

INTERNATIONAL CONFERENCE
Sustainable Food & Bio Waste Management
31st May 2016
Mediterranean Conference Centre, Valletta, Malta

Optimising separate collection in Mediterranean areas *and quality composting*

31 may 2016, Malta
Dott. Marco Ricci
ricci.eco@gmail.com



About myself



CIC Italian Composting and Biogas Association

Senior Expert

www.compost.it



ISWA International Solid Waste Association

Chair of the Working Group on Biological Treatment of Waste

www.iswa.org



Mediterranean Compost Network

Founding member

www.medcompost.net





MedCompost

mediterranean network

VISIT OUR WEBSITE
www.medcompost.net

FOLLOW US ON   

CONTACT US
info@medcompost.net
Skype: medcompost



MISSION

Network of entities involved in biowaste management and treatment in the MED area working together to promote initiatives aimed at high quality biowaste management and foster means of communication and interaction among target entities.

OBJECTIVES

- Promote the **development of practical initiatives** aimed at high quality biowaste management and compost use. That should include models based on any type of efficient biological treatment and the application of low-cost, low-tech solutions when appropriate
- Foster means of **communication and interaction** among target entities
- Encourage the **commitment of authorities and key entities** in favor of high quality biowaste management and compost use
- Provide with **support, relevant services, training and know-how** sharing to implement high quality biowaste management and compost use

GET THE FOLLOWING BENEFITS



GET INVOLVED

- ✓ Sign up for our newslines
- ✓ Sign up for the Manifesto for proper food waste management in MED area
- ✓ Join the group of members of the MCN
- ✓ Join the group of sponsors of the MCN
- ✓ Be part of the experts and companies database

The MCN is by now gathering support from interested entities in order to become a formal association very soon.

About myself

- **20 years of experience in planning MSW management**, designing and up-grading of collection and transport schemes, assessing recycling facilities (focus on composting), planning communication and participation initiatives, chairing multi-linguistic, multi-tasking working groups or projects.
- **15 year foreign working experience** as consulting expert focusing on issues related to solid waste management. Extensive consultancy experience in the Solid Waste Sector – on Strategy and Policy, Fees&Taxes, Separate collection schemes - , both in ‘advanced’ and ‘low to middle income’ countries in Europe, Latin America and Asia.
- **10 years experience cooperating with international organisation/agencies** (as ECN-European Compost Network, ACRR, EEA-European Environment Agency, Sweepnet-GIZ, SCOW).

Activities (outside Italy)



Examples of intensive sorting schemes for organic waste



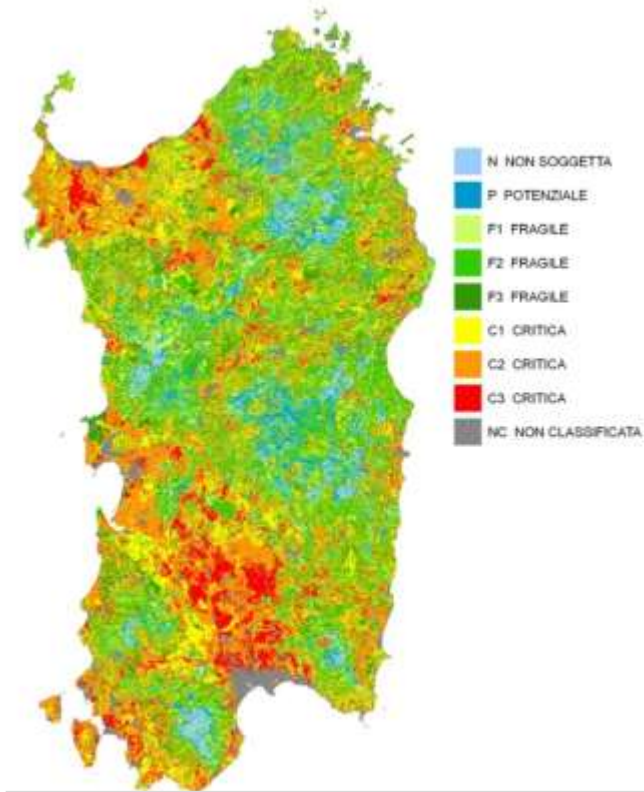
A practical case: Sardinia

- Island in the Mediterranean Sea, Region of Italy
- Special regulatory regional power
- 1.700.000 inhabitants, 377 municipalities, 8 Provinces
- Scarcely populated (70 inhabitants / km²)
- Very high tourism in summer



