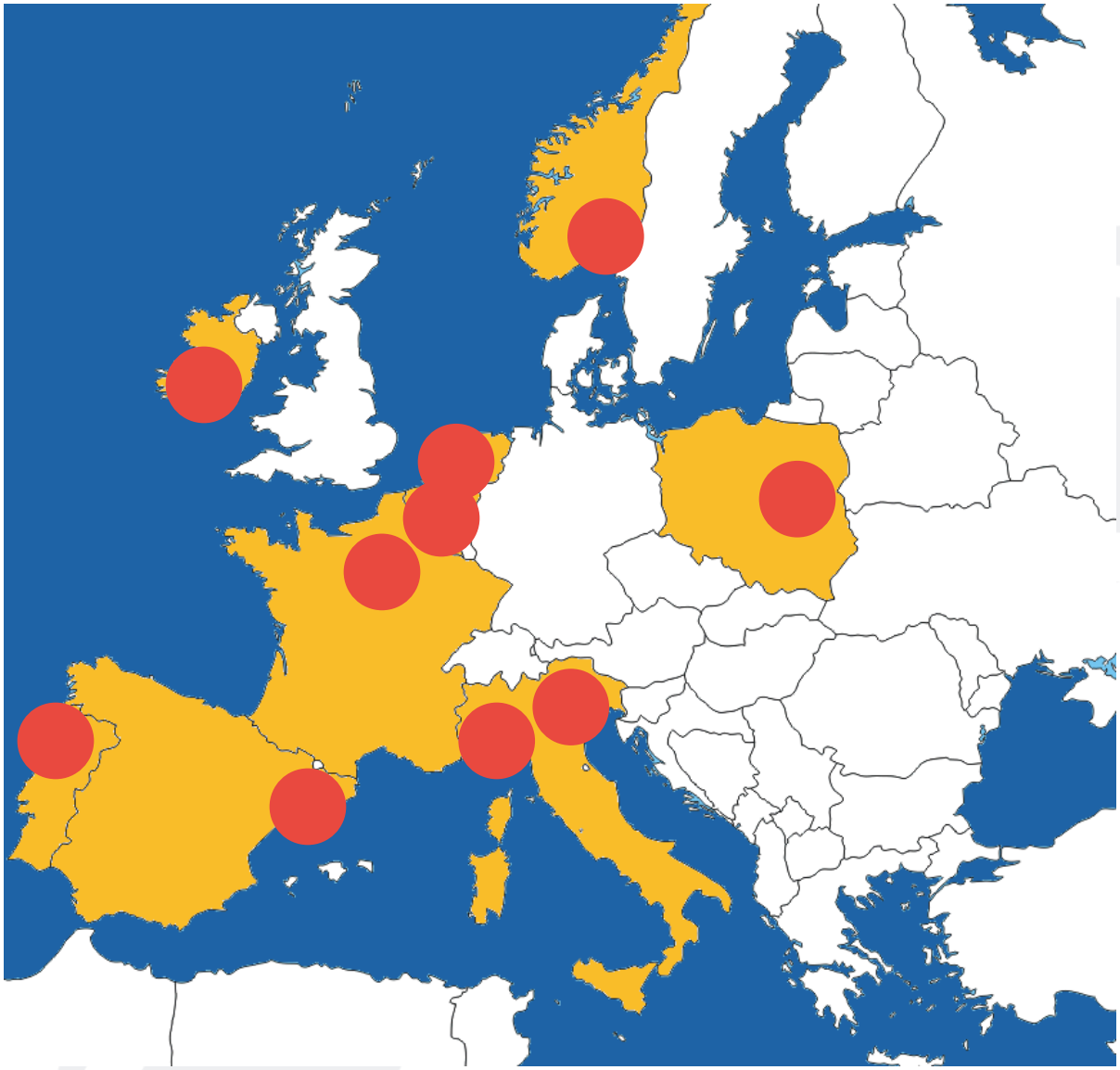
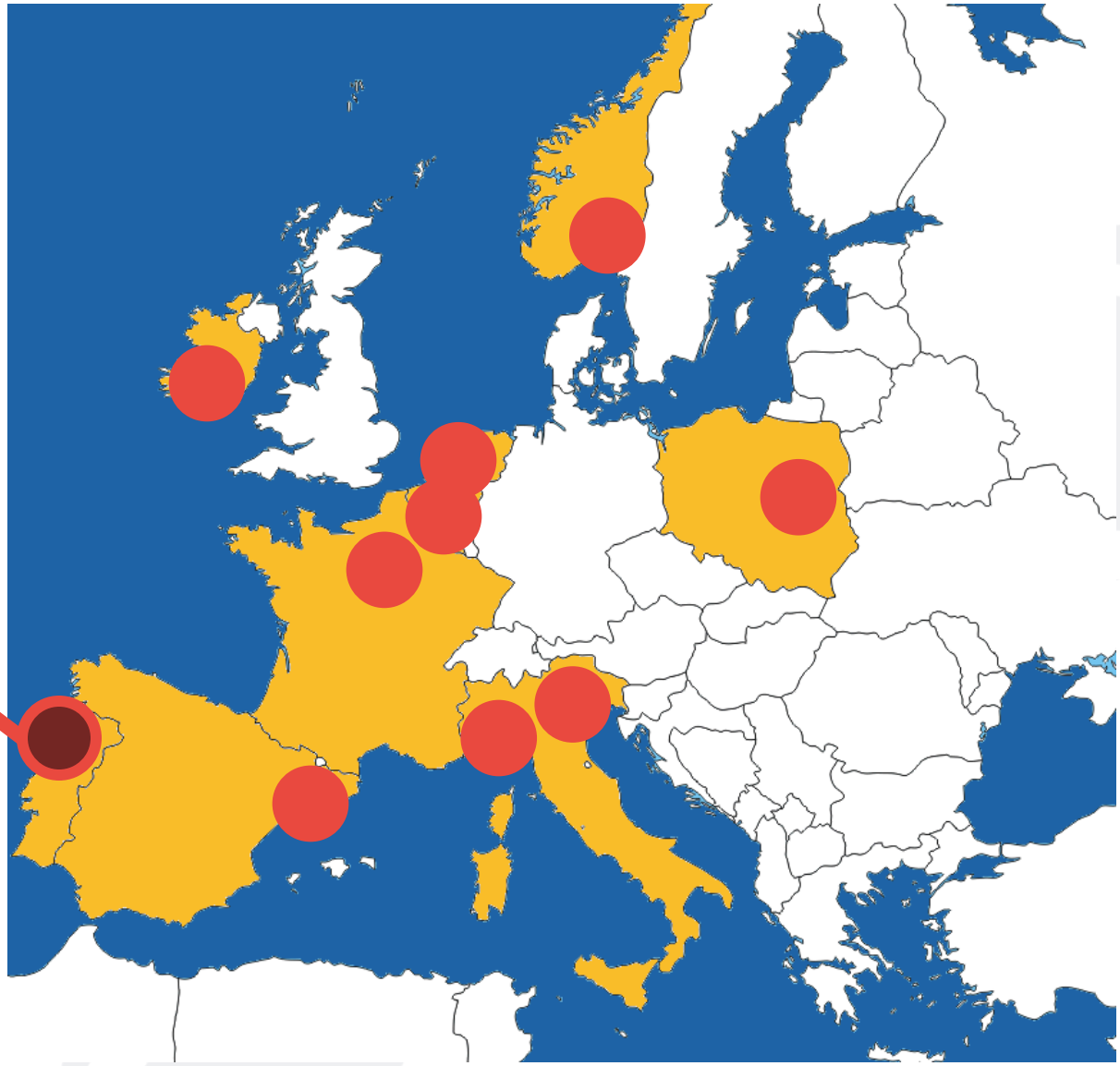
Round table: how do local and regional authorities adapt their waste management practices to their local challenges?

COLLECTORS Kick-off conference

Treviso, 22/03/2018



Overcoming local challenges



ABOUTLIPOR
Lipor Operacional Results 2017

COLLECTORS
WASTE COLLECTION SYSTEMS ASSESSED AND GOOD PRACTICES IDENTIFIED

lipor

TREVISO .:. 21/22 MARCH 2018

8 Municipalities **648 km2** Geographical Area Coverage **1.000.000** inhabitants

12% Portugal's total MSW Production

50.895 t
Sent to the Organic Recovery Plant

46.791 t
Of Recyclabes selectively collected

402.058 t
Sent to the Energy Recovery Plant
181,822 MW

1,8 €/citizen
Environmental Education Investment

38.752 €
Research and Innovation Investment

9.599.403 €
Ebitda

38.723.275 €
Business Volume

1.731.329 €
Investment

ABOUTLIPOR
Lipor Operacional Results 2017

COLLECTORS
WASTE COLLECTION SYSTEMS ASSESSED AND GOOD PRACTICES IDENTIFIED

lipor

TREVISO .:. 21/22 MARCH 2018

lipor

GOALS 2020

200.000 Houses with Door-to-Door Collection

25% Population abridged with Door-to-Door Collection

Reduction of 15% of Refuse Waste

50 Kg per capita/year
Selective Collection

35% Sent to Recovery Plants

<10% of total Bio-Waste

MONITORING

Disposal
Containers, Bags with RFID UHF

Collection
Vehicles; On-time communication

Backoffice
Data Base (customers, routes, statistics)
Monitoring and Reports

HIGH-RISE BUILDINGS

Each building equipped with bins for each flow if the building has a common dedicated room

Implementation of an access controlled system in a public equipment

- High difficulty in individualizing the contribution of residents
- Limited space in each house for collection containers
- Absence of a dedicated room in the building to place containers
- Even if it was possible for each house to have containers, most cities don't have the space to accommodate so many equipment's in public spaces (for collection).

Install a sign with UHF RFID TAG on the store's wall

*Collection of Glass, Paper/Cardboard, Plastic Packages and metal, **INSIDE DOORS***

Automatic and continuous monitoring of the entire door to door sellective collection process – **Development of 3 Pilots** ;

GPS Matching **Using bags with UHF RFID TAG**

40 L stackable containers

Equipped with UHF

Collection of Glass, Paper/Cardboard, Plastic Packages and metal, organic and mixed waste

140 L containers

Equipped with UHF

Collection of Glass, Paper/Cardboard, Plastic Packages and metal, organic and mixed waste

TRADITIONAL FESTIVALS AND PILGRIMAGES

To **promote separate collection of recyclable wastes** produced in traditional festivals and pilgrimages. To **benefit a social cause** based on the amount of collected recyclable wastes.

FOOTBALL STADIUM SELECTIVE COLLECTION – F.C.PORTO

Promote **a sustainable environmental management** at **F.C.Porto Stadium**

Implement **good practices** at the **sports venues**

Share knowledge and good practices with sports reference institutions that promote sustainability and innovation

TREVISO .:. 21/22 MARCH 2018

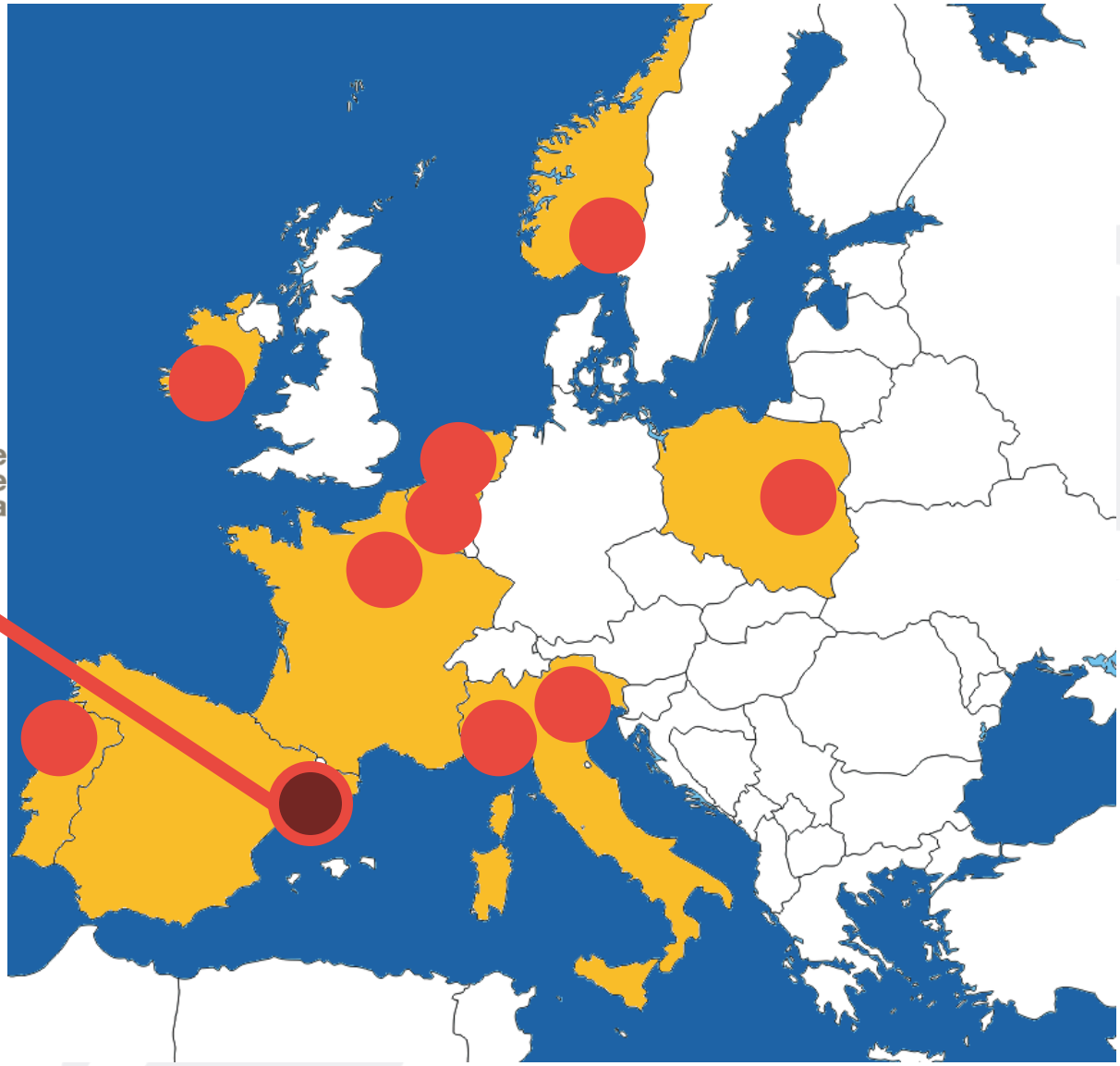
Mercado de Vila do Conde
Gestão Inteligente dos Resíduos

