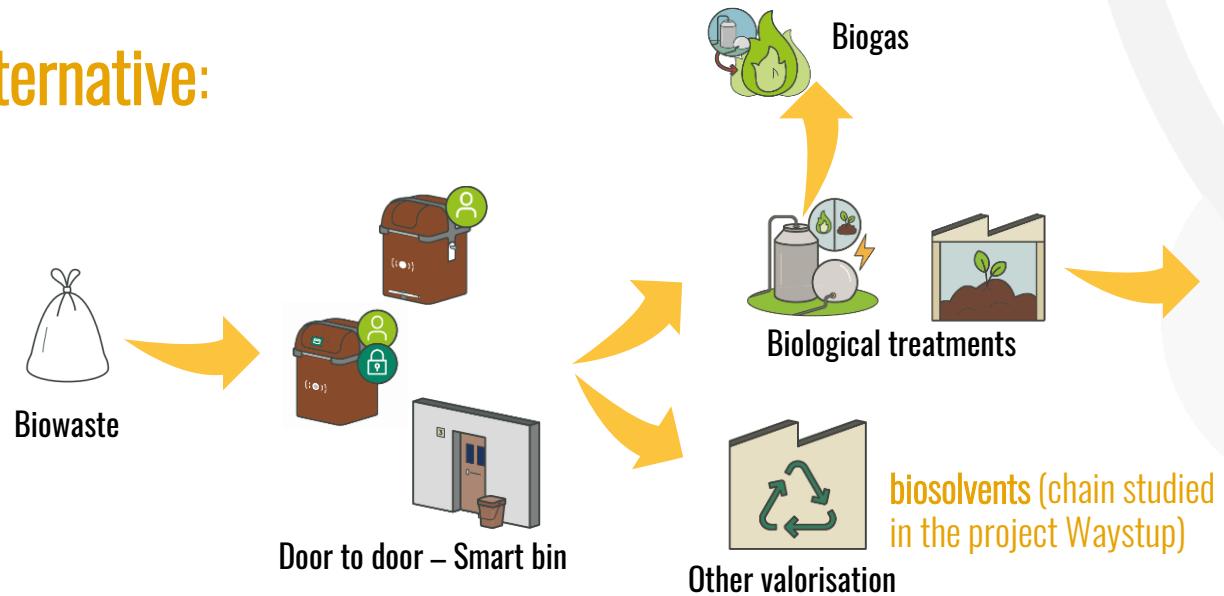


Biowaste chain selected in the AMB

- Business as usual (BaU):



- Alternative:



Policy framework on circular bioeconomy

The EU and the Metropolitan Area of Barcelona context



Approach

- **Aims**

- Review of regulatory framework related to circular economy and biowaste management both at European and local level in the selected areas of study
- To identify barriers and opportunities that limit or promote the circular use of bio-based products and processes

- **Scope**

- Territorial level: European, National, Regional, Local
- Where and which are the barriers?
- Can be circularity really promoted?



Summary of Regulatory and policy framework

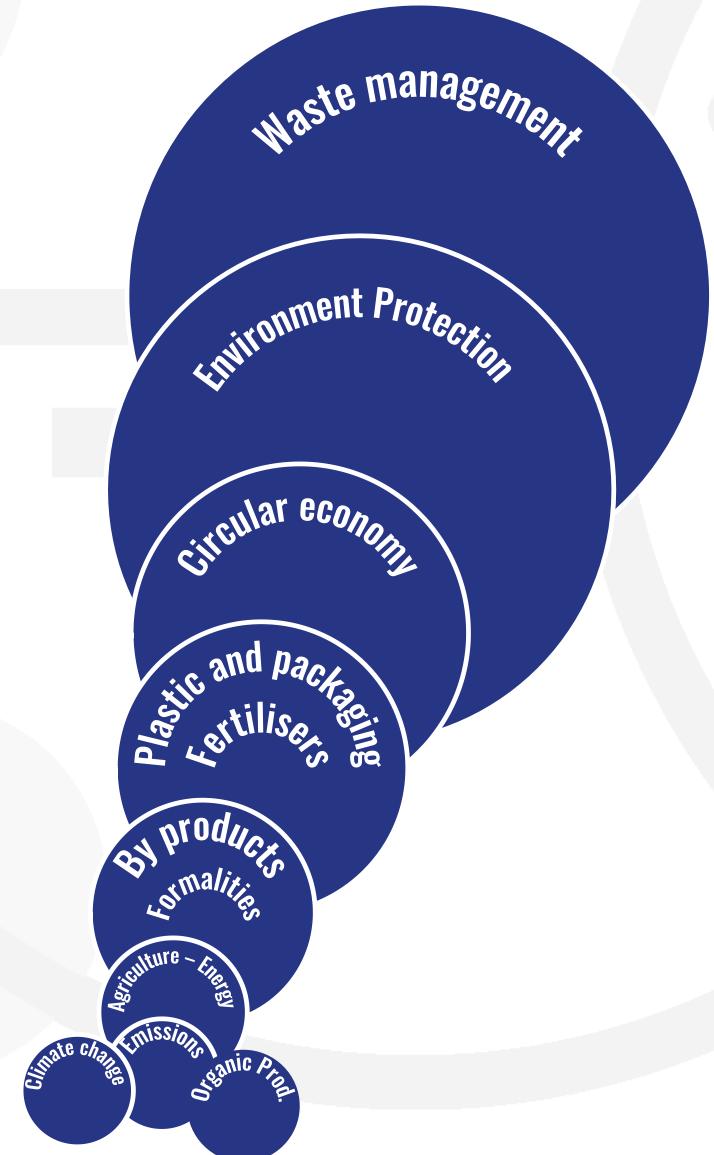
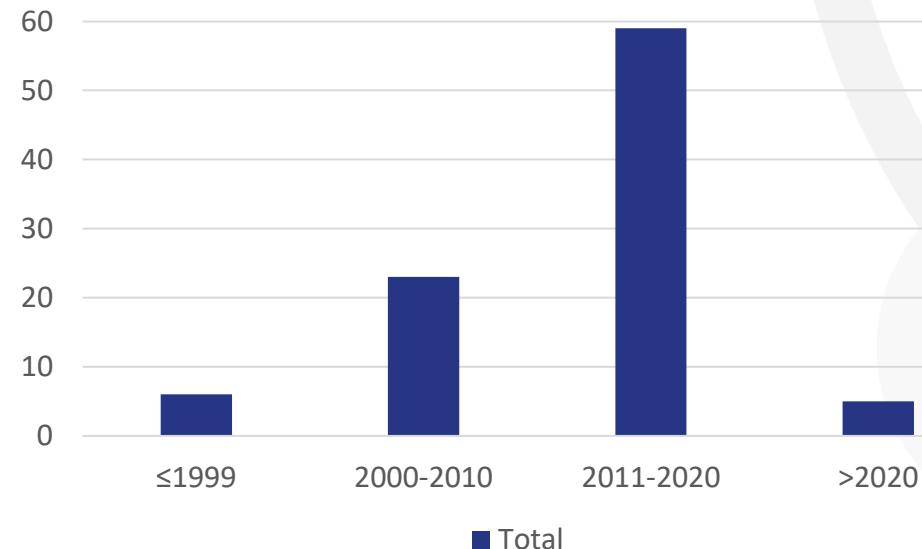


