



**Agència de
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Catalunya**

Séminaire sur le traitement des déchets: une opportunité économique, sociale et environnementale

Gestion des déchets en Catalogne
Waste management in Catalonia

Jeudi 3 Juin 2021



**Generalitat
de Catalunya**

Francesc Giró i Fontanals
Director of Strategic Planning
Waste Agency of Catalonia



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General Info on CATALONIA



31,895 km²



947 Municipalities



42 Regions



29,000 € per cap.

Population

CATALONIA 7.53 M



Barcelona Area 3.24 M



Barcelona 1.62 M



Tourism

Tourists (2017) 26.35 M



Average Stay 4.2 days

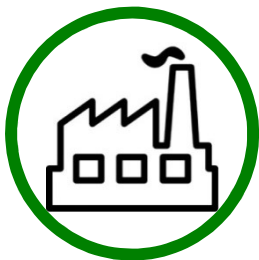
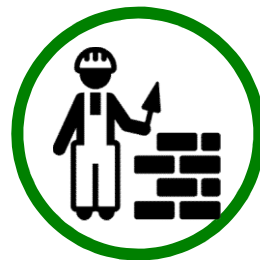
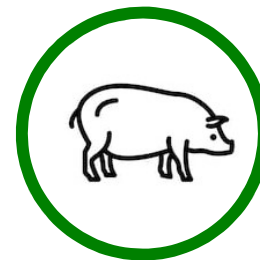


Equivalent to 0.30 M



General Info on Catalan Waste Agency

- **Public Company belonging to**  Generalitat de Catalunya
Government of Catalonia
- **Own Competences on waste:** **Ministry of Territory and Sustainability**

Municipal	Industrial	Construction	Sanitary	Livestock
				
3,849,168 T	3,618,076 T	2,700,000 T	4,200 T *	19,750,000 T

- **Work areas:**

* Groups III & IV

Legislation	Planning	Inspection	Investment	Subsidies	Awareness	Observatory	Soil Protec.
							

- **Linked to:**     

25 years ago in Catalonia...

Catalonia, until 1991:

- Waste collection: mixed waste
- Lack of technology treatment
- Waste were thrown into uncontrolled landfills, were covered or burned without any control



Vision:

- Waste seen as a hygienic-sanitary problem
- Soil, water & air contamination
- Discomforts and complaints of citizens



Strategic actions in two environmental areas in Catalonia

- **Water**



- **Waste**



It is a must to act in order to improve the environmental conditions, reducing the impact on the environment (air, soil and water) and on the health of people. **WASTE ARE RESOURCES**. When waste are properly managed, it becomes an **opportunity to generate jobs, reactivate the economy and tourism and make companies more competitive**.

Keys to understand the progress of Catalonia in the field of waste



**Separate
Collection of
MSW in
Catalonia**

1993 → 1,4 %
2017 → 40,0 %



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Keys to the waste policy

- **Leadership**
- Political and social **consensus**
- Political **will**



Legal Tools

- **Law on waste** (6/93 and later)
- **Law** on investment of infrastructures & of **environmental taxation** (16/2003 and later)

Budget provision (2004-2016) **1 BILLION €**



- More than 850 M€UR in infrastructures
- More than 150 M€UR in subsidies for local authorities (prevention, separate collection,...)



Waste Agency of Catalonia

- An important structure of 200 public employers working for improving waste management



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Keys to understand the progress of Catalonia in the field of waste



LEGAL OBLIGATIONS

SEPARATE COLLECTION TARGETS (In Programmes)

PLANNING OF THE NETWORK OF INFRASTRUCTURES

ECONOMICAL TOOLS

- **Environmental Taxation**
 - Tax & Tax Refund
 - PAYT (Pay as you Throw)
- **Subsidies**

Separate
Collection of
MSW:
Catalunya
1993 → 1.4 %
2017 → 40.0 %

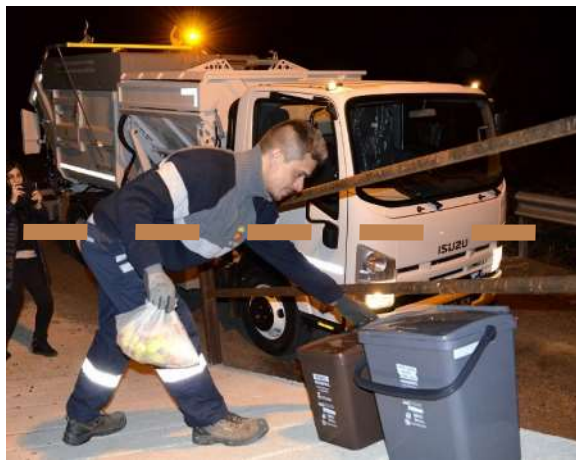


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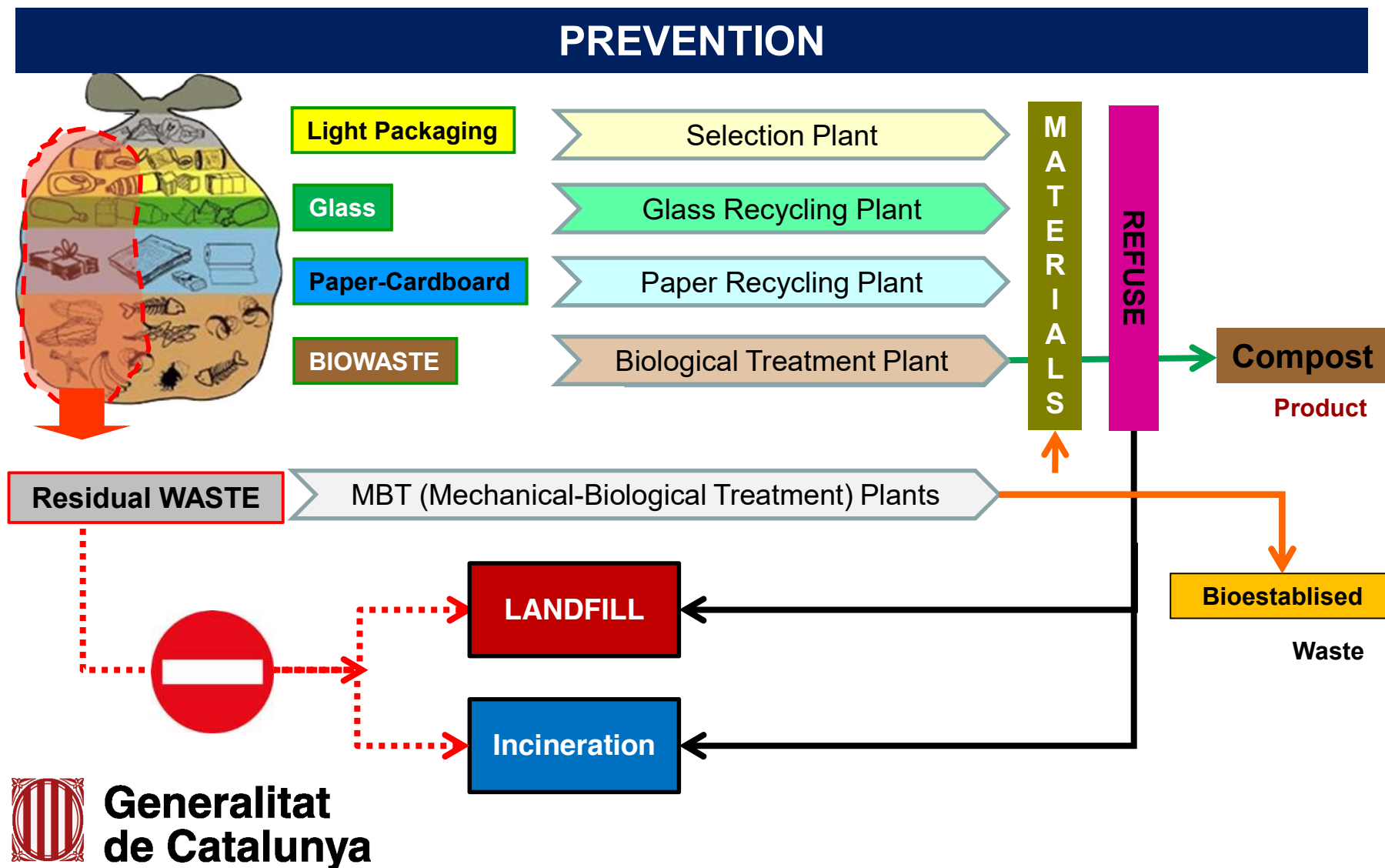
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Efficient management of organic waste





A robust and flexible waste management model





Status on Separate Collection of Biowaste in Europe

- **Potential Recycling of Biowaste in Europe: 125 -130 M tpy**
- **Current Recycling of Biowaste in Europe: 30 M tpy**
- **~ 100 Mio. tpy are wasted**