PAYT | PAY AS YOU THROW
SUSTAINABLE WASTE MANAGEMENT

1. **Each customer received reusable bags to sort their waste.**
2. **The deposition is made activating a controlled access waste container using a RFID Card.**
3. **With every disposal, the customer is rewarded with points that can be traded for prizes**

The waste separation rate in the market increased by 20%

In which way is possible to develop a project to support the municipalities in the medium-long term, ensuring the financial sustainability of the system, promoting equity and social cohesion and be a promoter for more and better environmental practices



Agència de Residus de Catalunya

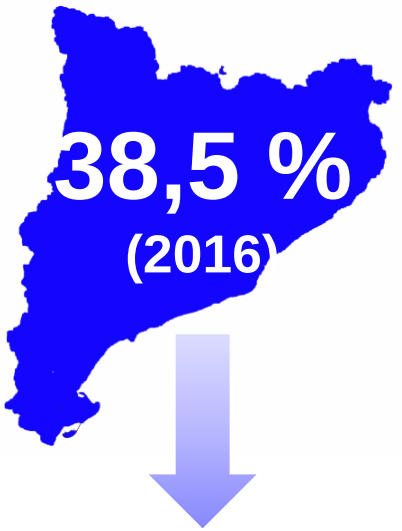
General Data on Catalonia

- Surface: 32,000 km^2
- Population: 7,500,000 inhab.
- GDP per inhab.:27,663 €
- Unemployment: 17,4%
- Generation of municipal waste: 3,703.000 tonnes/year
- Separate Collection Rate 38,5%

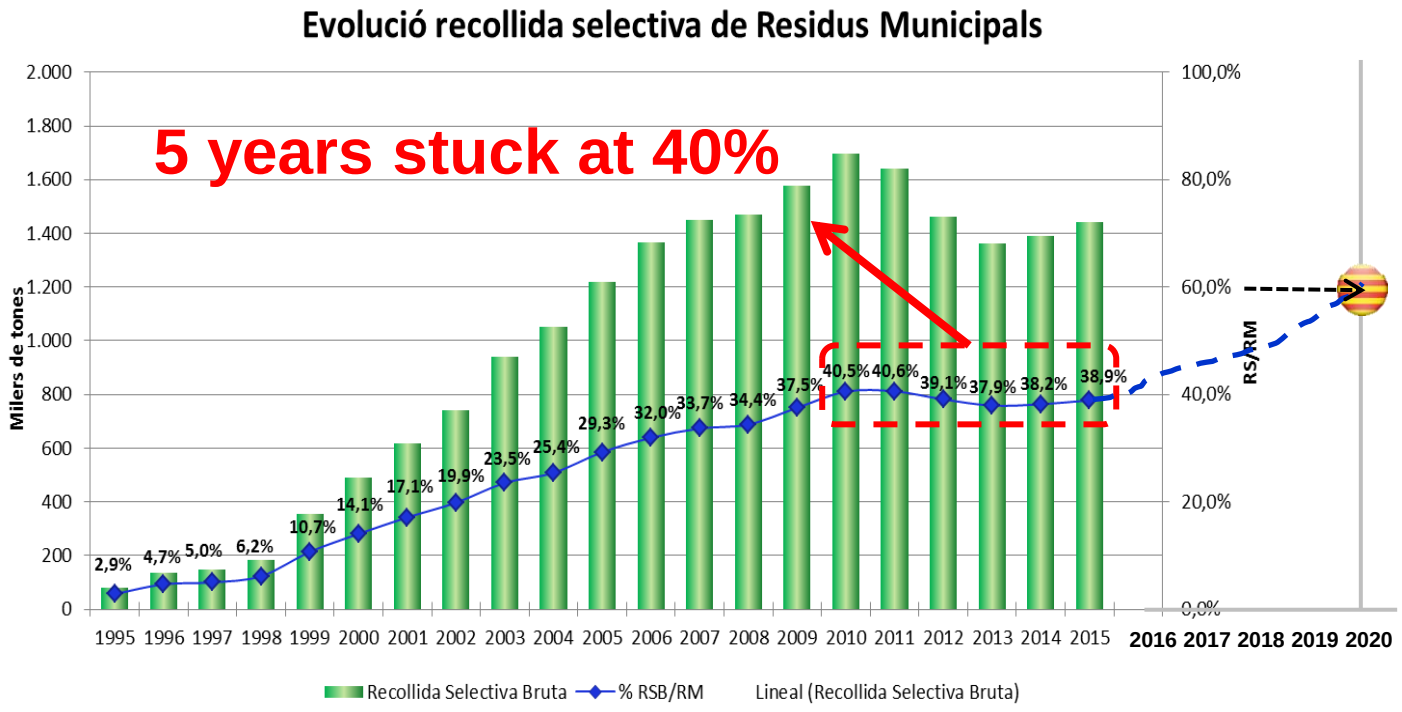
Generalitat de Catalunya

Catalan Separate Collection Situation

Separate Collection 2016



60 % (2020)



a

Agència de Residus de Catalunya

Local specificities and impact on waste management in Catalonia

13 coast counties and
10 mountains counties

68 coast towns

High seasonality

22,2 M tourist/year

⇩

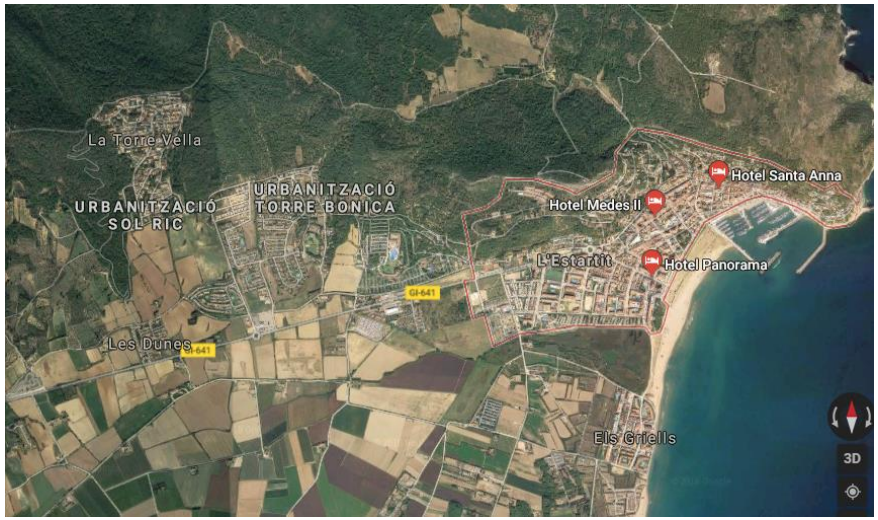
Equivalent to
222,700 inhabitants

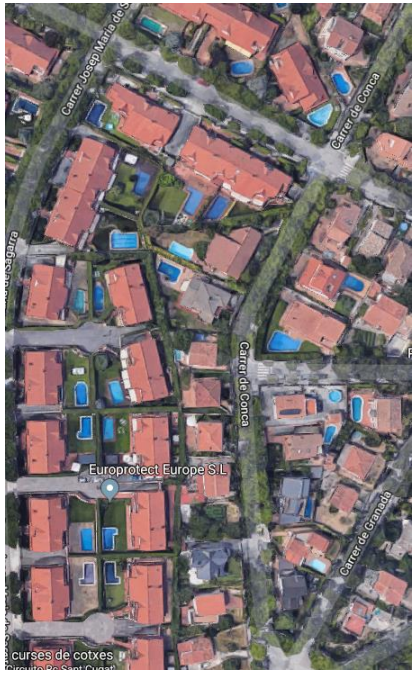
Generalitat de Catalunya

High density areas

- Vertical construction
- High population density
- Difficult user identification
- Citizen campaigns not very efficient for saturation of information.
- Limitation of the collection models
- Treatment plants near the point of generation

Second residences-Coast towns



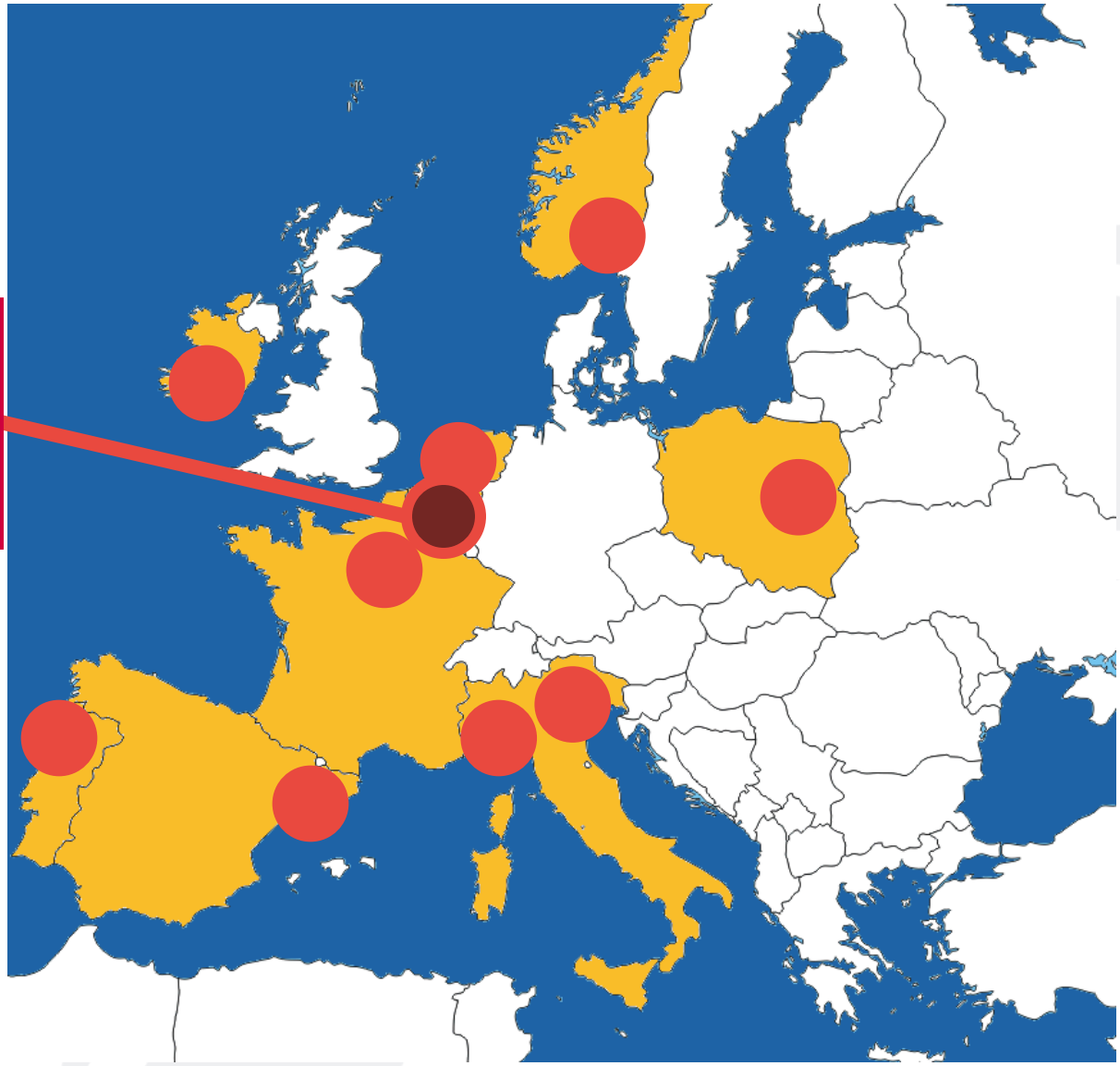


Second residences-Coast towns

- Construction can be really diferent (horizontal/vertical)
- The population can grow up to three times over the census on vacation periods or weekends
- Design collection service (temporality)
- Special services (pruning collection service, big producers,...)
- Special campaigns needs to be made for these areas (Information, when we can reach users and language)
- Big producers

