DECISIVE- Conference:
A Decentralised Approach to Municipal Biowaste Management
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The separate collection system in Catalonia

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Separate Collection Promotion
Circular Economy Area
PART 1
• Separate collection in Catalonia Teresa Guerrero

PART 2
• Economic Instruments Nora San Sebastián
PART 1

1. New objectives in separate collection
2. The separate collection in Catalonia
3. How to improve the separate collection in Catalonia
4. Innovation in separate collection
1.- New objectives

Circular economy package

- Recycling objectives
  - Some separate collection mandatory
    - Biowaste separate collection by 2023
    - Textiles and hazardous waste by 2025
- The proposal requires Member States to use economic instruments
  Such as disposal tax

<table>
<thead>
<tr>
<th>Objective</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 %</td>
<td>2025</td>
</tr>
<tr>
<td>60%</td>
<td>2030</td>
</tr>
<tr>
<td>65 %</td>
<td>2035</td>
</tr>
</tbody>
</table>
Within the framework of the Circular Economy package and the European and National legislation, we have a new Waste Management Plan (PRECAT20) with these main objectives for 2020:

- **Decrease** the generation of municipal, industrial and construction *waste* by at least **15%** by weight compared to 2010.

- **Achieve** a separate *collection* rate of **60%** for municipal waste

- **Improve** the *quality* of waste collected to increase the recovery rate
  - Biowaste impurities < **10%** by weight
  - Packaging impurities < **25%** by weight
### 2.- Separate Collection in Catalonia

**Total MSW amount 2016:** 3,727,886 t  
496 kg/inh./y

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity (t)</th>
<th>kg/inh./y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separately collected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper &amp; cardboard</td>
<td>378,150</td>
<td>50,3</td>
</tr>
<tr>
<td>Glass</td>
<td>263,648</td>
<td>35,0</td>
</tr>
<tr>
<td>Packaging</td>
<td>166,136</td>
<td>22,1</td>
</tr>
<tr>
<td>Other waste separately collected</td>
<td>139,242</td>
<td>18,5</td>
</tr>
<tr>
<td>Residual waste</td>
<td>2,291,342</td>
<td>304,6</td>
</tr>
</tbody>
</table>

New target [PRECAT20] in 2020
2.- Separate Collection in Catalonia

Collection models

Containers in the street

High collection frequency
Free use
2.- Separate Collection in Catalonia

Collection models

Door-to-Door collection

Citizens deposit separated wastes at their door step
2.- Separate Collection in Catalonia

Biowaste separate collection
Wide implementation in Catalonia

Lleida: 141 / 221
Girona: 203 / 227
Barcelona: 259 / 311
Tarragona: 126 / 132
Terres d’Ebre: 52 / 52
## 2.- Separate Collection in Catalonia

<table>
<thead>
<tr>
<th>RESULTS</th>
<th>With containers</th>
<th>Door to door</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº Municipalities</td>
<td>640</td>
<td>140</td>
</tr>
<tr>
<td>Total Separate Collection Rate</td>
<td>5 % - 50 %</td>
<td>60 % - 85 %</td>
</tr>
<tr>
<td>Biowaste quantity</td>
<td>50 kg/inhab · year</td>
<td>105 kg/hab · year</td>
</tr>
<tr>
<td>Biowaste quality</td>
<td>14 %</td>
<td>0 - 5 %</td>
</tr>
<tr>
<td>Carbon food Print</td>
<td>149 kg CO₂eq/hab·año</td>
<td>92 kg CO₂eq/hab·año</td>
</tr>
</tbody>
</table>
2.- Separate Collection in Catalonia

Population distribution

The municipalities are responsible for the collection service
- Individual
- County, consortium
2.- Separate Collection in Catalonia

Counties: From 20 % to 60 %

Municipalities: From 10 % to 85 %
2.- Separate Collection in Catalonia

Evolution

We have reached 40% of total separate collection

We have been at the same level for 5 years

New target
3. How to improve the separate collection in Catalonia

Factors to be considered:
1. External factors
2. Internal factors
3. Treatment system
4. Cities and commercial activities
3. How to improve the separate collection in Catalonia

1. External factors

- Topography
- Housing and urban structure
- Climate
3. How to improve the separate collection in Catalonia

2. Internal factors

   **Contractual situation**

   Validity of the contract

   **Scope** of the contract: municipal or supramunicipal
3. Treatment system

Composting facility or Anaerobic Digestion?
How to manage the small green fraction

Getting the facility next to the producer
Decentralised approach
3. How to improve the separate collection in Catalonia

4. Cities and commercial activities

- The **54%** of the inhabitants in Catalonia live in municipalities bigger than 50,000 inhabitants where the separate collection rate is **below the average**.

- At least a **35%** of municipal solid waste is from commercial activities and services.

Improving the separate collection in **big cities** and **commercial activities** is a key to success.