- Evolution along the years.

Pilot: AMB

- Europe
- Spain
- Catalonia
- Local

Collection of data per year (all data)



Relevant Plans and Directives at EU level

CIRCULAR ECONOMY

- **Planification**
 - COM(2015) 614 final. Closing the loop. An EU action plan for the circular economy
 - COM/2018/673 final. A sustainable Bioeconomy for Europe: Strengthening the connection between economy, society and the environment
 - COM/2020/98 final. A new Circular Economy Action Plan for a cleaner and more competitive Europe
- **Main regulation**
 - Waste Framework Directive. Directive 2008/98, on waste and repealing certain directives
 - Landfill Directive. Directive 1999/31, on the landfill of waste

Key messages from regulation framework in biowaste chain (EU level)

- Key messages at European level

- Reduction of biodegradable waste in landfill
 - Prohibited in landfill: BW of MSW from separate collection
 - 2035 – only 10% of MSW to landfill
- Obligation of separate collection or recycling at source of biowaste (from 31st Dec 2023)
- Recycling targets of municipal waste (in weight)
 - 2025 – 55%
 - 2030 – 60%
 - 2035 – 65%
- Bioestabilised from MBT will not account for recycling rate
- Need of defining End of Waste Criteria

Key messages from regulation in biowaste chain (local level)

- Key messages at Catalan level

- Compulsory separation of biowaste for > 5.000 inh (1998)
- Compulsory separation of biowaste for < 5.000 inh (2010)
- 60% valorization (2020)
- 10% impurities (2020)

- Key messages at local level

- Commitment to deploy identified collection by 2025
- Compulsory separation of biowaste (ordinance)



Best practices in circular bioeconomy

EU and Metropolitan Area of Barcelona context



Approach

- Aims

- Identify actions that can increase value of biowaste collected

- Scope

- Territorial level: European, National, Regional, Local
 - Main topic: biowaste as main
 - Related topics:
 - Technological innovation
 - Optimization and efficacy of collection System
 - Communication and dissemination activities
 - Fiscality
 - Control, surveillance, and sanctions



- Prevention
 - Separate collection
 - Preparing for re-use
 - Decentralised treatment
 - System Nudge
 - Optimization biodegradable waste composting plants

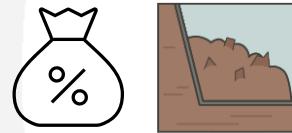
Most relevant good practices in biowaste management (regional & local level)

- Relevant good practices for the pilot (AMB)

Fiscality:

Helps to fund
biowaste collection

- Catalan disposal fee



Separate Collection:

Increase quantity and
quality of collected
biowaste

- Zero Waste Metropolitan Agreement
- Door to door collection schemes
- Tax reduction for participation in biowaste collection
- Compulsory use of compostable bags



Challenges in MSW biowaste management

Dynamic in Mural platform on challenges encountered in the MSW biowaste chain

Each participant will share his/her experience on challenges encountered in the MSW biowaste management



20 minutes:
5 minutes writing
10 minutes discussion
5 conclusions

In your activity, which are the main challenges encountered in the current management of the biowaste from MSW?

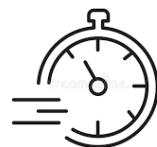
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Successful stories on circular bioeconomy

Dynamic in Mural platform on successful stories or possible alternatives on circular bioeconomy to improve the management of biowaste from MSW

Each participant will share his/her experience on successful stories on circular bioeconomy



20 minutes:

5 minutes writing

10 minutes discussion

5 conclusions

Please share any successful story or measures on circular bioeconomy to improve the management of the biowaste from MSW in the AMB

MURAL LINK:

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in cities

Thank you

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