Isolated or rural Areas

- Horizontal construction
- Good users identification
- Low collection efficiency (Compactors / transfers station)
- Possibility of self-composting individual or community
- Most effective campaigns
- Treatment plants far from the point of generation (smaller plants)



BELGIUM

- Flanders: 6 million inhabitants
- Wallonia: 4 million inhabitants
- Brussels: 1 million inhabitants
- Antwerp: 512,000 inhabitants
- There are national laws and agreements on waste (e.g. level of recycling to achieve)
- Yet, each region, city, etc. also enjoys a degree of autonomy (collection methods, prices,…)

	✓	✗
PMD		
GFT		
PAPIER KARTON		
GLAS		
REST		

Antwerp: door-to-door collection

This waste is still collected from homes at present:

Glass

Residual household waste: weekly

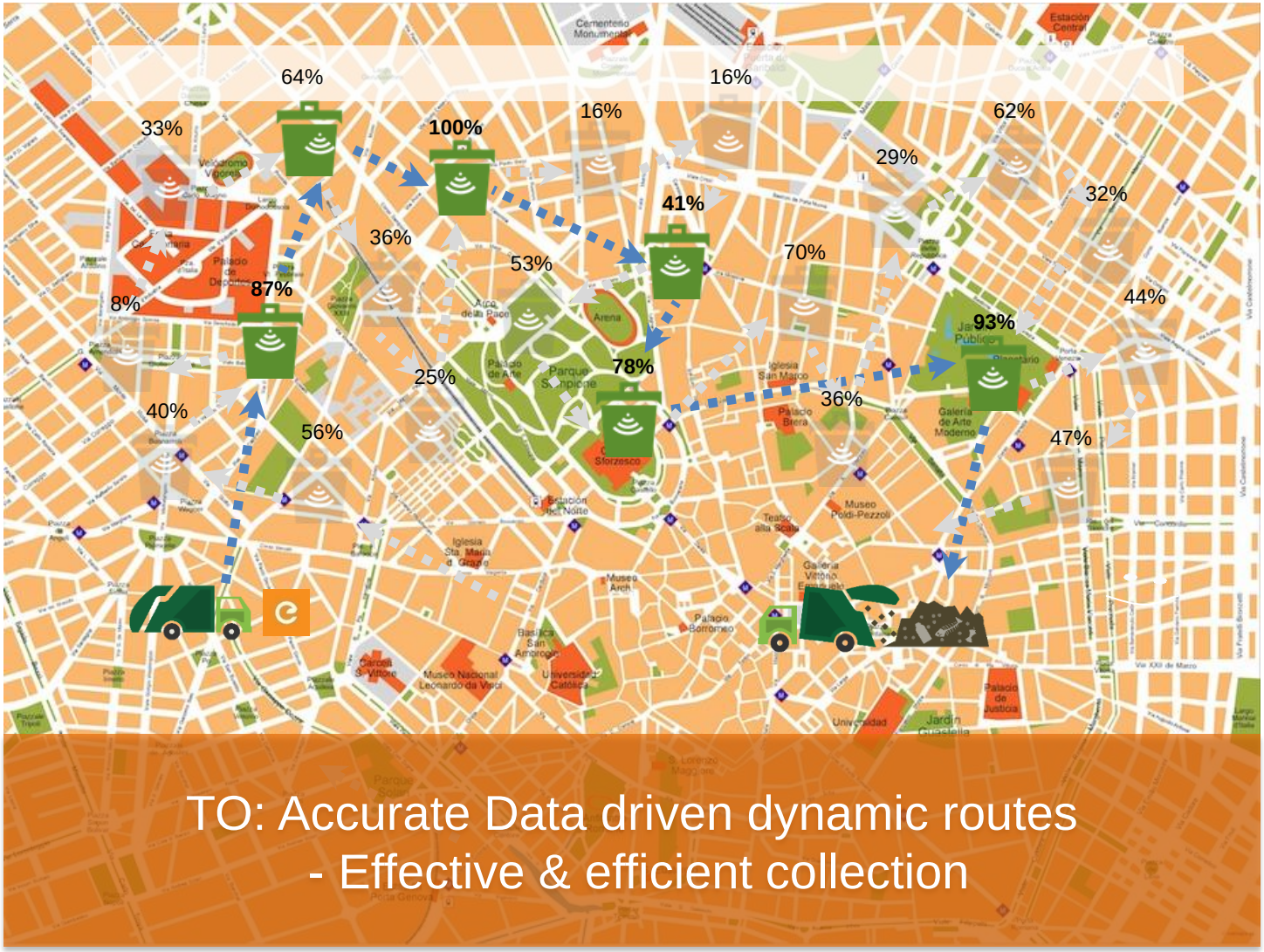
Vegetable, fruit and garden waste: weekly

PMD: every 1 or 2 weeks

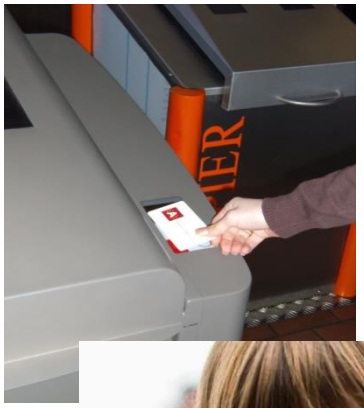
Paper and cardboard: every 1 or 2 weeks

Pilot projects: from October 2005

The city experimented with a **crane system** for underground bottle banks. The system of **underground waste sorting streets** is now a reality.


64%
16%
33%
100%
16%
62%
29%
41%
32%
36%
53%
70%
87%
8%
44%
93%
25%
78%
36%
40%
56%
47%
TO: Accurate Data driven dynamic routes
- Effective & efficient collection

Waste sorting streets: how they work



1

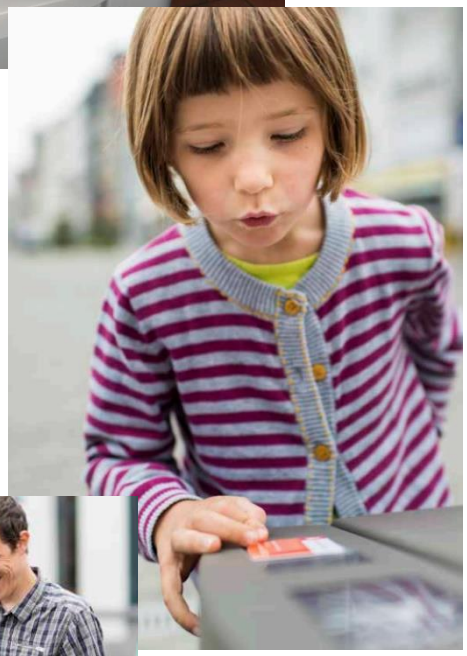
Scan uw sorteerpasje.

2

Scan nogmaals uw sorteerpasje.

3

De klep gaat automatisch open.



4

Stort uw afval.

5

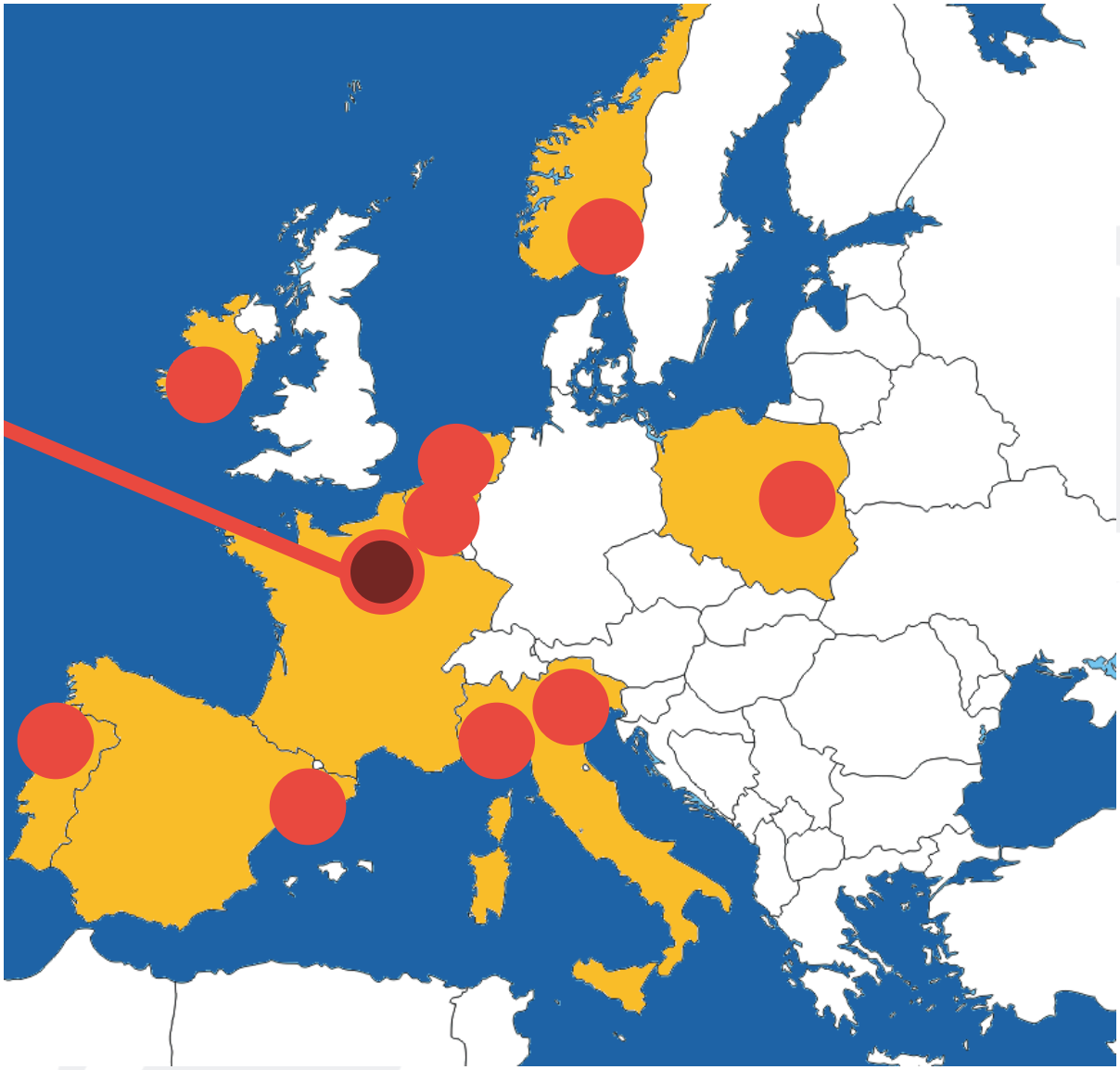
Sluit de klep.