Sweden: 105 sites, 0.71 million tons of biowaste

Finland: 20 sites, 0.36 million tons of biowaste

United Kingdom: 220 sites, 3 million tons of biowaste

Netherlands: 70 sites, 3.2 million tons of biowaste

Belgium (VLG): 85 sites, 2,7 million tons of biowaste

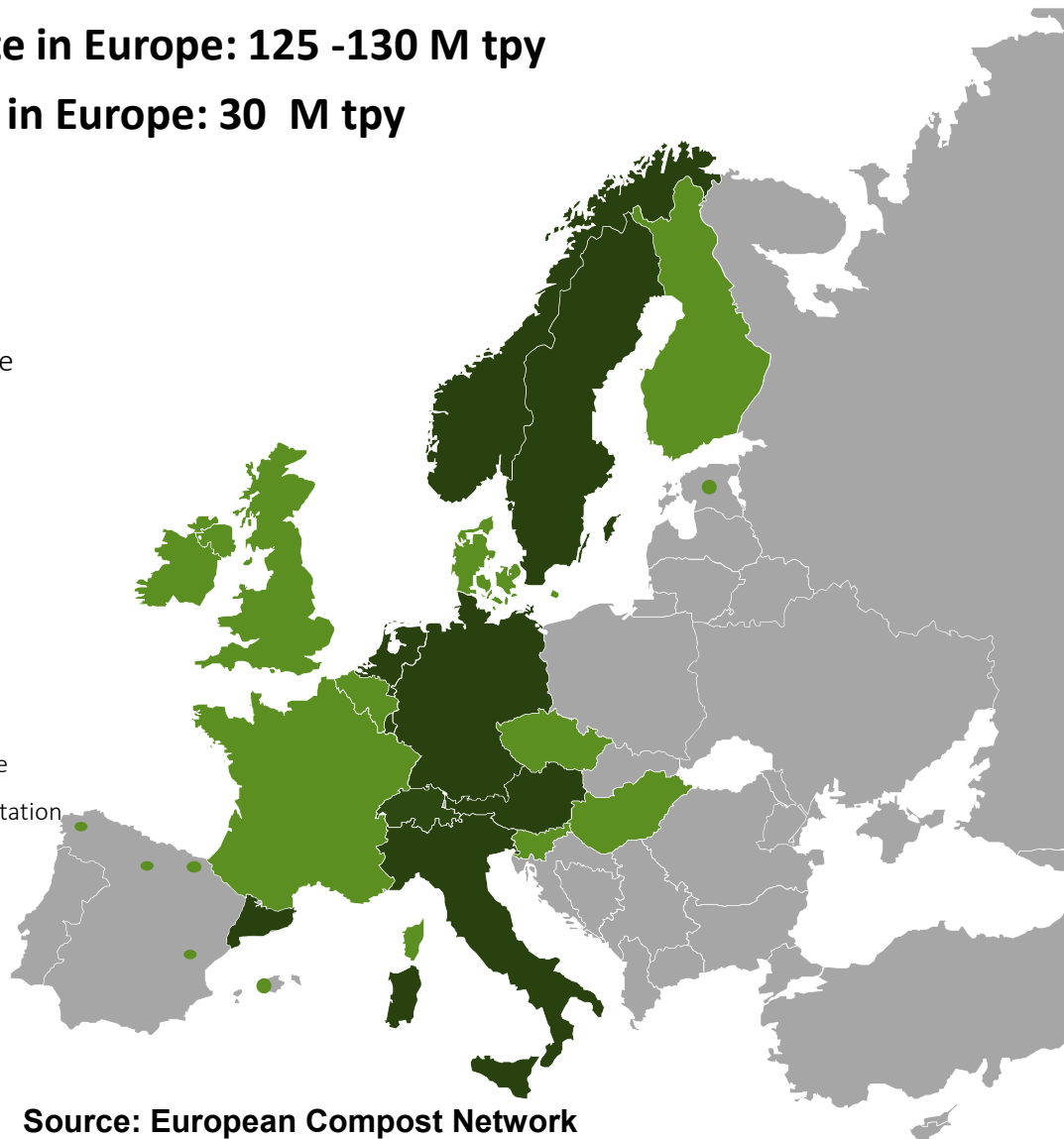
Germany: 800 sites, 10 million tons of biowaste

Austria: 700 sites, 1.5 million tons of biowaste

Italy: 240 sites, 5.2 million tons of biowaste

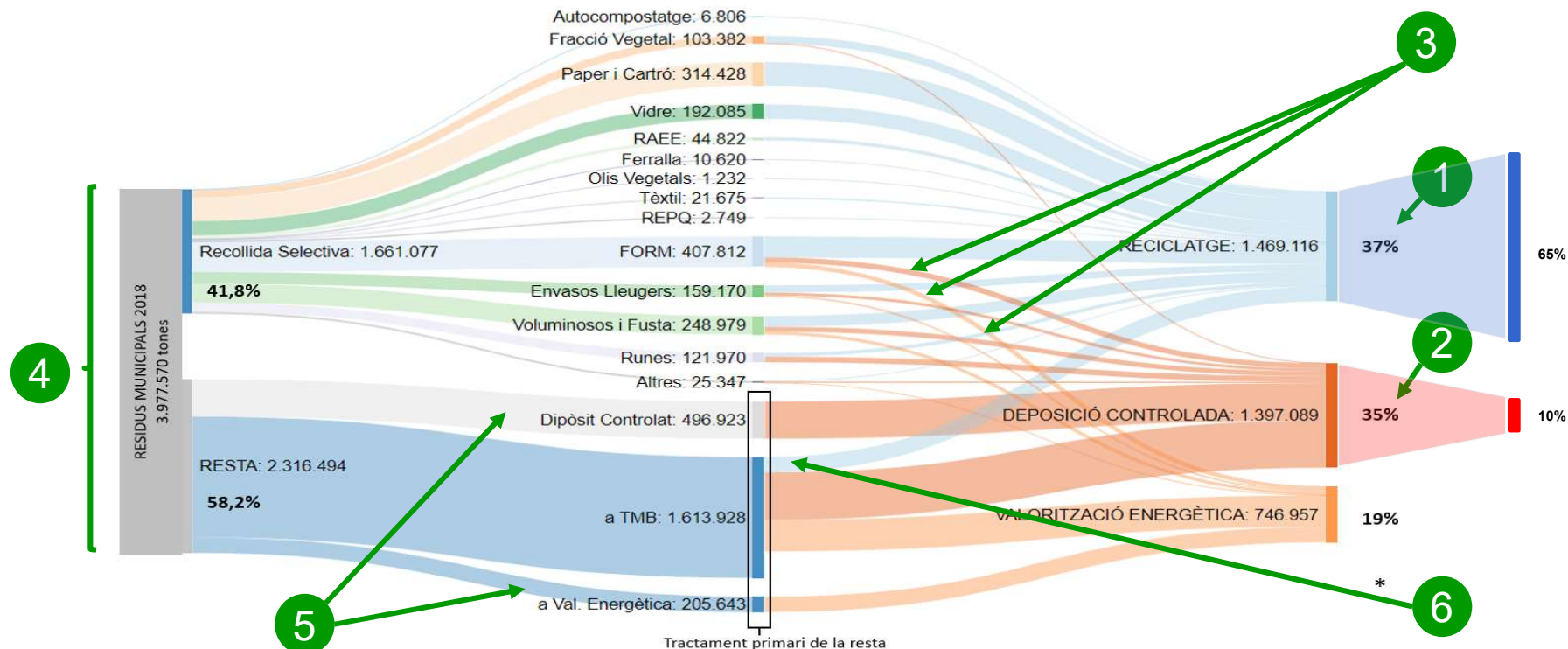
Catalonia: 26 sites, 0.5 million tons of biowaste

- Separate collection and composting/digestion of biowaste
- Separate collection of biowaste in preparation/implementation
- Only limited collection of biowaste





Current situation (2018) of Municipal Waste management vs objectives



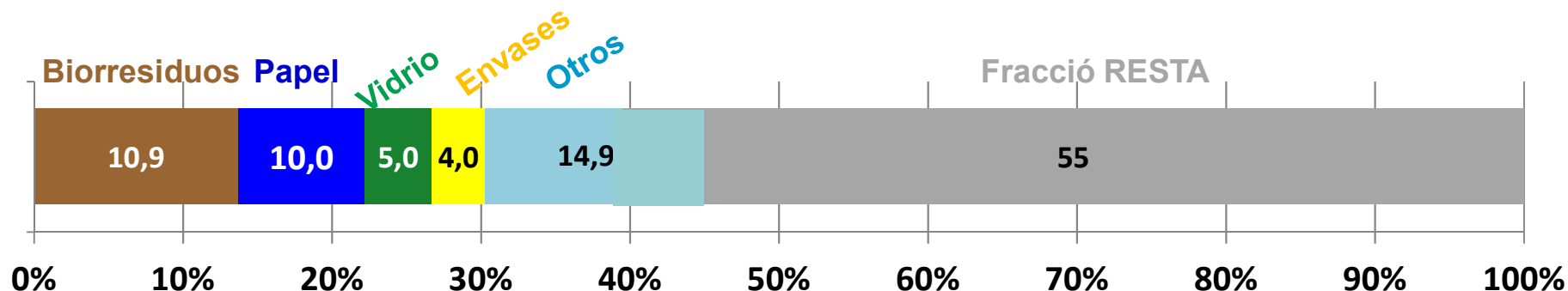
1. Increase recycling levels to 65% (by 2035)
2. Reduce waste disposal up to 10% of the total
3. Improve the quality of separate collection
4. Maximize selective collection ahead of the rest fraction
5. Treat 100% of the remainder fraction generated
6. Improve the efficiency of the TMB facilities of residual fraction





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The current situation of the separate collection of municipal waste in Catalonia



Mitjana a CATALUNYA (45%)

Municipis sense Recollida Selectiva de la FORM (fins un 20%)

Municipis amb Recollida Selectiva de la FORM. Recollida en contenidors (màx. 50%)

Municipis amb Recollida Selectiva de la FORM. Recollida PAP (mitjana 70%)