A typical situation for mediterranean soils

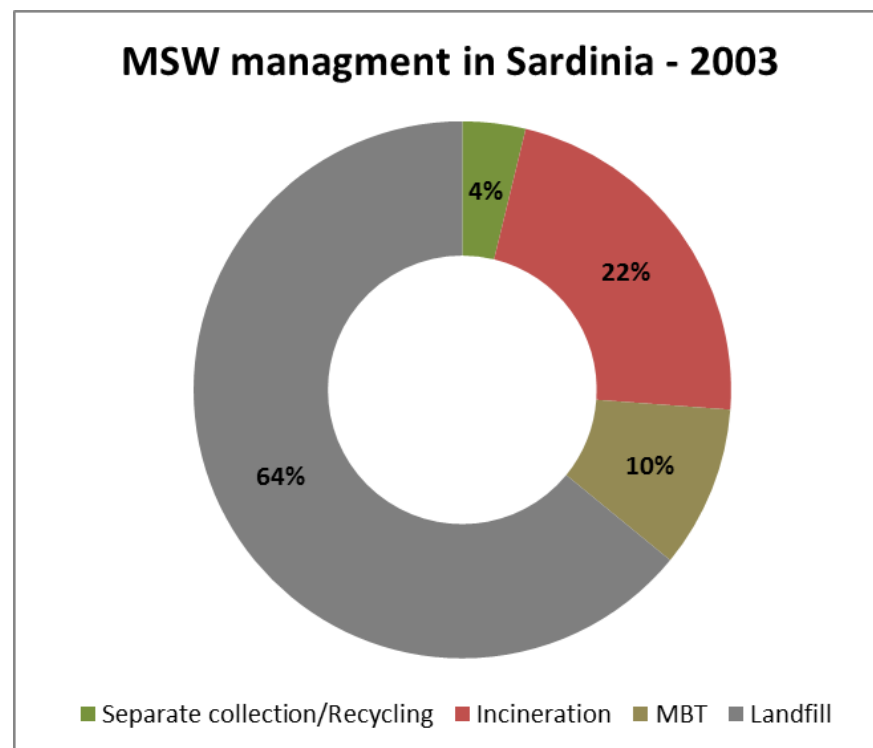
- 54% of Sardinia's soils have a critical level of pre-desertification
- Compost obtained from biowaste can play a key-role to fight desertification and restore fertility of soils
- compost produced from high-quality biowaste, collected separately



Carta delle aree sensibili alla desertificazione in Sardegna fonte:
<http://annuario.isprambiente.it>; 2011

Situation in year 2004

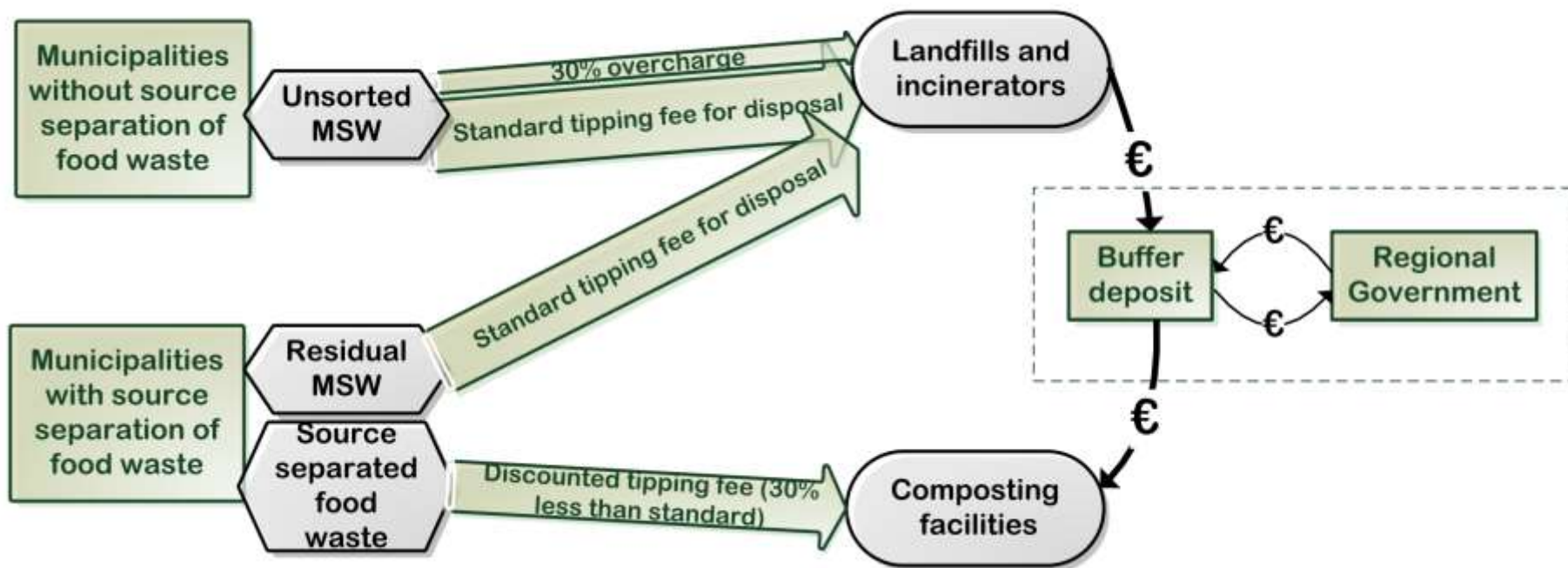
- Biowaste represents 30-40% of Sardinia's MSW
- Separate collection of MSW below 4%
- 2/3 of al residual MSW is directly landfilled
- 2 incinerators
- 4 MBT plants
- 2 composting plants