Waste sorting street: emptying

Bins

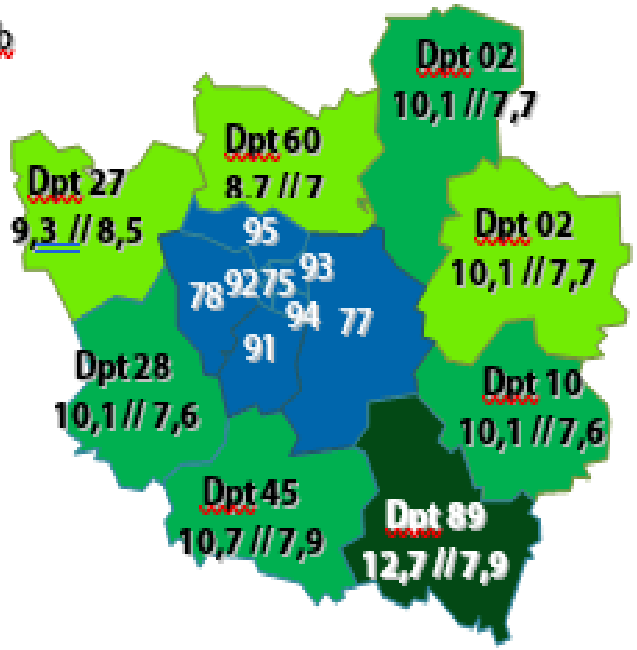
// NUDGING

And Big Belly’s



Situation in Paris Metropolis : Performance in Kg/in 2017

Dpt..
All origin.. Kg/Hab
Municipalities.. Kg/hab



Département	perf. Total 2017	perf. Retailer	perf. Social Economy	perf. Others (Metal scrap dealers, shredder...)	perf. Municipal Collection Points
75	1,7	0,0	0,1	0,1	1,4
77	**9,7**	**3,9**	**0,2**	**2,6**	**3,0**
78	6,0	0,4	0,4	2,4	2,8
91	6,6	3,6	0,0	0,9	2,2
92	3,7	0,3	0,0	3,0	0,4
93	3,5	1,2	0,2	1,2	0,8
94	6,0	4,0	0,2	0,9	0,9
95	6,7	2,7	0,1	1,7	2,1

France : 533 KT collected = 10,2 Kg/capita in 2017
Objective 2020 = 14 Kg

Situation in details

	Pop	Number of Municipalities Contracts	Collection Point
Dpt 75	1 516 277	1	13
Dpt 77	123 999	2	12
Dpt 78	709 937	5	17
Dpt 91	578 461	3	22
Dpt 92	1 560 964	3	23
Dpt 93	930 572	6	16
Dpt 94	994 616	5	21
Dpt 95	197 165	2	8

	Population	Municipal collection Points	Ratio per inhabitant
Paris (Eco-systemes)	6 611 991	132	50 091
France (Eco-systemes)	48 000 000	3 300	14 545

- The Challenge for high density urban areas

Type of area	Performance	Inhabitants per collection point
Rural (density <70 inh/km²)	9.86 kg	7 000
Semi urban (density btw 70 and 700 inh/km²)	7.38 kg	14 000
Urban (density > 700 inh/km²)	**3.22 kg**	**50 000**

Saturday from 10.00 to 14.00

Communication leaflet

A « ready to use » system for municipalities

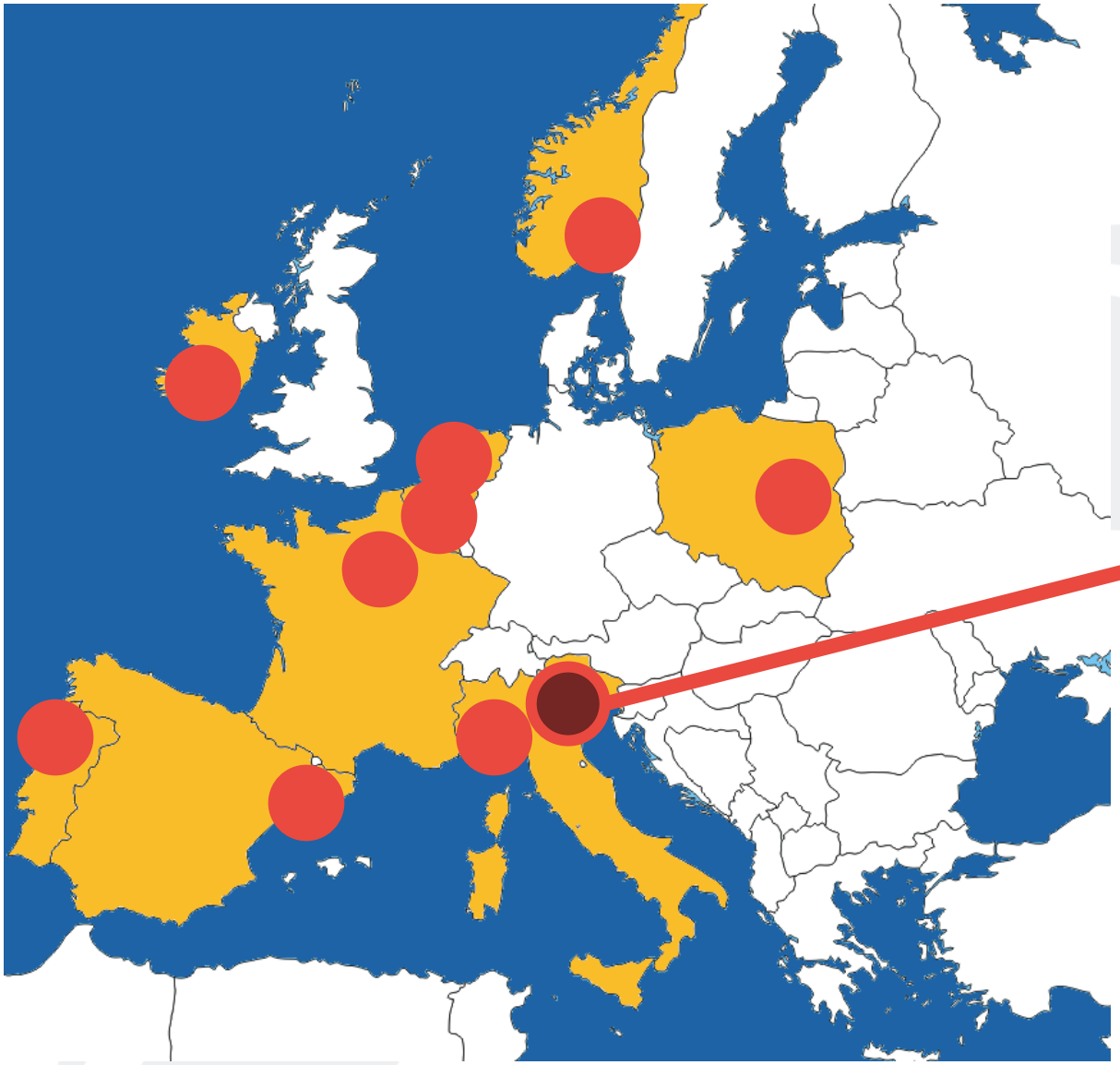
- **Definition of location and planning**
- **Autorisation for using the public space**
- **Training of sorting operators**
- **Information to inhabitants**
- **Monitoring of the results**
- **Financing of 100% of the collection**
  - **Operational, communication, staff**

Users

- **Use**
  - **74 400** users (jan 2015 to may 2017)
  - Btw 9,9 kg and 23,5 kg/user in 2016*
  - 70% of users learnt about thanks to **flyers**
  - 20% through word of mouth
  - 74% of parisian users were motivated by the partnership with re-use organisations
  - 39% of users et 31% des future users consider that this collection is an opportunity **for donation rather than for disposal**

44 municipalities participating

- 100% satisfaction
  - 100% convinced by the system
  - 44% think this is essential
  - 94% have received positive feedback from users
  - 43% wish to further develop the system
  - 57% wish to keep it as such