Municipis amb Recollida Selectiva de la FORM. Recollida PAP i PxG (mitjana 85%)



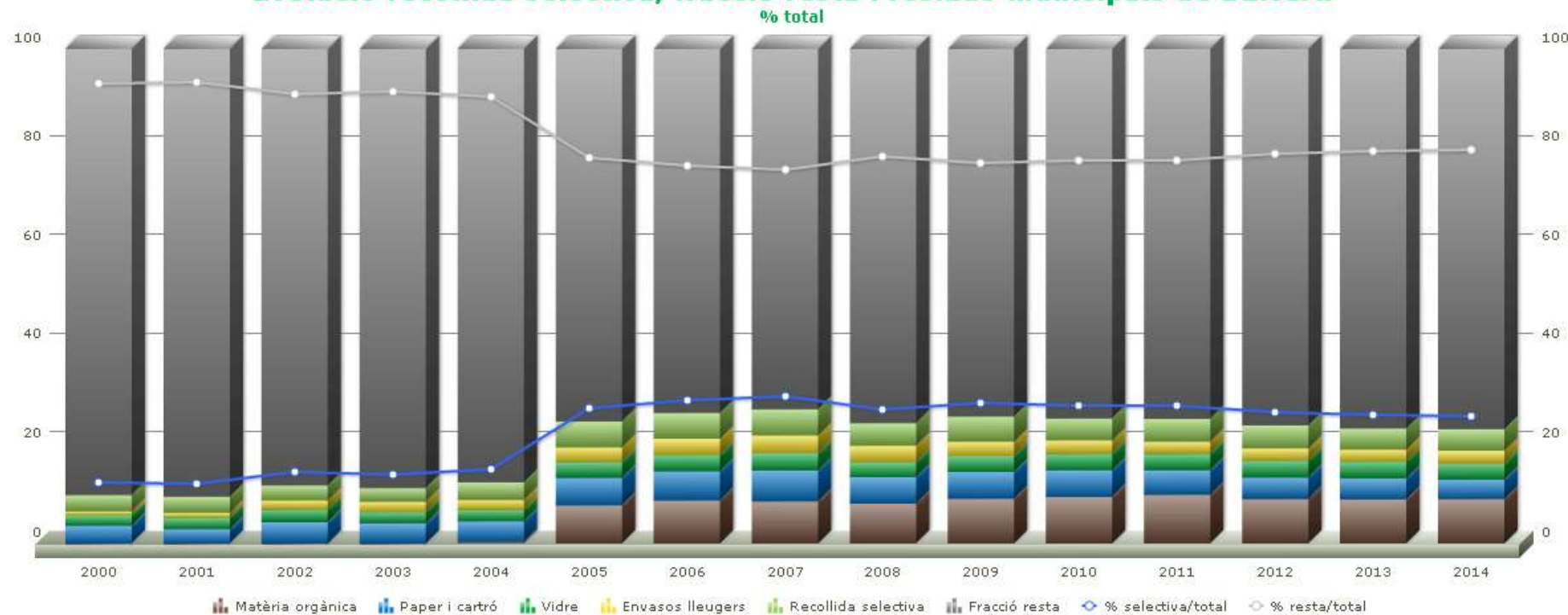
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Characteristic profile of municipalities with **NO Door-to-Door** collection

Evolució recollida selectiva, fracció resta i residus municipals de BERGA.



[Avis legal](#) | © Agència de Residus de Catalunya |

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i Sostenibilitat

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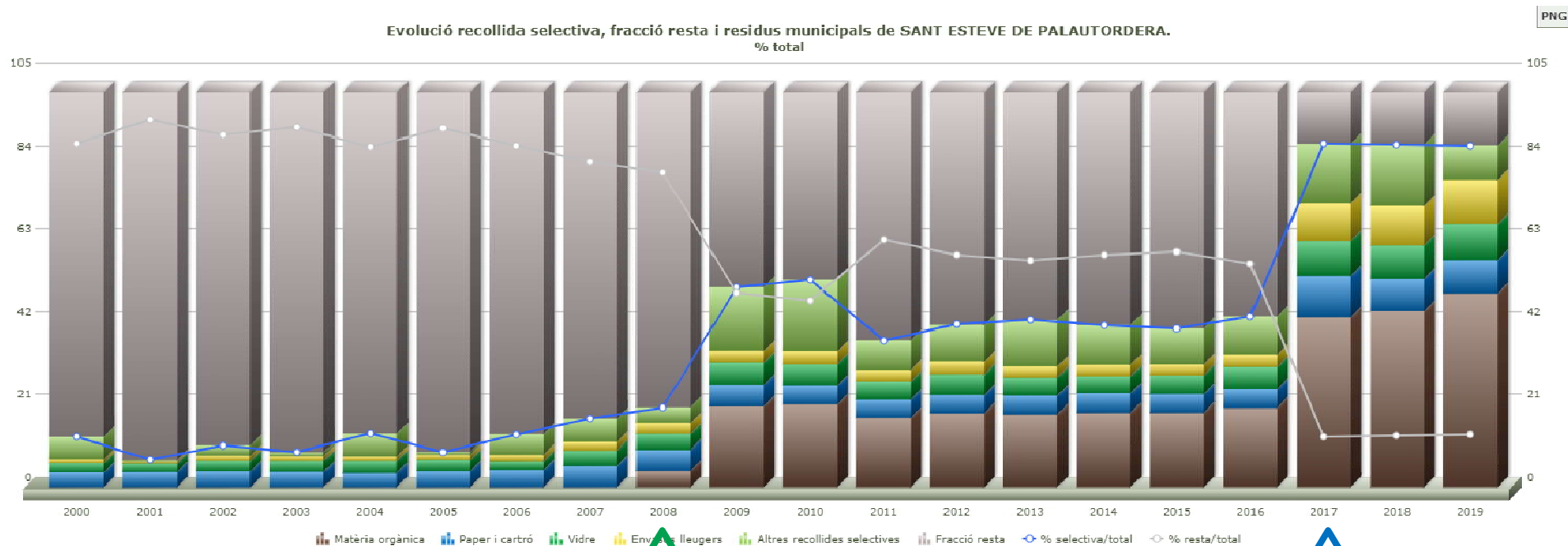


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Characteristic profile of municipalities with door-to-door collection



Separate
Collection of
Bio-waste

Door to Door
Separate
Collection



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Separate Collection Results according to the collection system (2018)

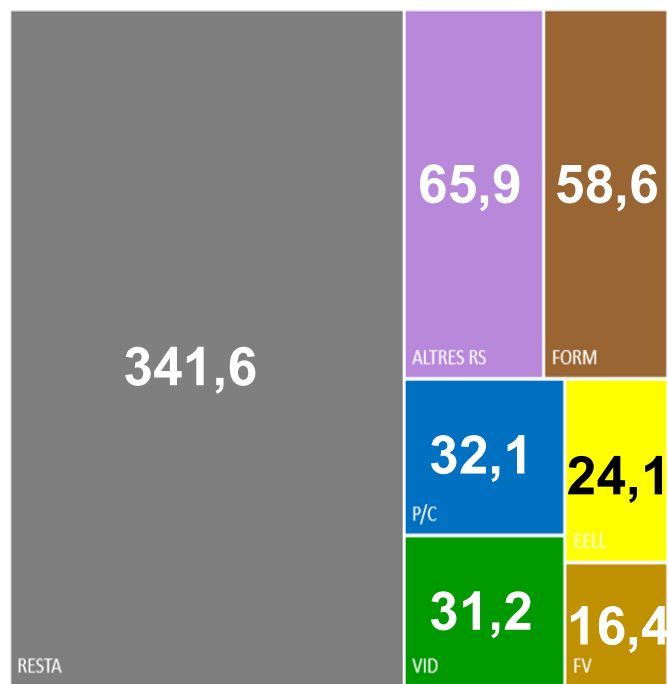
Road
Container

Door to
Door

Separate Collection data of some waste streams in kg/inhab·year, comparing Road Container collection with Door to Door collection. 2018 data

Mitjana Recollida Selectiva **Contenedor**

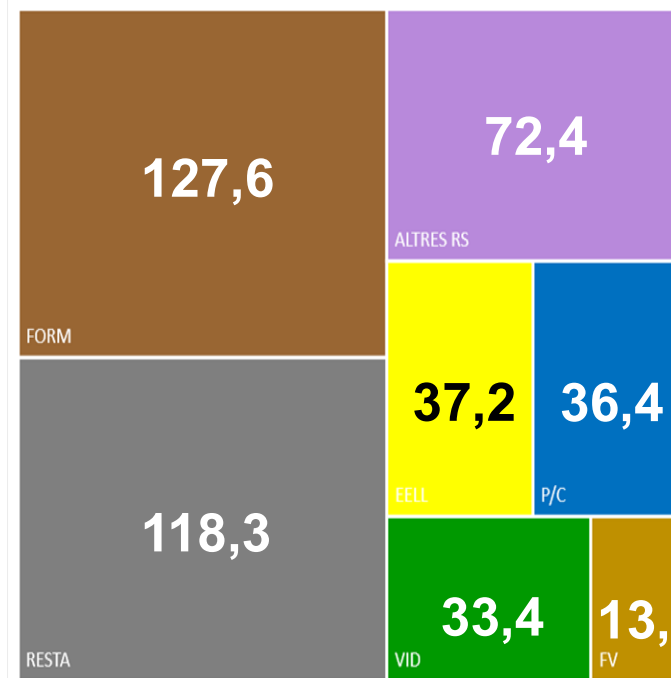
FORM FV VID P/C EELL ALTRES RS RESTA



570 kg/hab·any

Mitjana Recollida Selectiva **Porta a Porta**

FORM FV VID P/C EELL ALTRES RS RESTA



438 kg/hab·any



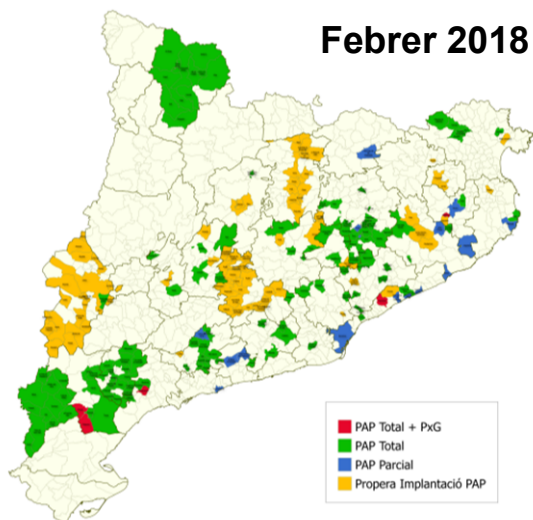
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Evolution of Door to Door Separate Collection in Catalonia (2018-2020)