The challenge is to achieve in big cities the results we already have in small municipalities → **INNOVATION**
4.- Innovation in Separate Collection

Public Procurement Innovation (PPI) for Separate Collection

- **Budget**: 10 M€ (50% EU funding) → 20 M€
- New subsidy
- We have to select the **5 or 7 demonstration pilots**
4.- Innovation in Separate collection

Doing some changes in the fractions collected:

**Lleida** (as other places in Catalonia)
4.- Innovation in Separate collection

Expanding the type of materials collected: **Barcelona** (currently in Sarrià and foreseen the whole city in the new contract)
4.- Innovation in Separate collection

- Reduction of hole containers size
- User identification in bins and containers
- Containers with mechanical lock
4. Innovation in Separate collection

Containers with electronic lock, user identification and measurement of volume and openings

GPS system
4.- Innovation in Separate collection

Communication and Information interactive system

APP / Big data

Monitoring system

Pay as you Throw
To summarize,
For improving separate collection in Catalonia and reaching **innovation is a key**, and we also need **economic instruments**

Waste Disposal Tax in Catalonia
Why Catalonia introduce the Waste Disposal Tax?

1. The Waste Management Treatment fees in Catalonia does not respect the waste management hierarchy: Landfill is cheaper than recycling!
Why Catalonia introduce the Waste Disposal Tax?

2. To improve waste recycling rates

Expensive disposal, higher recycling rates

Source: Use od Economic Instruments ans Waste Management Perfomances. Final Report 10 April 2012 (DG ENV)
Introduction of a Waste Disposal Tax municipal waste in EU

Figure 17 Number of MS that have introduced a landfill tax for the disposal of non-hazardous municipal waste in legal landfills, 1987-2012

Catalonia implements the Disposal Tax for municipal waste in 2004, but in Europe it began to be implemented since 1987!

Singularity of Catalan Environmental Taxation: Economic Pressure + Incentives

- Local authorities

  - Pay Disposal Tax

  - MBT treatment of mixed MSW

  - Landfill + Incineration

- Biological treatment of Biowaste

- Tax Refund (depending on the quantity and quality of Biowaste)

- European singular experience

- Return Tax
Law 8/2008, for financing of waste treatment infrastructure and of waste disposal tax on refuse of wastes (landfilled & incineration)

- Tax 35.6 €/T (landfilled)
- Tax 17.8 €/T (incinerated)

Guide for local authorities about Law 16/2003 on funding of the waste treatment infrastructures and of the tax on landfilling (annually reviewed), which includes the Tax refund criteria (2018):

- Biowaste Treatment [34 €/T]
- Biowaste Collection [10 €/T] x f1 x f2
  - Biowaste Quality factor (f1)
  - Population factor (f2)

Generalitat de Catalunya

<table>
<thead>
<tr>
<th>Urbana</th>
<th>Semiurbana</th>
<th>Rural</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1.28</td>
<td>1.5</td>
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</tbody>
</table>

Singularity of Catalan Environmental Taxation: Economic Pressure + Incentives

\[ y = -0.1786x + 3 \]
• Since 2004, more than 15,000 biowaste characterizations have been made.
• In addition to establish the impurities, 3 subfractions are quantified:
  ✓ Food waste
  ✓ Vegetable waste
  ✓ Food Wastage

https://sdr.arc.cat/cform/ListCaracteritzacions.do
## Evolution of the Disposal Tax

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</tr>
</thead>
<tbody>
<tr>
<td><strong>Landfill Tax</strong></td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>12</td>
<td>12,4</td>
<td>12,4</td>
<td>15,8</td>
<td>19,1</td>
<td>19,1</td>
<td>30,0</td>
<td>35,6</td>
</tr>
<tr>
<td><strong>Incineration Tax</strong></td>
<td>---</td>
<td>5</td>
<td>5</td>
<td>5,5</td>
<td>5,7</td>
<td>5,7</td>
<td>7,4</td>
<td>9,0</td>
<td>9,0</td>
<td>14,5</td>
<td>17,8</td>
</tr>
</tbody>
</table>

### Graph

**Graph Description:**
- The graph illustrates the evolution of incineration and landfill tax rates from 2004 to 2018.
- Each year's tax rate is represented by a bar, with incineration taxes shown in yellow and landfill taxes in green.

**Key Points:**
- **426 M€UR since the creation!**
- **409 M€UR (96%) returns to local authorities**
The redistribution of funds raised by the Tax

Redistribution of funds raised 2016

- Collection and Treatment of Biowaste: 42%
- Infrastructures: 27%
- Characterizations: 7%
- Waste Agency of Catalonia Management: 13%
- Reduce the refuse from treatment plants to landfills: 13%
- Reduce the refuse from treatment plants to incineration: 13%
- SWSQ Management in Clean Points: 4%
- Others: 2%
Reactivate the Tax to achieve prevention and recycling objectives

Consensus between 3 local authorities associations and Waste Agency of Catalonia to increase the landfill tax near € 50 / t and the incinerator about € 25 / t in 2020.
Evolution of Catalan municipalities with biowaste separate collection implemented

- Law on waste (come into force)
- Landfill Tax
- Incineration Tax
- Law on waste
Thank you very much

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