CONTARINA SPA

Contarina at a glance

100%
Public company

PRIULA
CONSIGLIO DI BACINO
DI TREVISO

50
Municipalities

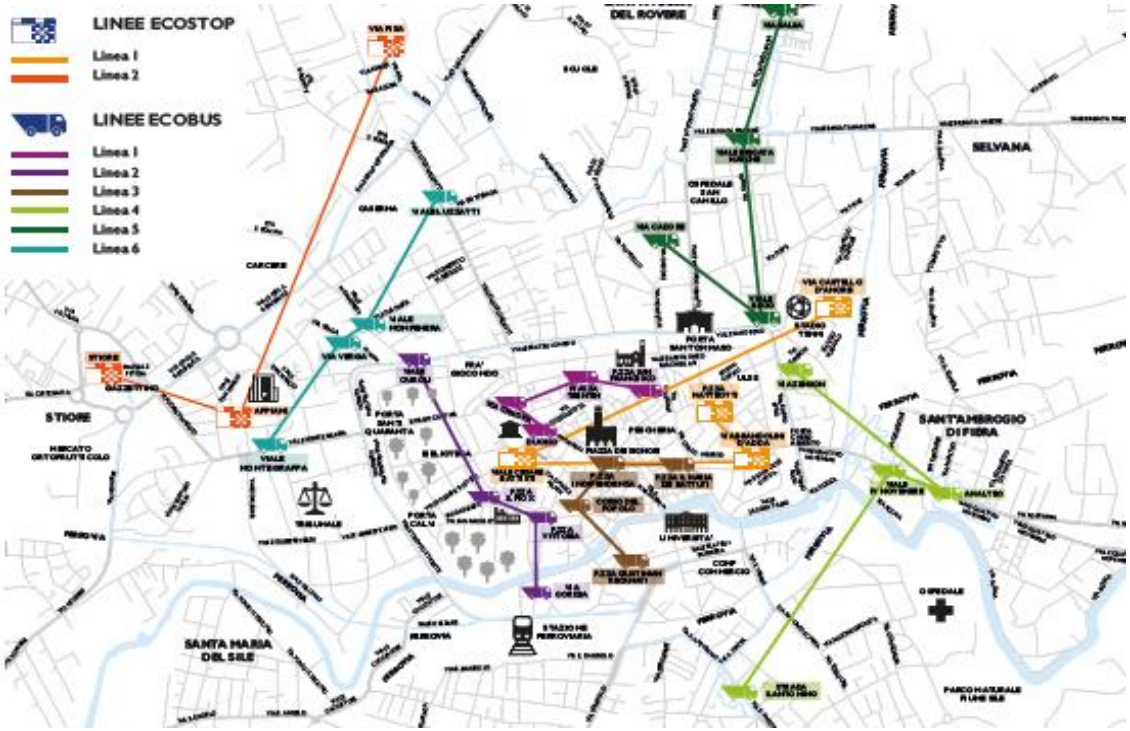
554 000
Inhabitants

A flexible and adaptable model

EcoBus and EcoStop

Service created for the historical center of Treviso

EcoBus and EcoStop



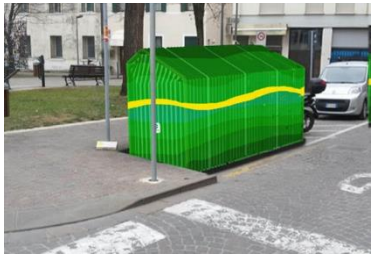
Eco Boxes

Analysis





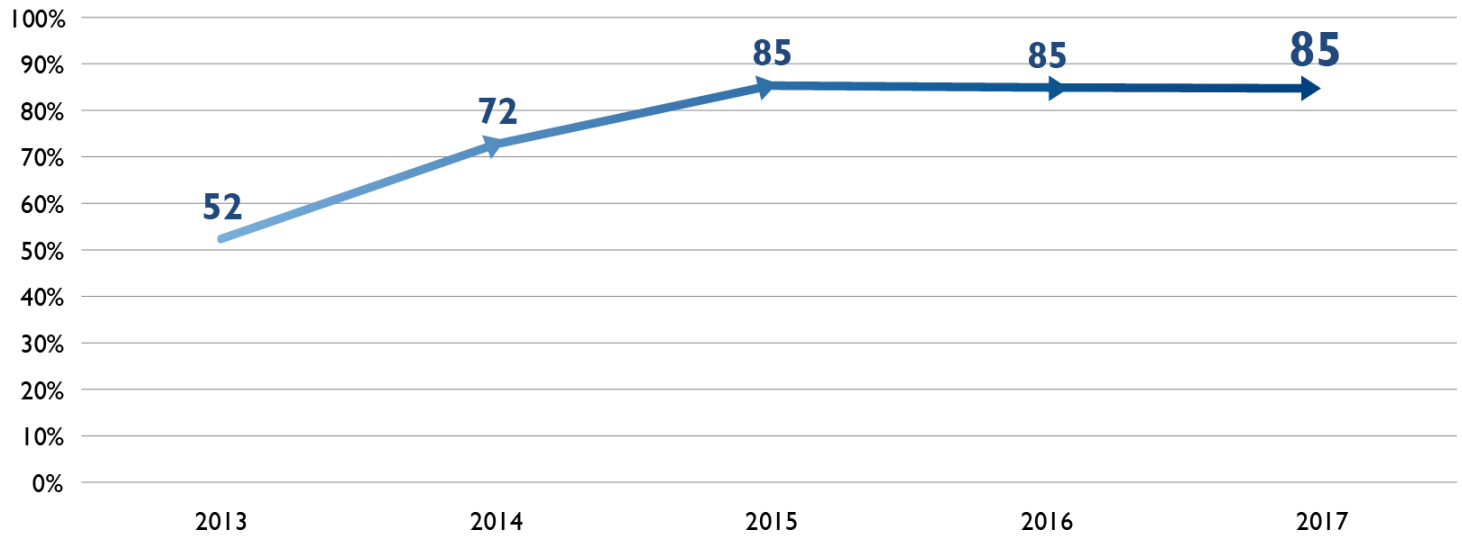



Eco Boxes

Mantaining the look of the historical city centre

Recycling rate in Treviso

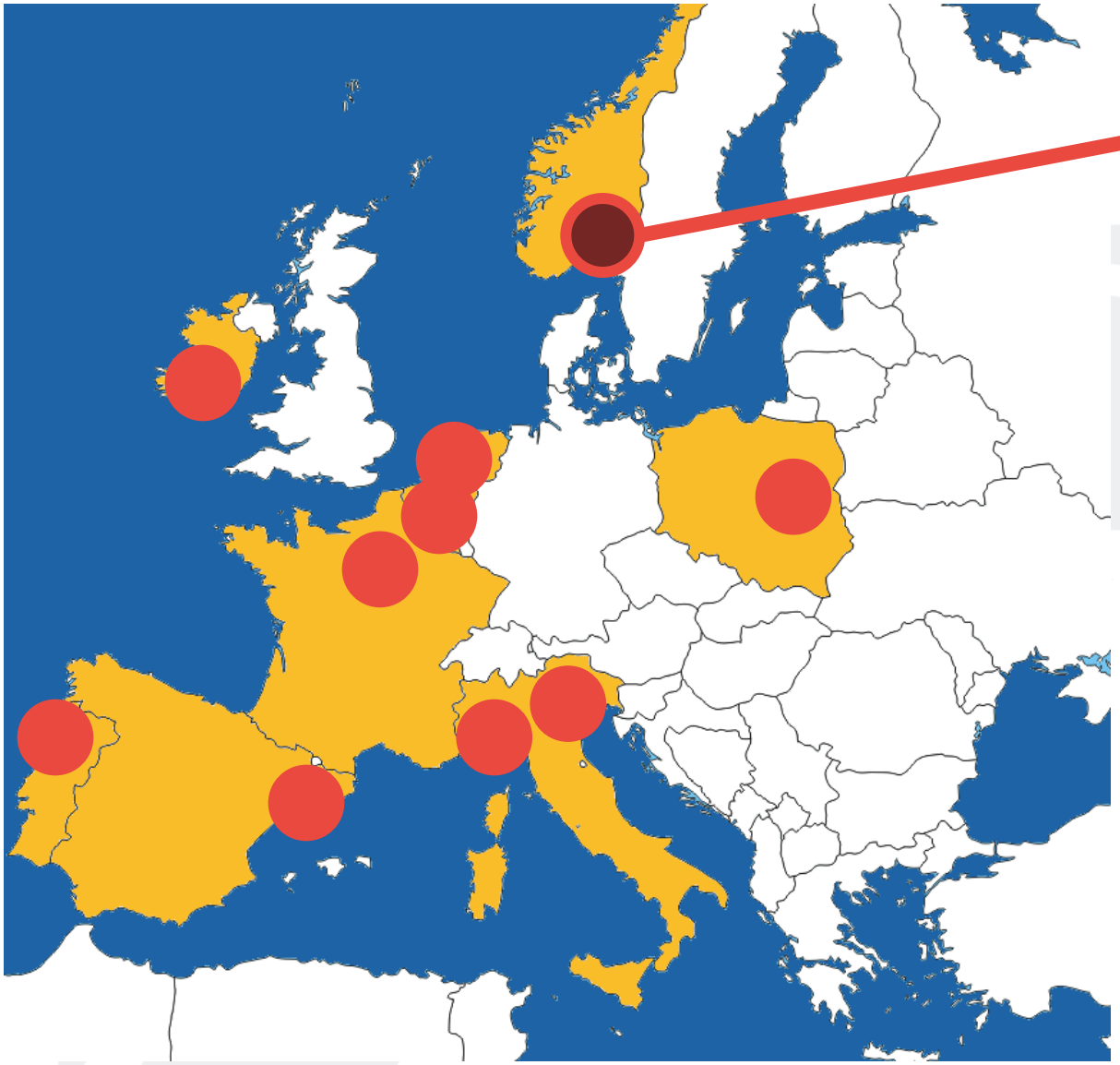


"Examples like Contarina in Treviso are ***great success stories which show it is possible to reach very good results, in a short time."***

Karmenu Vella, European Commissioner for Environment, February 18, 2016

SOURCE
dati Contarina 2017

Boosting recycling with innovative approaches



City of Oslo
Agency for Waste Management

Waste Agency – responsibility and key figures

- Responsibility:
  - Collection and treatment of Household waste

- Inhabitants: 665 759
- Households: 336 099
- Singel residents: 158 845
- High raised buildings: 75 %

- Household waste: 223 485 tons
- Residual Waste: 95 665 tons
- Recycling rate and reuse: 40%

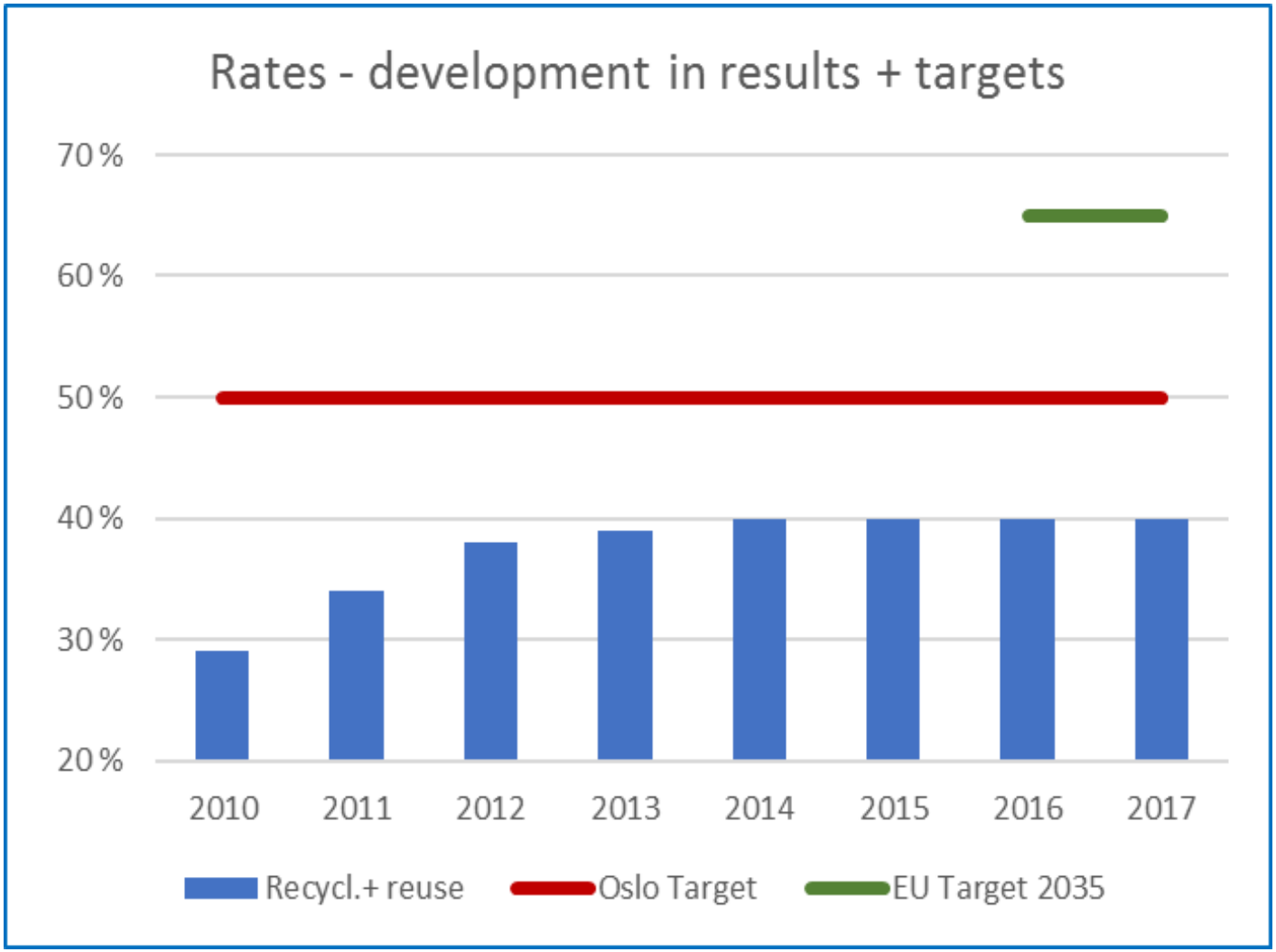
Waste system

- Door to door collection in two bins
  - **Bin 1** – Food waste in green plastic bags. Plastic in blue plastic bags. Residual waste in neutral plastic bags.
  - Collected 1 – 5 times a *week*. Optical sorted and separated in sorting facility.
  - **Bin 2** – Paper and Cardboard. Collected 1 – 4 times a *month*.
- Bring systems
  - 991 recycling points for glass, metal and textile
  - 3 large recycling stations – 30 fractions
  - 15 small and mobile recycling stations – 10-15 fractions

Main activity to meet targets

- Invested in:
  - 3 optical sorting lines with sorting capacity of 150 000 tons of waste a year. (~70 mill €)
  - 1 biogas plant with capacity of 50 000 tons of food waste a year (~70 mill €)
- Distribution of blue and green plastic bags to households through grocery stores
- To improve source separation activity at home:
  - Information and communication campaigns through the year using different channels
  - "Knocking on door" scheme by teams of the agencies employees
- Establishing of one additional large and 15 small and mobile recycling stations

Results


Rates - development in results + targets
70 %
60 %
50 %
40 %
30 %
20 %
2010
2011
2012
2013
2014
2015
2016
2017
Recycl.+ reuse
Oslo Target
EU Target 2035

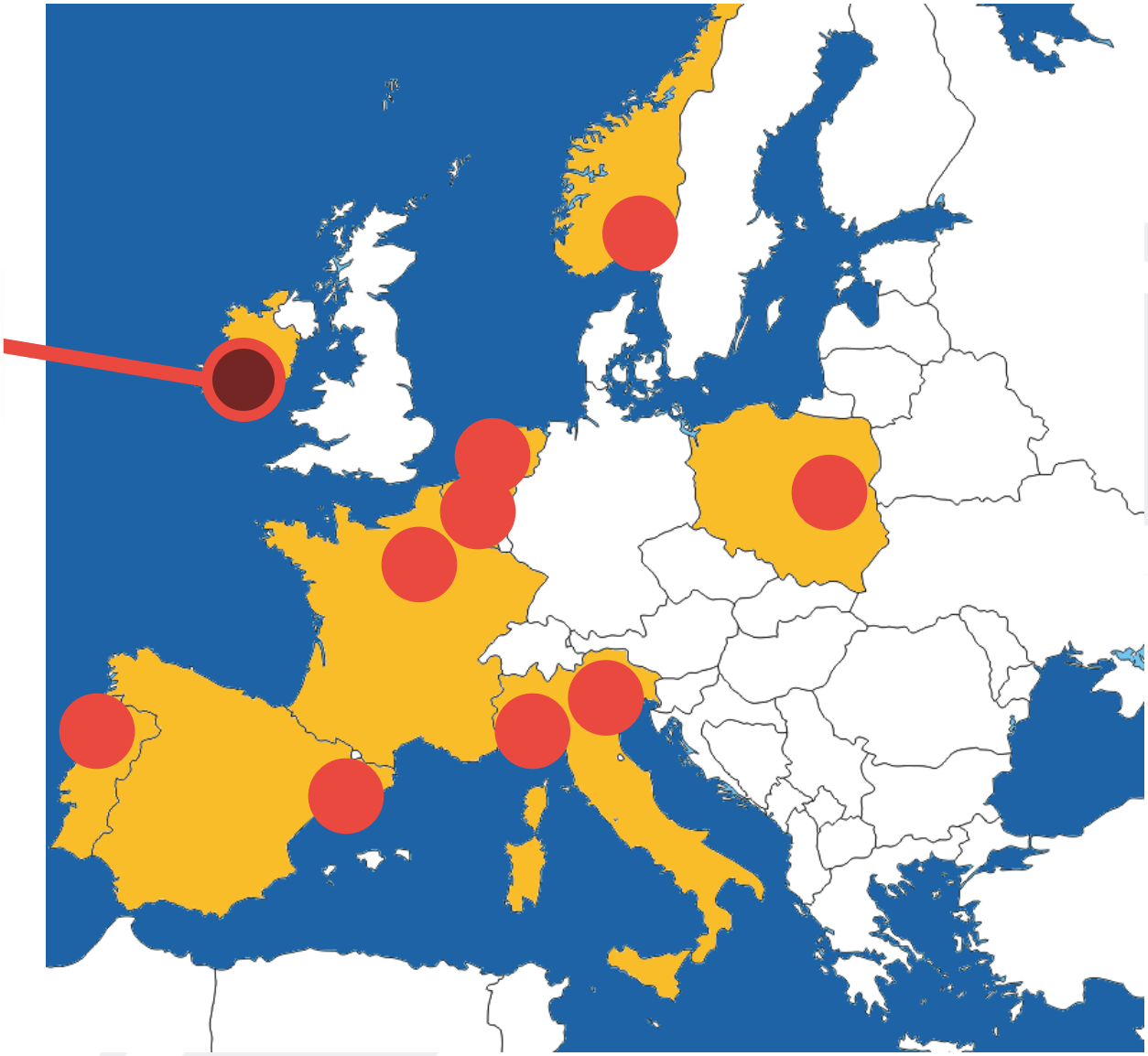
Challenges – how to increase recycling rate?