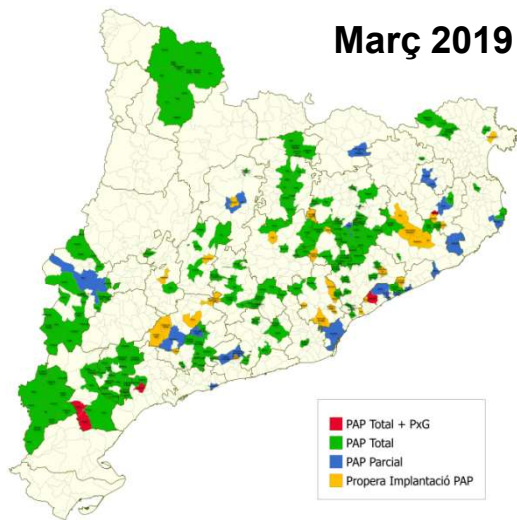
Febrer 2018



156 municipis

PAP Total + PxG	5 municipis
PAP Total	134 municipis
PAP Parcial	17 municipis
Propera Implantació	77 municipis

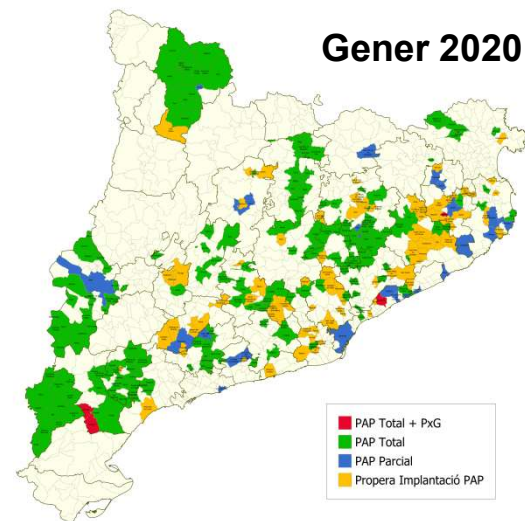
Març 2019



204 municipis

PAP Total + PxG	5 municipis
PAP Total	179 municipis
PAP Parcial	20 municipis
Propera Implantació	30 municipis

Gener 2020



211 municipis

PAP Total + PxG	4 municipis
PAP Total	184 municipis
PAP Parcial	23 municipis
Propera Implantació	84 municipis



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In May 2021, there are 230 Door to Door Municipalities
and more than 150 municipalities are prepaig
implementation of Door to Door Separate Collection



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Door to Door collection. Concept and adaptation to various contexts





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The Door to Door Separate Collection in Barcelona



PORTA A PORTA



RESTA

Bossa grisa de 35L amb tag



ENVASOS

Bossa groga de 60L amb tag
els primers 6 mesos



PAPER I CARTRÓ

Bujol comunitari de 120 a
240L amb tag / A granel en
unifamiliars i blocs petits



ORGÀNICA

Cubell de 20 o 40L amb tag

VIA PÚBLICA



VIDRE

Contenidor amb boca reduïda



TÈXTIL SANITARI I EMERGÈNCIA

Sistema itinerant amb
identificació amb 12 punts
de parada matí i tarda

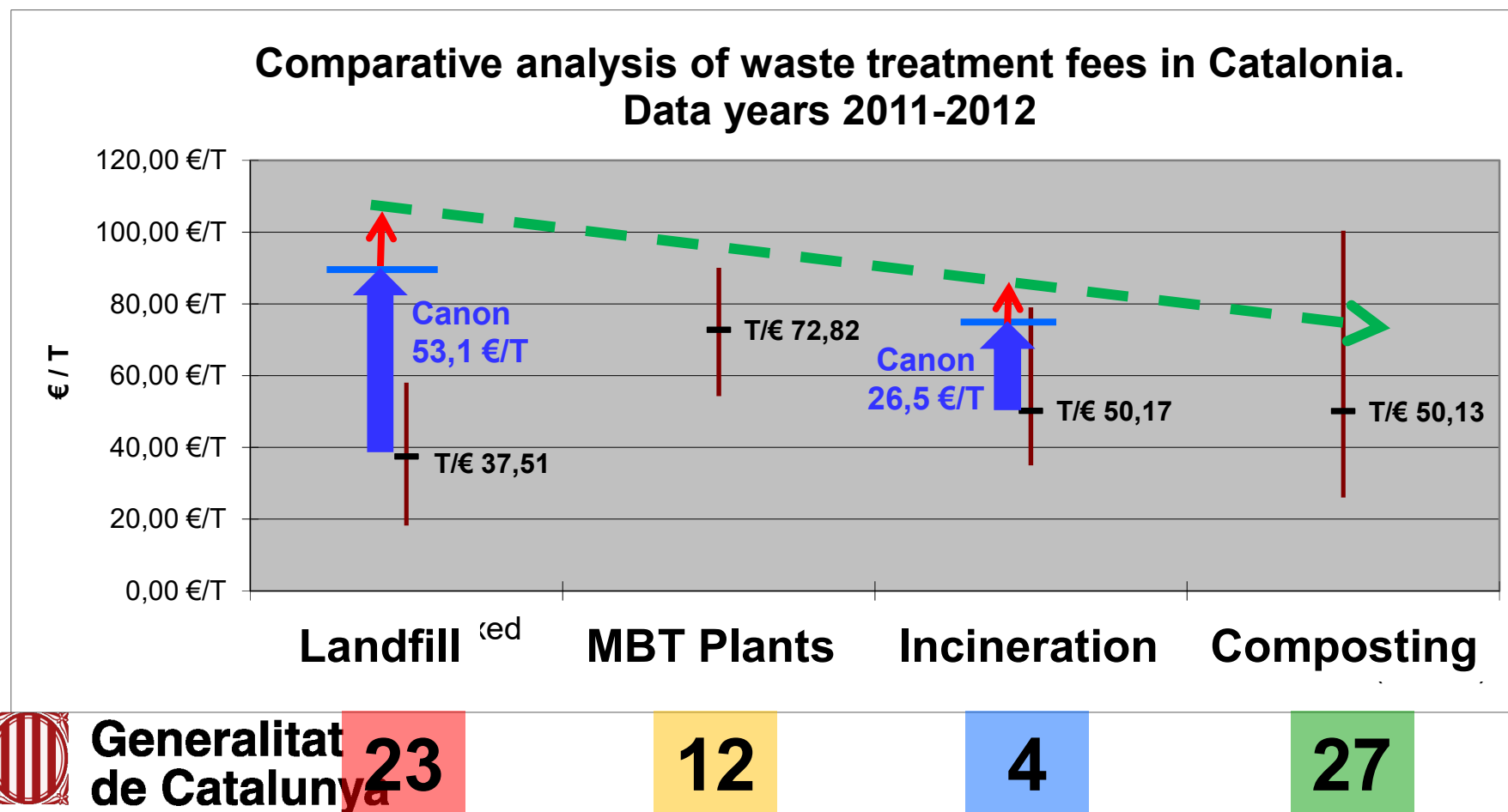


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Why the Waste Tax was introduced in Catalonia?