- Changes in door to door collection systems
  - Expected effect in recycling rate ~ 46 - 51% (Δ+ 6-11%)
  - Effect based on simulation of 5 different collection systems
  - Preconditions are that changes in collection systems change human behavior and improve source separation at home

- Mechanical sorting of residual waste
  - Expected effect in recycling rate on todays collection system ~ 46% (Δ+6%)
  - Effect based on statistics from new plant located close to Oslo
  - Residual waste sorted 2 times

Key question……..

Is it possible to implement a new collection system in Oslo so expected effects can be realized in a successful manner?



Waste Management Plan 2015-2021

3 KEY TARGETS:

REDUCE WASTE

RECYCLE MORE

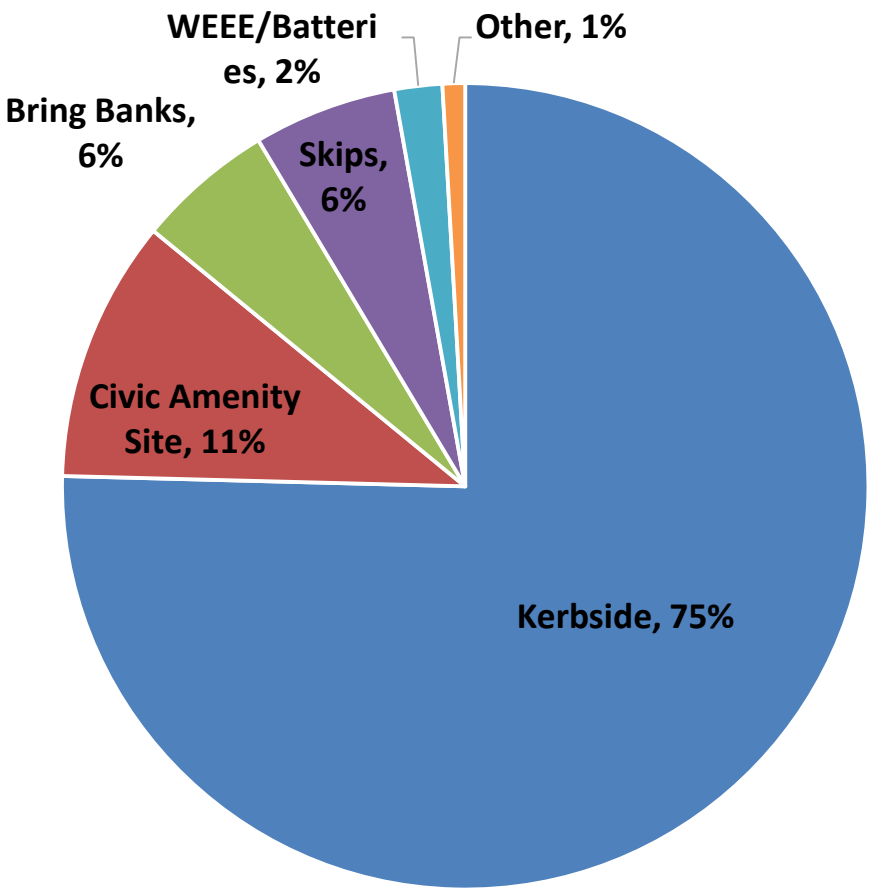
LESS TO LANDFILL

connacht-ulster waste region

southern waste region

eastern-midlands waste region

Household Waste Collection in Ireland (2015)



connacht-ulster waste region
southern waste region
eastern - midlands waste region

Local Challenges

- Meeting targets of Waste Management Plans

- Waste Capacity

- Waste Segregation

connacht-ulster waste region
southern waste region
eastern - midlands waste region

Recycle List Ireland

connacht-ulster waste region
southern waste region
eastern - midlands waste region

Household Waste Charges

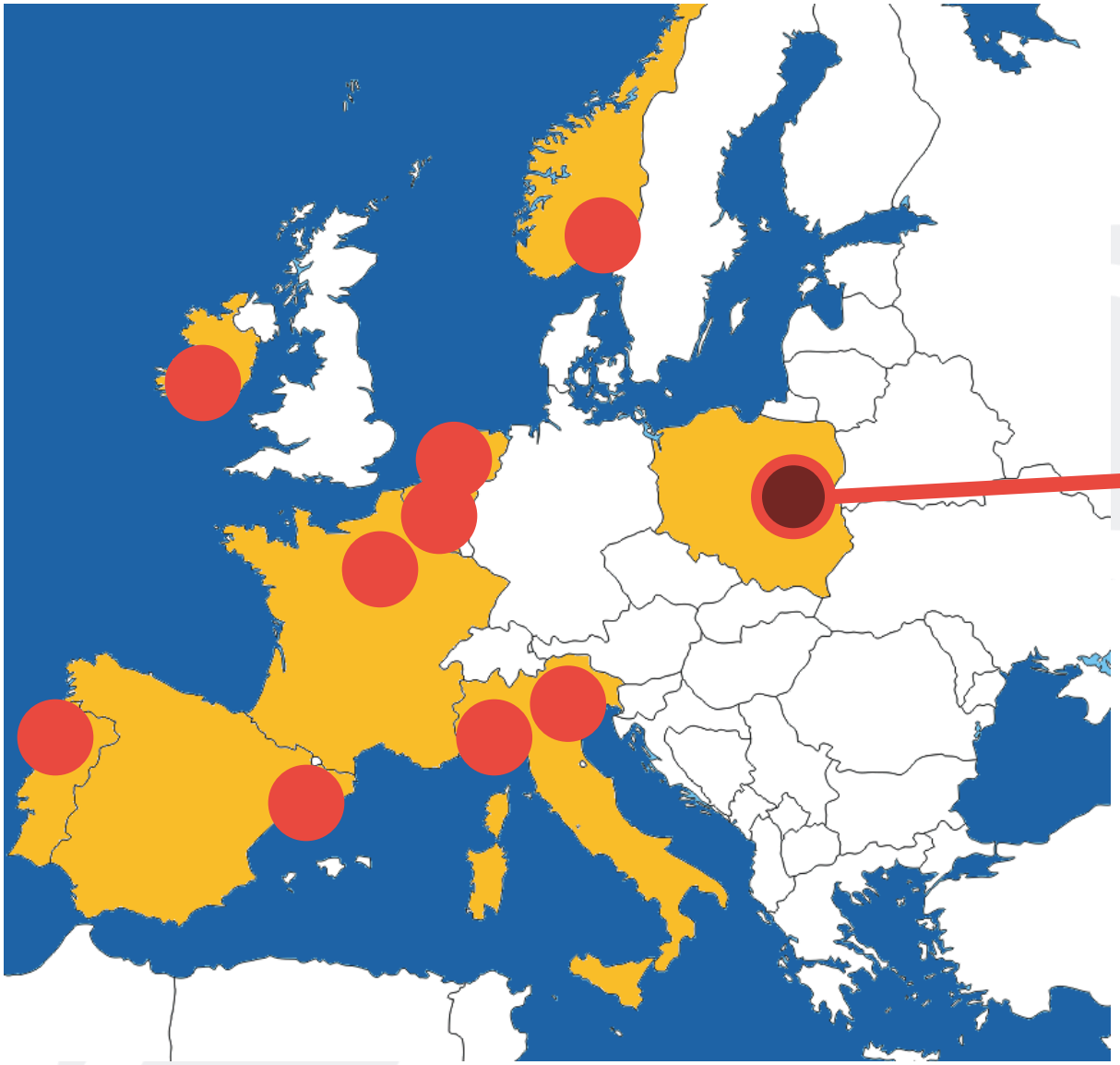
Outlooks for the Future

REDUCE WASTE | **RECYCLE MORE** | **ANDFILL**

- Recycle List Ireland
- Developme
- Enc wn bin
- occupancy dwellings
- waste generated
- E nt will be key

GOAL -MEET THE WASTE MANAGEMENT PLAN 2015-2021 TARGETS

connacht-ulster waste region | southern waste region | eastern-midlands waste region



Capital City of Warsaw

1. **Served population**: unknown - 1,735 million in 2012, but these are only the people registered as inhabitants of Warsaw, in reality much more – estimates show numbers even as high as 2,5 million

2. **Area of intervention** (km2): 517,24

3. **Population density** (inhab/km2): 3355 (based on 1,735 million)

New rules for sorting waste (from January 2019)

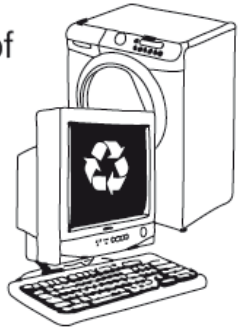
- **paper and cardboard;**
- **glass;**
- **metals, plastics and multi-material packaging;**
- **household biowaste (kitchen waste excluding waste of animal origin such as meat products), also biowaste from HoReCa sector/markets**
- **„mixed waste" – unsorted mixed municipal waste.**

The following will be collected separately:

bulky waste,
e.g., a sofa, a wardrobe

green waste, e.g., leaves (at least four times a year - twice in spring and twice in autumn)

"electrowaste" - used electrical and electronic equipment will be accepted at the points of selective collection of municipal waste



Volume of waste produced in Warsaw

Type of waste	Weight of waste collected in Warsaw			
	2015		2016	
	[Mg]	[%]	[Mg]	[%]
Unsegregated (mixed) municipal waste 20 03 01	575 953,67	78,59%	591 910,559	75,58%
Waste collected selectively	156 810,08	21,41%	191 276,704	24,42%
Total:	732 763,75	100,00%	783 187,263	100,00%

Some of the local challenges

Promoting CAS

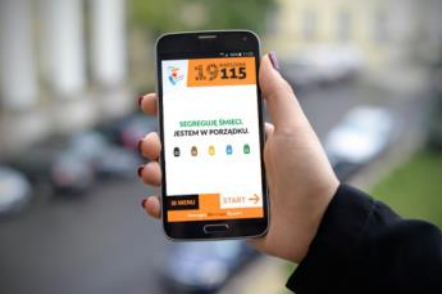
Number of inhabitants visiting 2 CAS:

2015	**1 780**
2016	**5 486**
2017	**9 649**

Extending the network of MCA

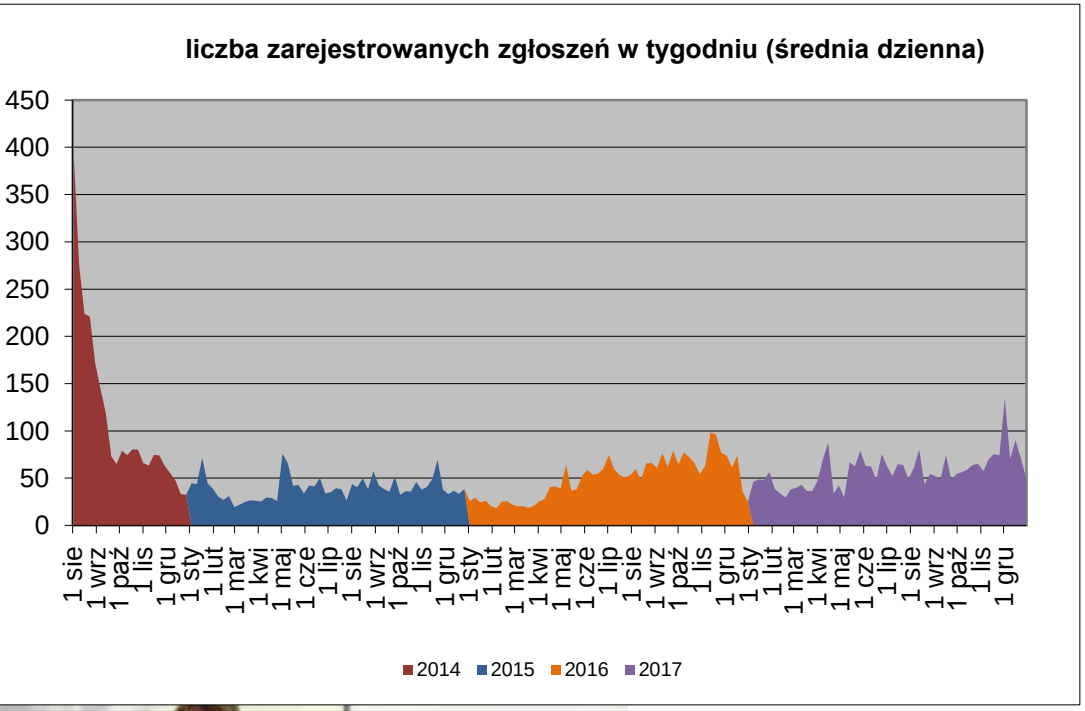
Mobile Civic Mobility Sites (MCAS); 40 points in the city

Construction of an waste incinerator plant comprising two new technology lines with combined capacity of 305,000 tonnes of waste for disposal per year, as well as **modernization and reconstruction of the existing incinerator**, including the construction of a new technology sorting line with a capacity of 30,000 tonnes of waste for disposal per year.