1. Because the cost of waste treatment does not respect the priority of the management hierarchy: **Landfill was cheaper than recycling!**

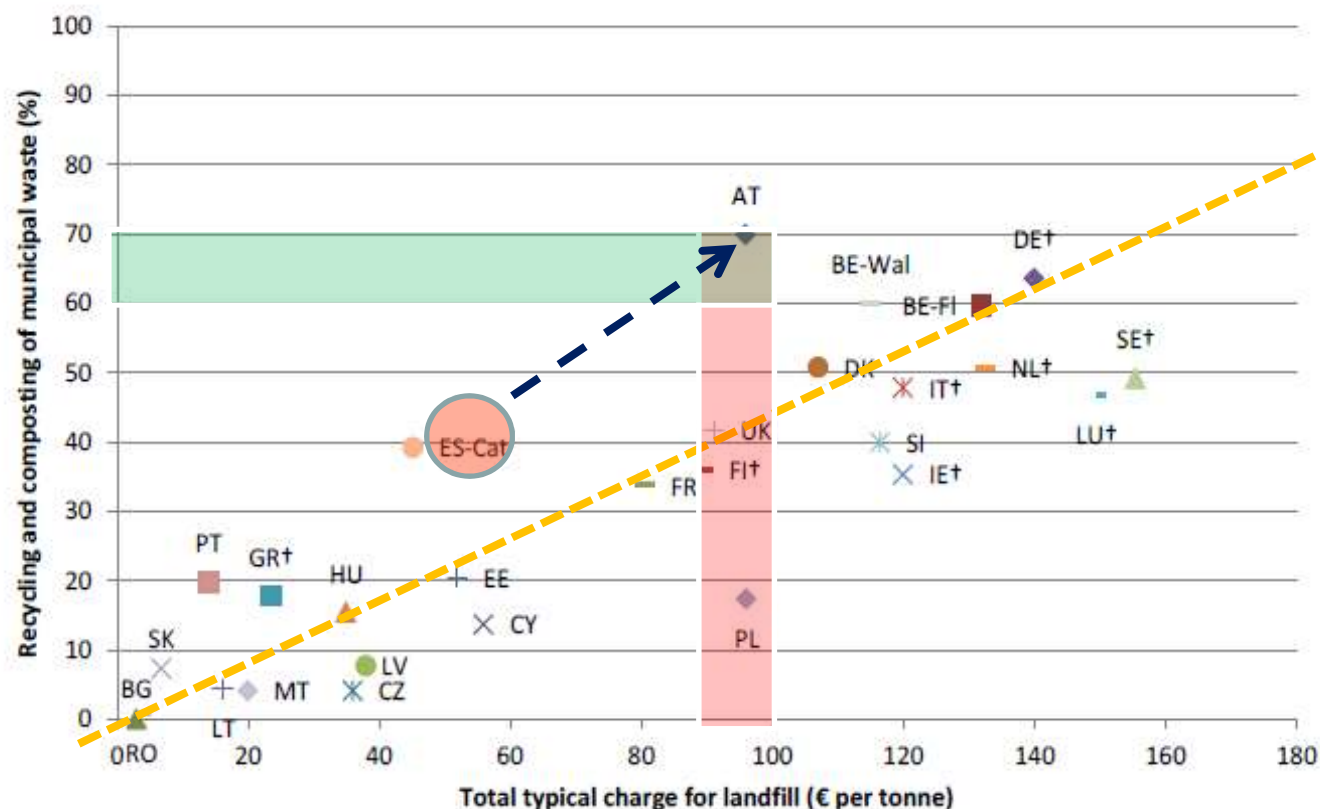




Why the Waste Tax was introduced in Catalonia?

There is a direct correlation between the cost of landfilling and the recycling and composting rate. **The more expensive, the more recycling**

Figure 21 Total typical landfill charge and percentage of MSW recycled and composted, 2009

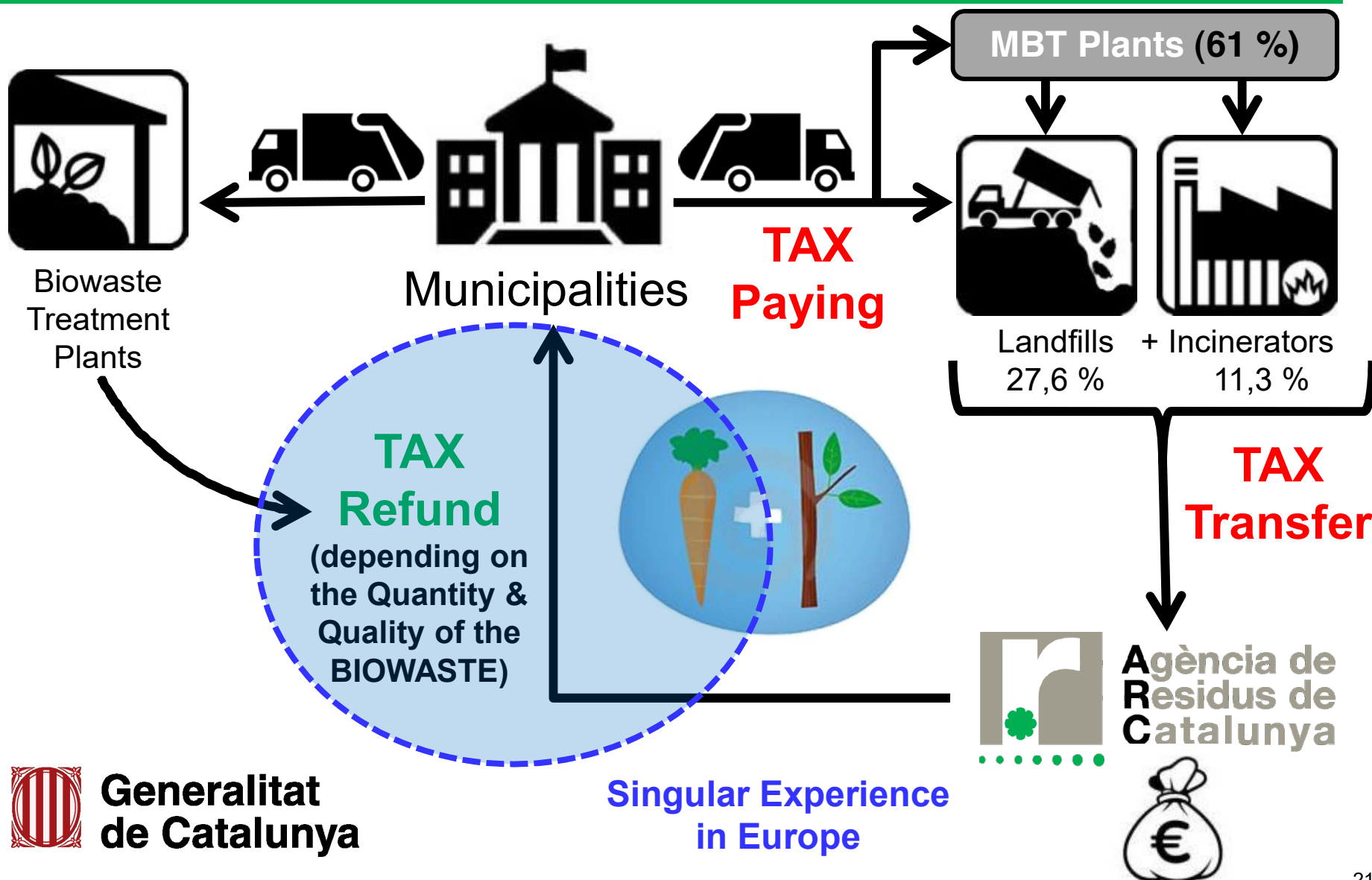


Fuente: Use of economic instruments and Waste Management Performances.
Final Report 10 abril 2012 (DG ENV)



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The Sticks & Carrots Strategy. Punishing + Encouraging Policy





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Mechanism of operation of Landfill & Incineration Tax and of Tax Refund



- Tax **53,1 €/T** year 2021 (Landfill) (in addition of the fee)
- Tax **26,5 €/T** year 2021 (Incineration) (in addition of the fee)
- Guide for local authorities on Law 8/2008, which include the **Criteria for Tax Refund** (yearly reviewed) [2021]:
 - BIOWASTE TREATMENT **[32 €/T]** (without impurities)
 - BIOWASTE SEPARATE COLLECTION **[12 €/T] · f₁ · f₂** (màx. 45 €/T)
 - Quality Factor (f₁)
 - Size Factor (f₂)

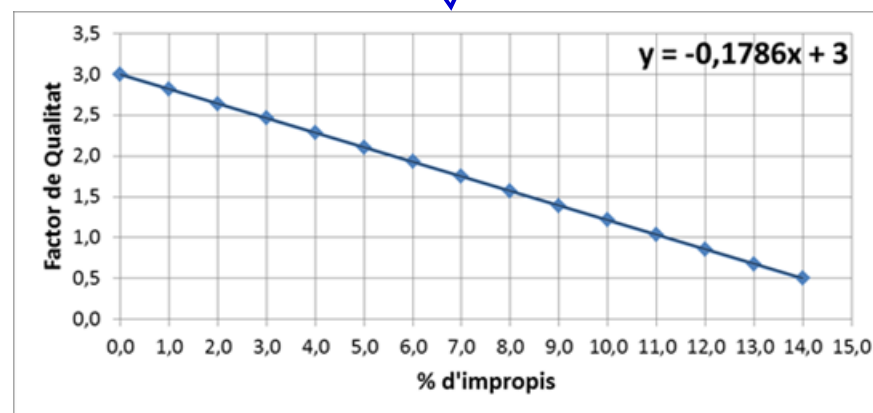
Urbana	Semiurbana	Rural
1	1,28	1,5

[a]

[b]

[c]

- [a] > 50,000 inhabitants (23)
- [b] 5,000 – 50,000 inhabitants (187)
- [c] < 5,000 inhabitants (738)

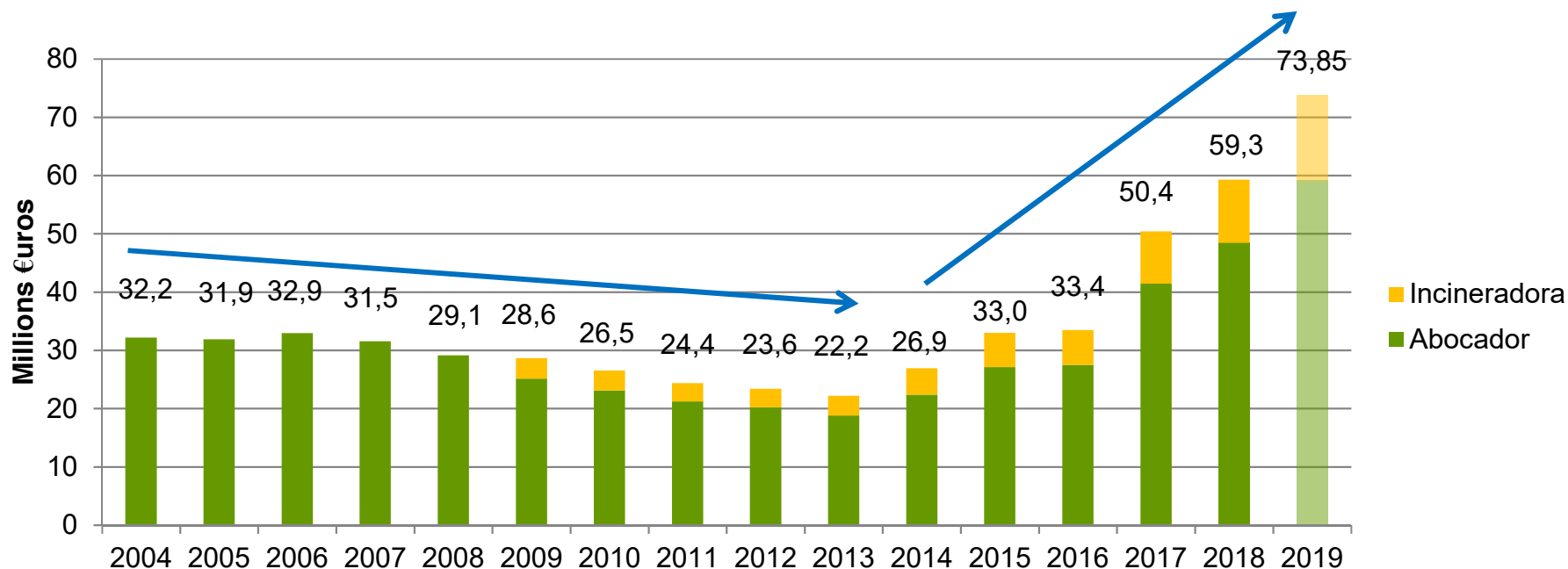


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Evolution of Landfill & Incineration Tax. 2004 - 2019

Tax Rate(€/T)	2004-08	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Landfill Tax	10	10	10	12	12,4	12,4	15,8	19,1	19,1	30,0	35,6	41,3
Incineration Tax	---	5	5	5,5	5,7	5,7	7,4	9,0	9,0	14,5	17,8	20,6



560 M€UR since it was created !

537 M€UR (96%) refunded to local authorities !



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Reactivating the Environmental Taxing to achieve recycling targets

Landfill

Average Fee: 52,0 €/T

Landfill Tax: 53,1 €/T

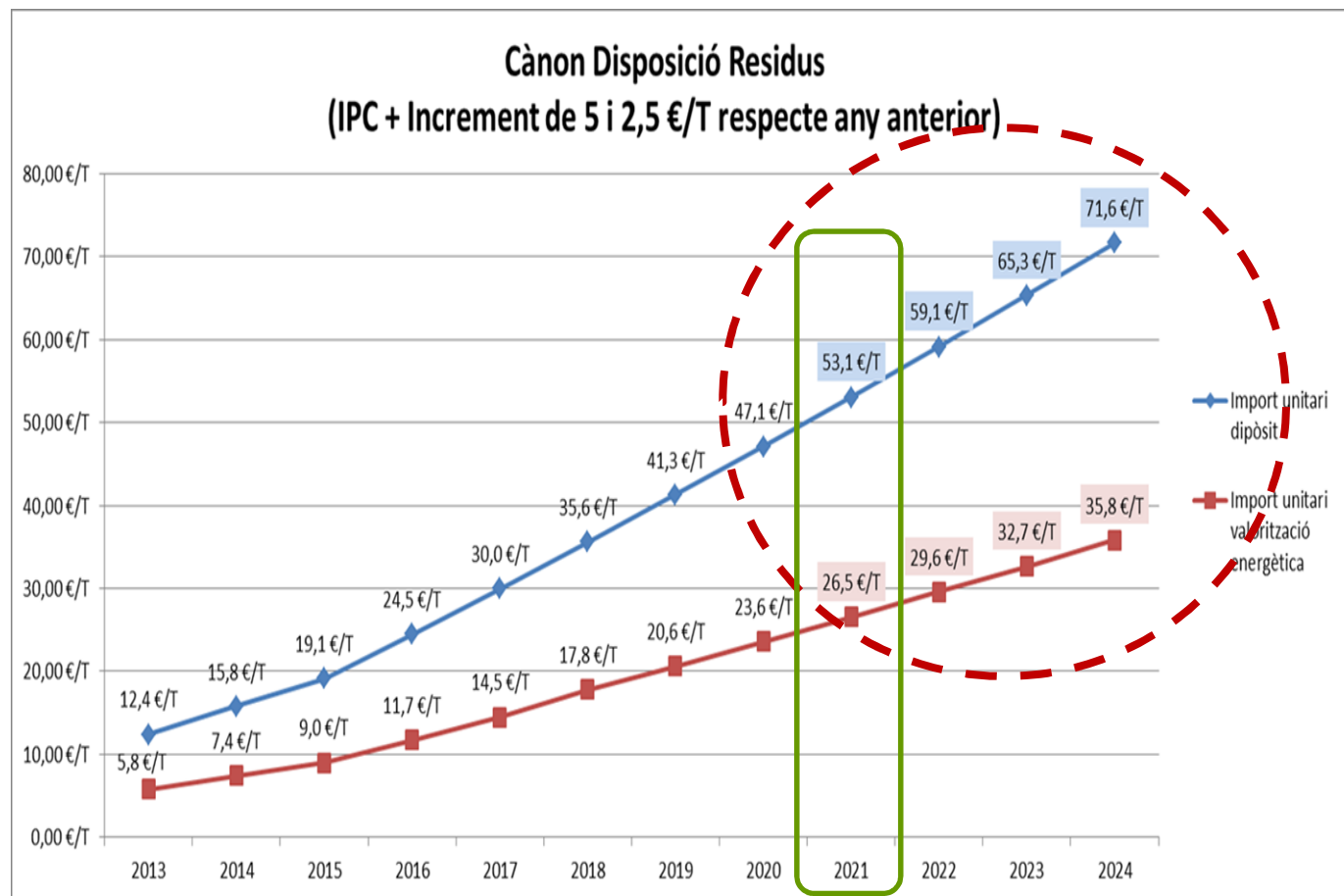
TOTAL = 105,1 €/T

Incineration

Average Fee: 70,0 €/T

Inc. Tax: 26,5 €/T

TOTAL = 96,5 €/T

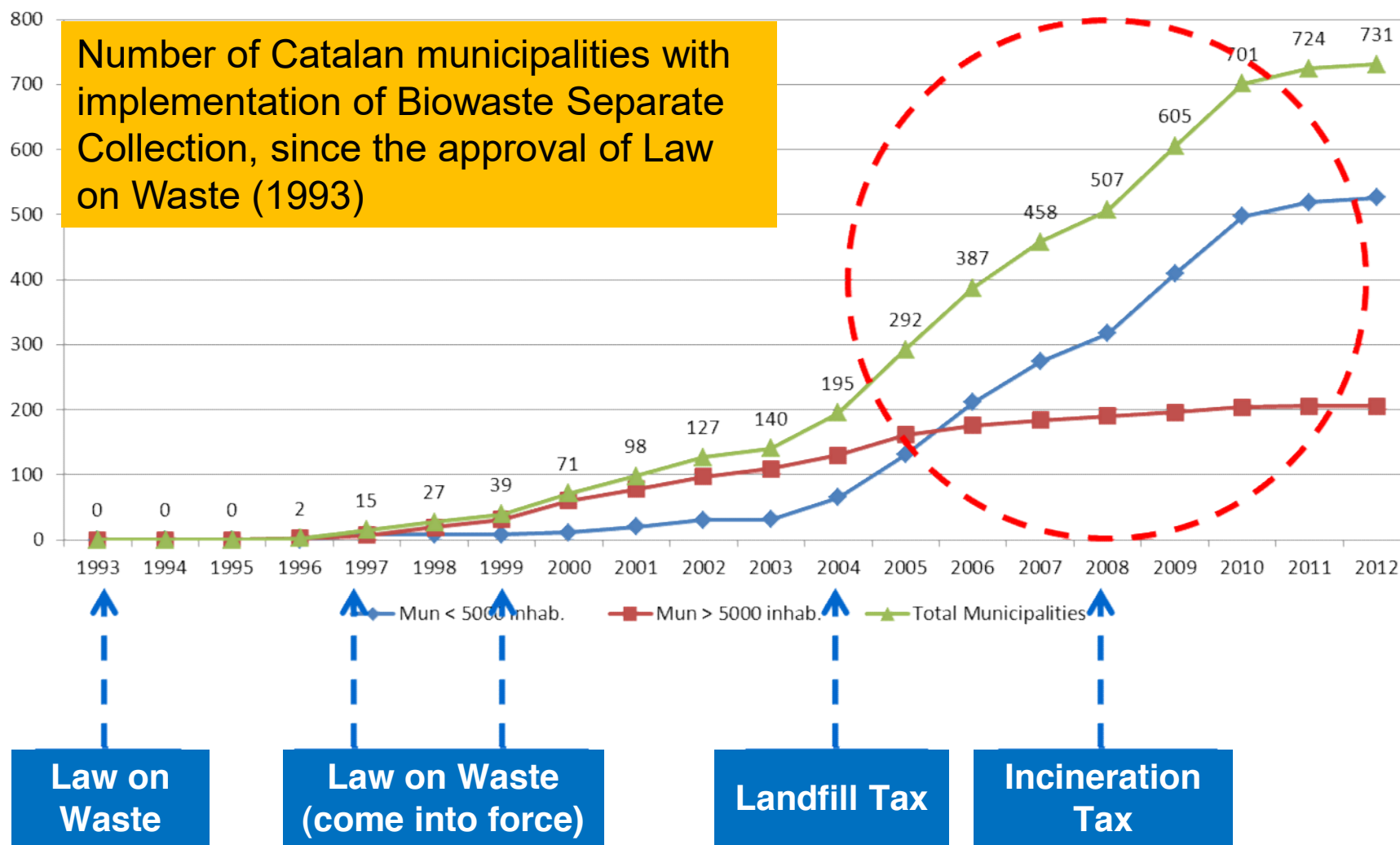


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**In 2035 the economic charge (Fee + Tax) for
landfilling should be € 130-150 / T**