Good practices: 19 115 platform – handling of requests and complaints/ educational campaigns

The number of complaints, an average of 3 interventions per district daily



The internal campaign promoting waste segregation - involvement of the City Warsaw employees

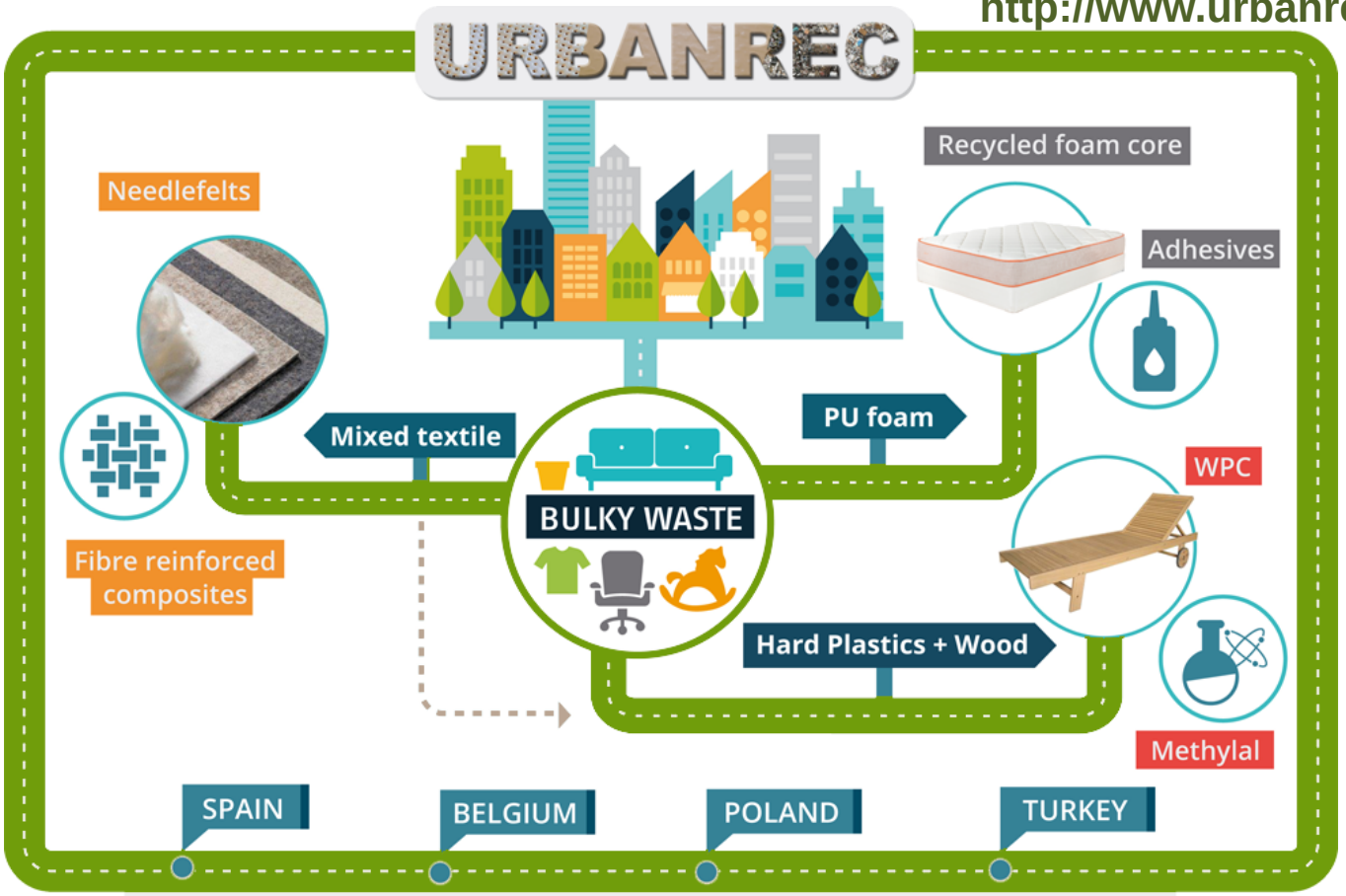
Upcycling workshops

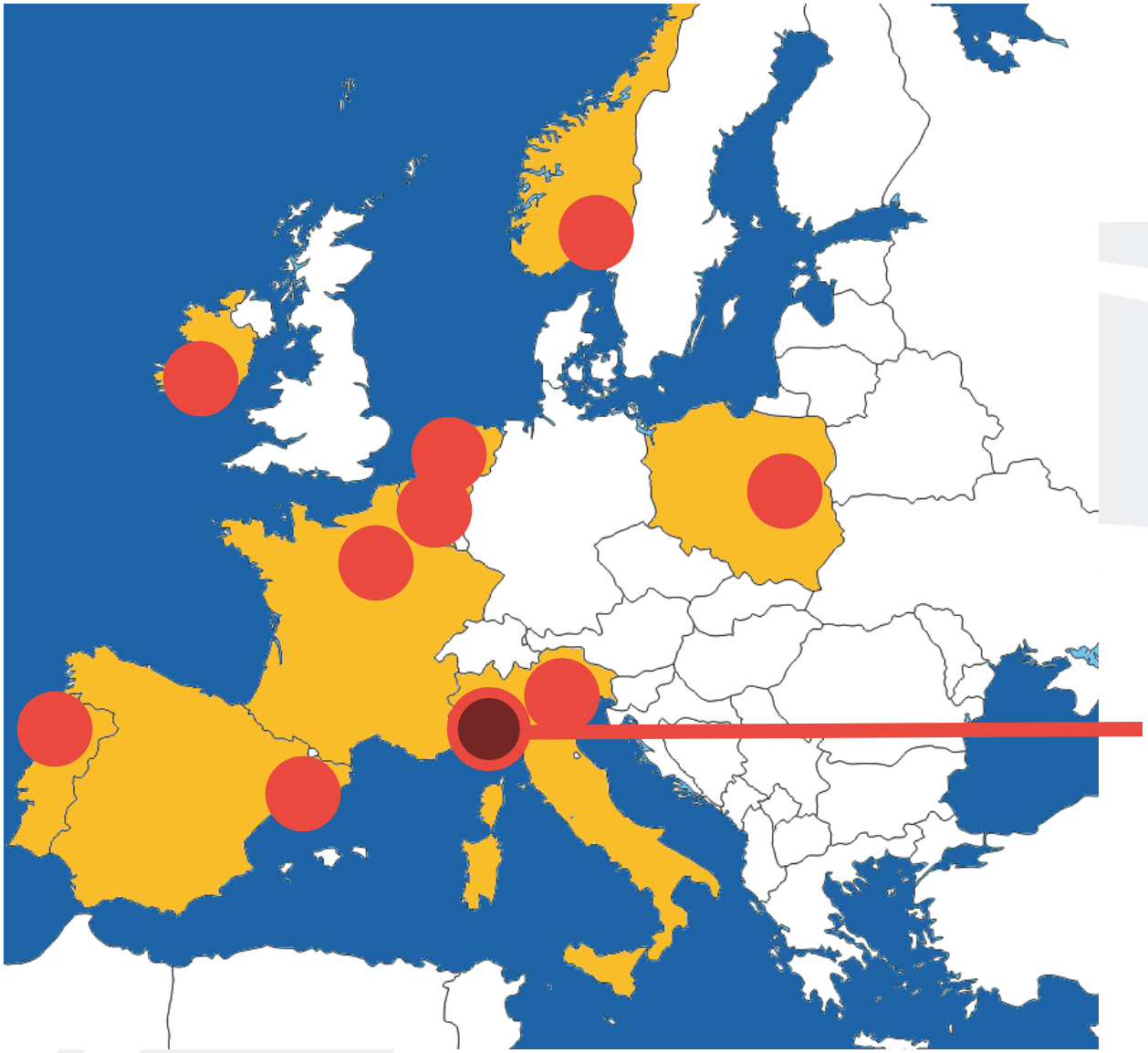
Collection of medicines, medicines packaging and mercury thermometers is carried out at selected pharmacies.

Outlooks for the future; towards the circular economy

New approaches for the valorisation of URBAN bulky waste into high added value recycled products

http://www.urbanrec-project.eu/





Genoa	240 km2
Population	583.601
Ages 65 and above	27%
Density	2.429 ab/km2

Liguria	5.416 km2
Population	1.565.307
Ages 65 and above	28%
Density	289 ab/km2

Data: ISTAT 2017 tuttitalia.it

City & Region

In addition to “traditional” waste collection systems, AMIU manages **38** Ecopunto (closed premises for specific city areas), **5** Civic Amenities, **52** mobile collection points (twice a month), **1 sorting plant** (lightweight multimaterial, mixed cellulose fractions, cardboard packaging), **1 landfill** (ongoing reclamation works).

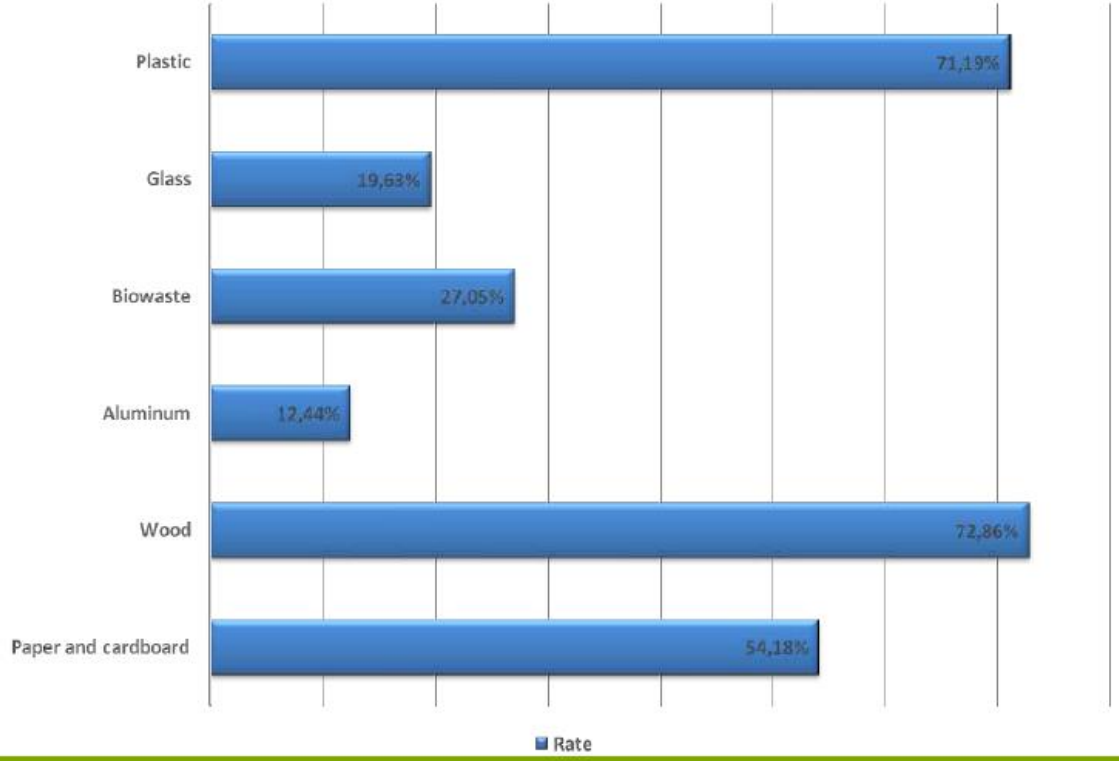
653.000 citizens served in the Metropolitan Area, through **14 logistic points**.