The use of Environmental Taxation to Stimulate the Separate Collection





Destinations for Biodegradable Waste and their Environmental Impacts

- **LANDFILL / DUMPSITE**

- Generation of Biogas  
- Generation of Leachates  
- Fire risk   
- Affecting vectors (birds, mammals, etc.) 
- Loss of Resources (OM, nutrients) 

- **INCINERATION**

- Air Pollution risk*  
- Generation of Ashes & Slag  
- Loss of Resources (OM, nutrients) 

- **BIOLOGICAL TREATMENT**

- Recovery of Resources >> Compost / Biogas
- Reduction of environmental impacts

* HCl, HF, SO₂, NO_x, Heavy Metals, Dioxins, Furans, PCB's, etc.

IMPACTS ON



AIR
QUALITY



WATER
SYSTEMS



CLIMATE
CHANGE



ECOLOGICAL
SYSTEMS

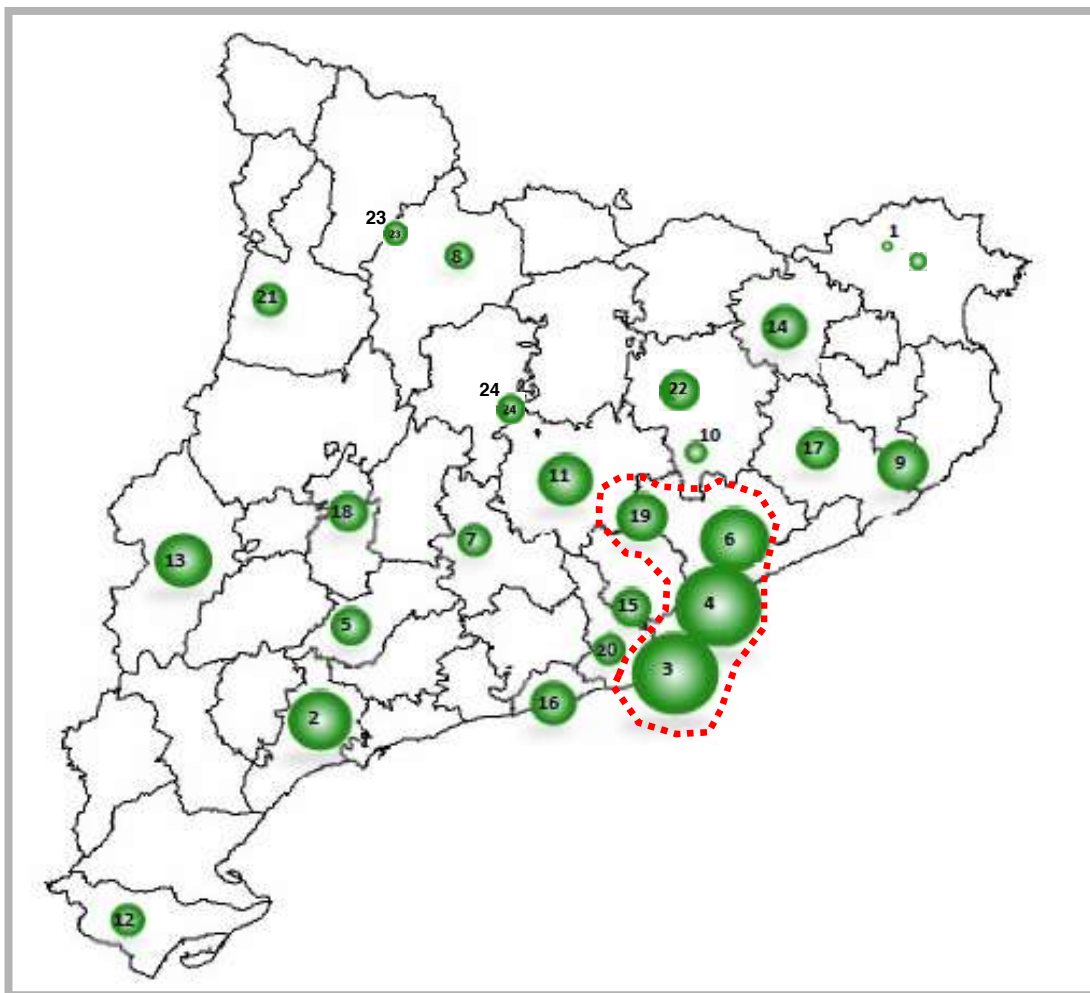


SOIL
HEALTH



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Biological Treatment Plants as an exemple of Public-Private Partnership



		Sistema tractament	Capacitat tractament (t FORM / any)
1	Boadella i les Escaules	C	350
2	Botarell	C	37.000
3	Ecoparc 1 (Barcelona)	DA+C	90.000
4	Ecoparc 2 (Montcada i Reixac)	DA+C	90.000
5	Espluga de Francolí	C	7.000
6	Granollers	DA+C	45.000
7	Jorba	C	5.000
8	La Seu d'Urgell	C	3.500
9	Llagostera	C	18.000
10	Malla	C	1.500
11	Manresa	C	20.000
12	Mas de Barberans	C	5.000
13	Montoliu de Lleida	C	18.000
14	Olot	C	12.000
15	Sant Cugat del Vallès	C	8.000
16	Sant Pere de Ribes	C	13.700
17	Santa Coloma de Farners	C	12.500
18	Tàrrrega	C	10.000
19	Terrassa	DA+C	20.000
20	Torrelles de Llobregat	C	4.500
21	Tremp	C	5.000
22	Orís	C	10.000
23	Sort	C	750
24	Clariana de Cardener	C	1.000

C: Compostatge

DA + C: Digestió anaeròbia + compostatge



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26 Composting & Anaerobic Digestion Plants

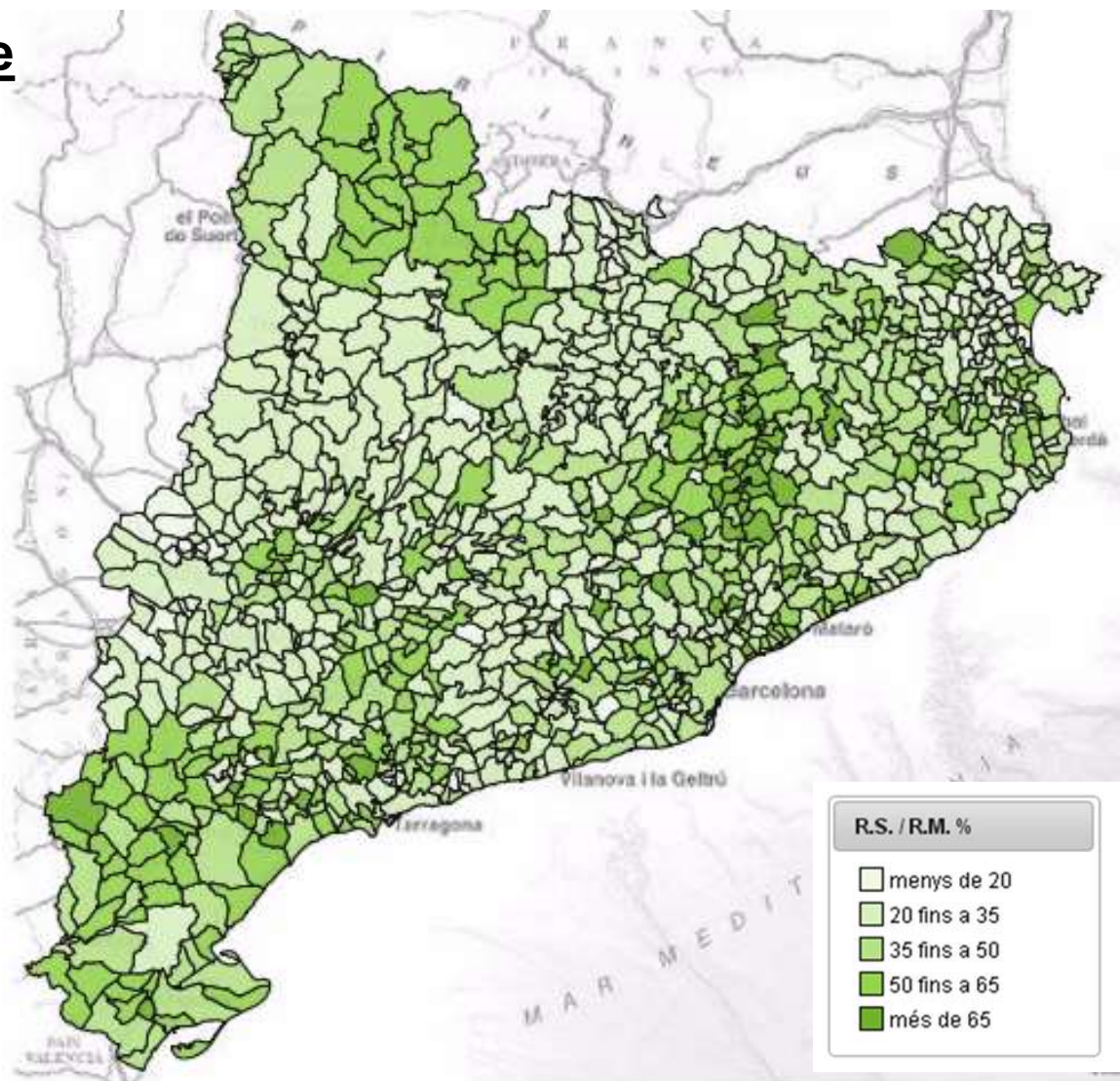


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Separate Collection Rate. Current Situation [2017]

Separate Collection Rate

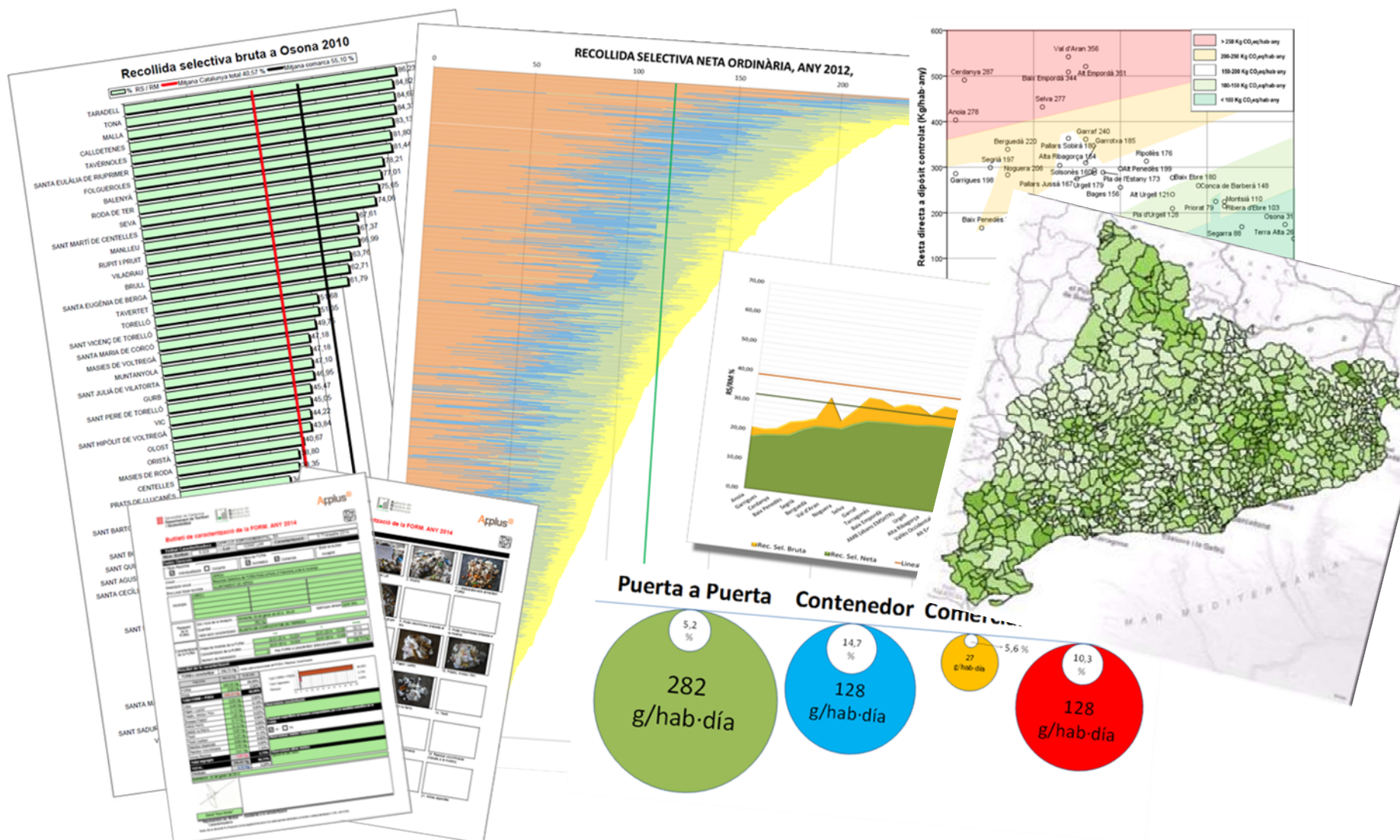
- ✓ **Biowaste**
- ✓ **Paper-Cardboard**
- ✓ **Light-Packaging**
- ✓ **Glass**
- ✓ **Other wastes**
 - ✓ **Textile**
 - ✓ **Kitchen oil**
 - ✓ **Weee**
 - ✓ **Batteries**
 - ✓ **Etc.**



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Information Available



More information...

- [Waste Agency of Catalonia](#)
- [Implementation of Biowaste Separate Collection](#)
- [Statístics on Municipal Waste \(Generaton & Swparate Collection\)](#): Methodology, table, gráphs, maps, docs
- [Statistics on the quality of Biowaste](#)
- [Environmental Taxation \(Landfill & Incineration Tax\)](#)
- [Conferences, Studies, publications & other links](#)



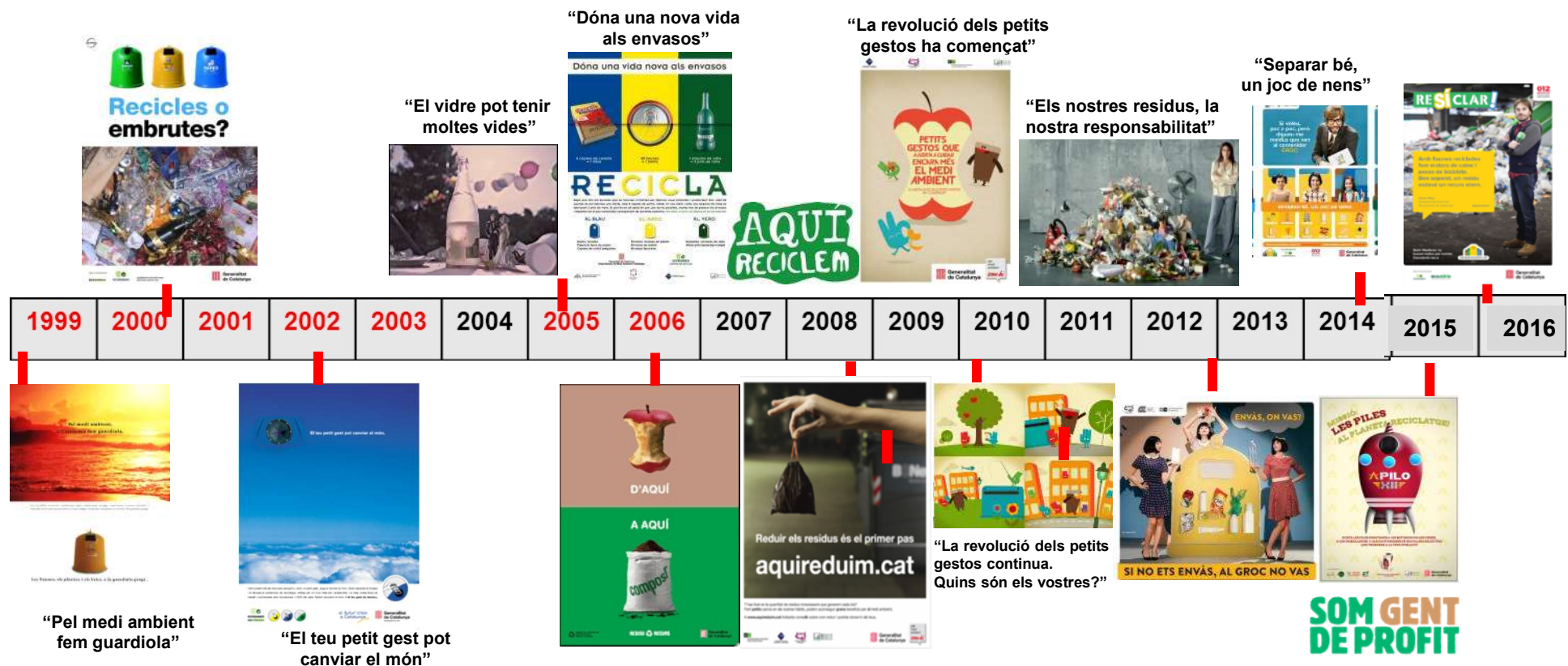


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REDUCE, RETHINK, REUSE, REPAIR, REFURBISH, ETC.



What have we done until now?



شكرا لك على انتباهك

Thank you very much for your attention !

Merci beaucoup pour votre attention !

**Agencia de Residus de Catalunya
C/ Dr. Roux, 80 • 08017 Barcelona
Tel. +34 935 673 300 Fax. +34 935 673 300**

fgiro@gencat.cat

<http://www.arc.cat>



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