Waste management system & main figures

Increasing the recycling rate which is presently at 33%

Ongoing **implementation** of urban collection system

Involving all internal & external stakeholders



Local challenges

Engagement and active citizens' participation

Cleanliness, civility and respect are fundamental values. A constant dialogue to transform "listening to needs" into internal & external governance tools

1. Pact of Beauty - active citizenship committed to take care of public spaces and common areas

2. Pact among Citizens - I differentiate because it is good for the environment and I save money

3. CleanApp - a new digital colleague

Patto PER LA BELLEZZA Genova
CITTADINI E ISTITUZIONI PER LA CURA DEI BENI COMUNI

Good practices and adaptations to the waste management system

1. Pact of Beauty – 80 voluntary associations in the 9 sub-municipalities

2. Pact among Citizens – 90 meetings & participation rewarded through social or sustainability benefits (free museums tickets, bike / car sharing discounts, etc.)

3. CleanApp – non stop dialogue with citizens to make them attentive and participating in the monitoring of the quality of differentiated collection & territory

In the last years AMIU has completely rethought its strategy and organizational structure in order to abandon the linear economy.

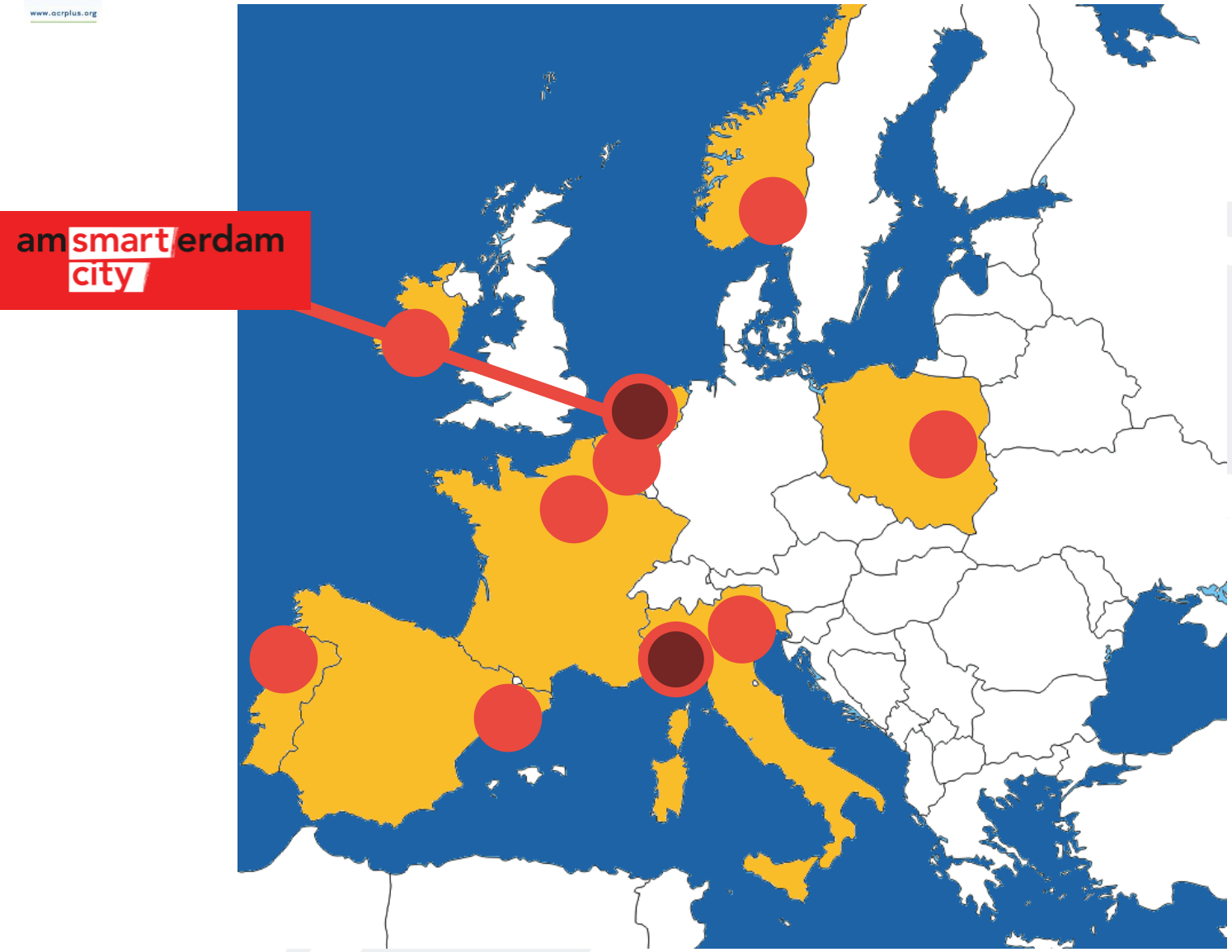
The new business model is based on **value and material recovery boosting waste recycling rates.**

AMIU is also partner of **EU funded projects** based on Circular Economy principles.

FORCE
Cities Cooperating
For Circular Economy

WEEEN
MODELS

Outlooks for the future


amsmartcity

Het restafval (73% van het totaal afval) bestaat uit:

33,7 kg overig

9 kg kattenbakkorrels

21,6 kg sanitair

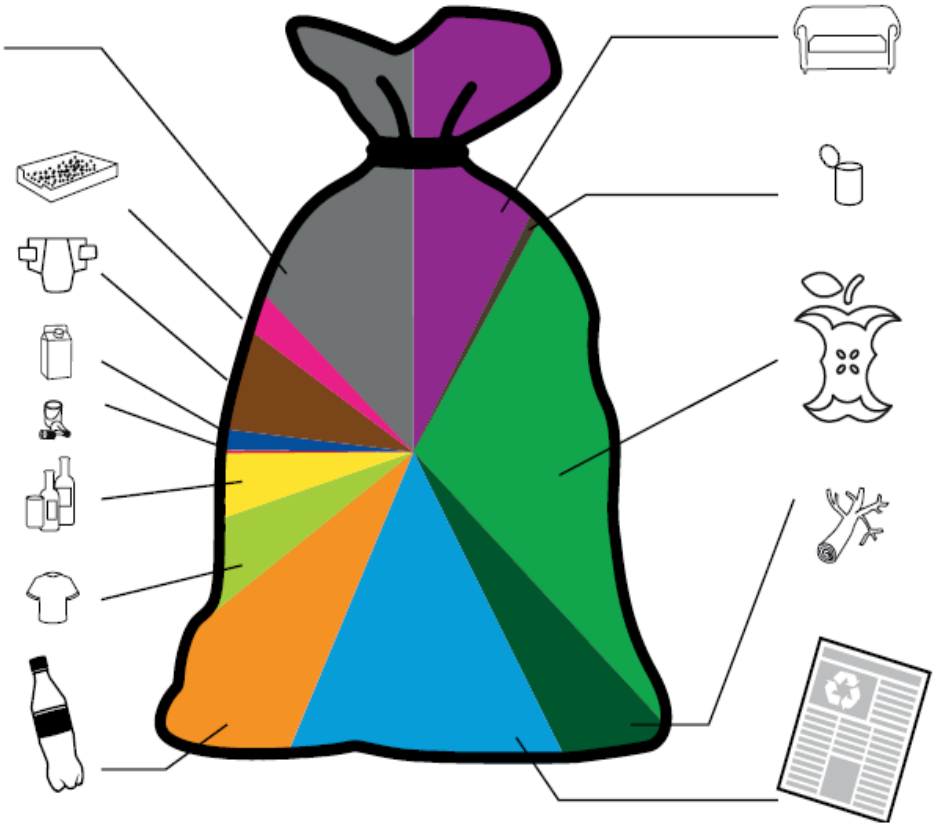
4,5 kg drankkartons

0,7 kg KCA

13,4 kg glas

14,2 kg textiel

21,7 kg plastic



20,5 kg grof huishoudelijk afval

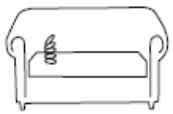
1,8 kg metalen

79,4 kg groente en fruit

12,5 kg tuinafval

38,6 kg papier

Het gescheiden afval (27% van het totaal afval) bestaat uit:



46,1 kg grof huishoudelijk afval

23,4 kg papier

18,4 kg glas

7 kg metalen

2,7 kg textiel

1,8 kg plastic

0,3 kg KCA

bron: Sorteeranalyse CREM 2015 (peiljaar 2014-2015)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RESTAFVAL
RESTAFVAL
PAPIER
GLAS
PLASTIC
TEXTIEL

CHALLENGES

- WASTE PREVENTION
- QUALITY OF MATERIAL
- DESIGN WITH PEOPLE: TOURISTS, EXPATS, STUDENTS
- RETHINK LOGISTICS, RETURN LOGISTICS
- RETHINK FINANCIAL SYSTEM

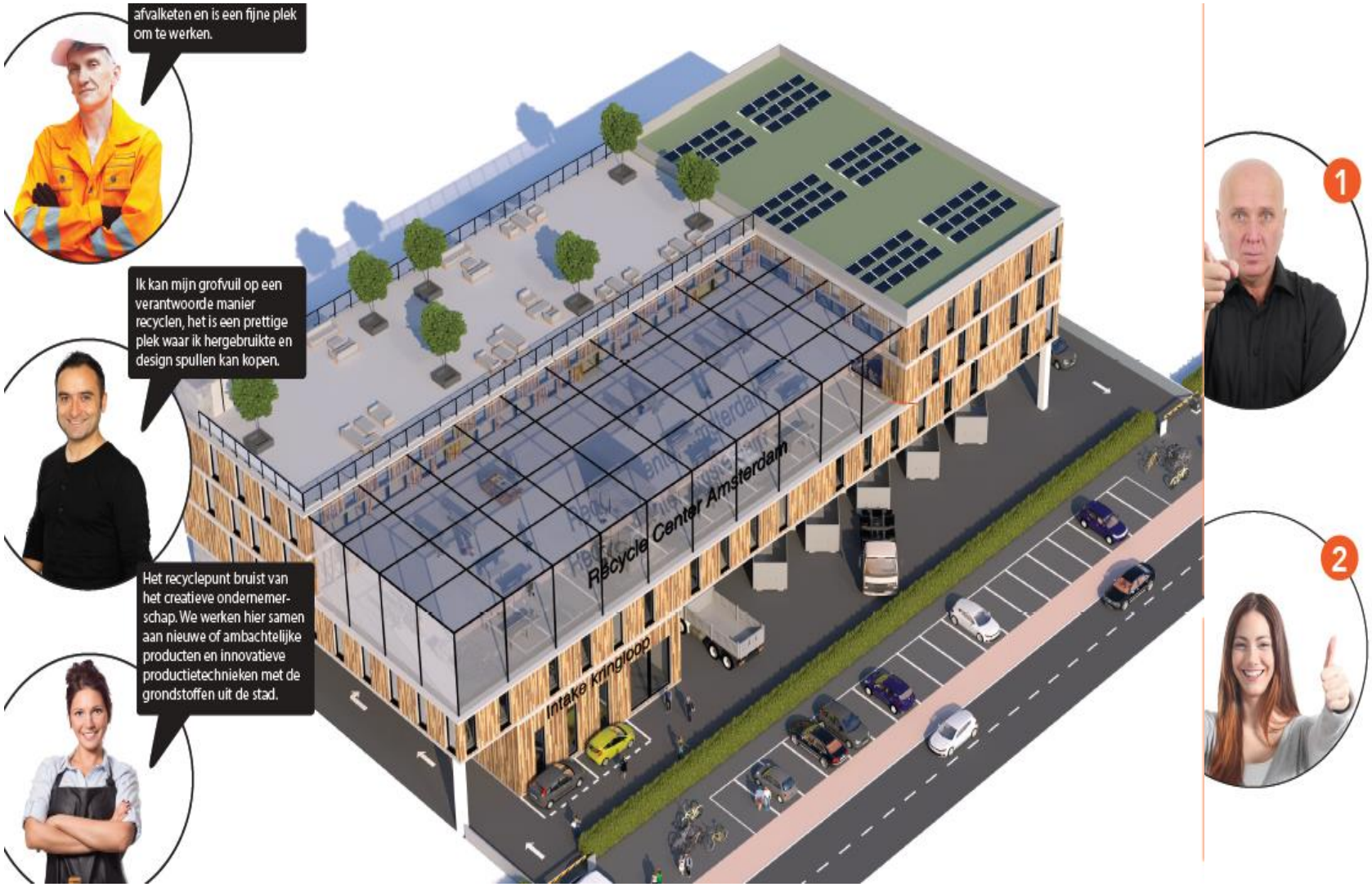
COMMUNITY BUILDING


MAKE WORK WITH WASTE

weeelectric®

Mooi meegenomen.

BRING STATIONS = CIRCULAR HUBS



Time for discussion !

For more info about the project visit the COLLECTORS website at www.collectors2020.eu