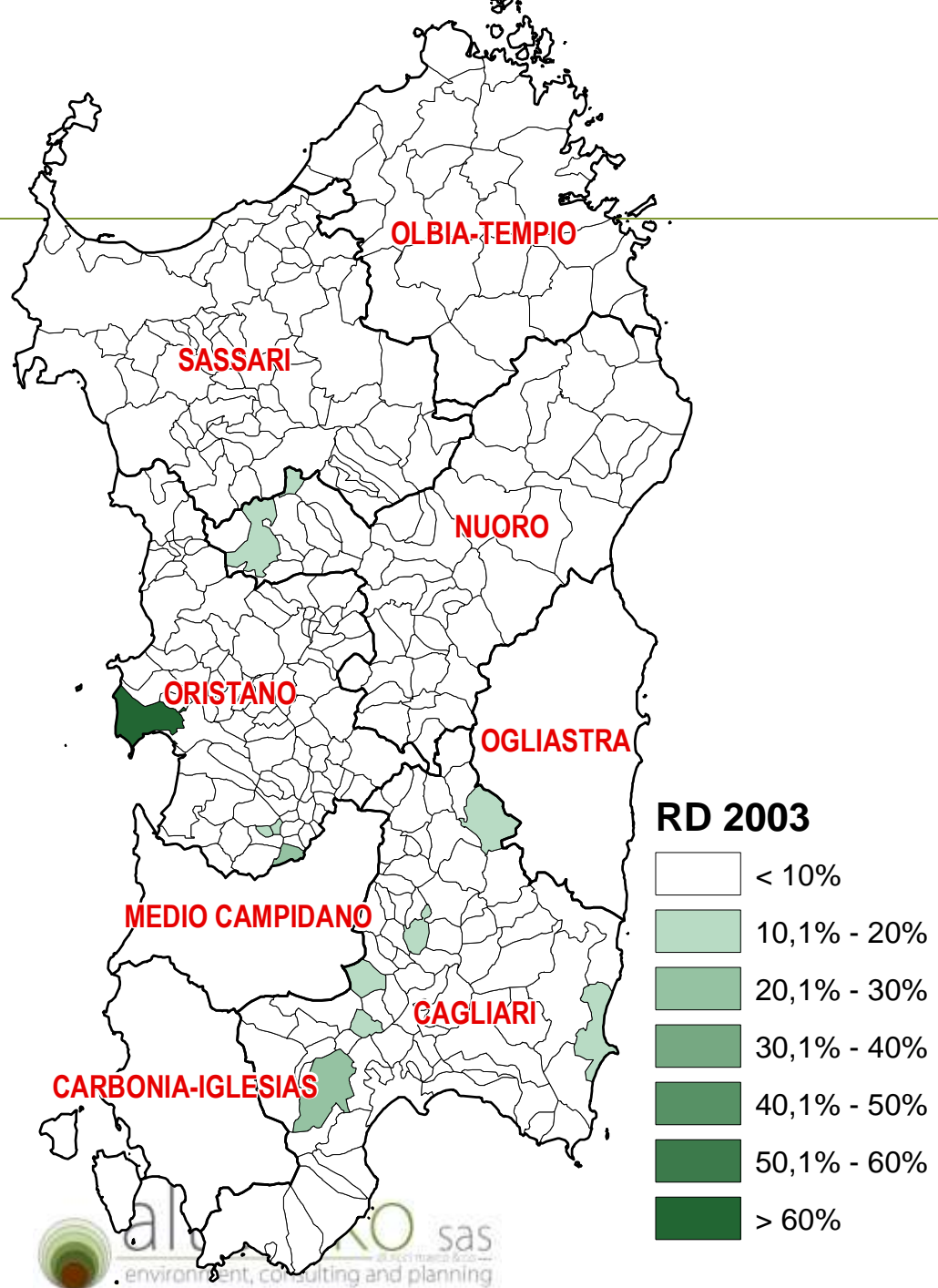
Sardinia's MSW Master Plan

- reduce residual waste to less than 35% of total MSW by 2012
- Develop separate collection of biowaste (food waste)
- Management and tenders for MSW to be done at district level (i.e. including more municipalities)
- **Introduce an economical driver → incentive scheme**
- Support the realization of composting plants
- Promote quality and market for compost
- Cooperation with the Italian Composting (and Biogas) Association CIC

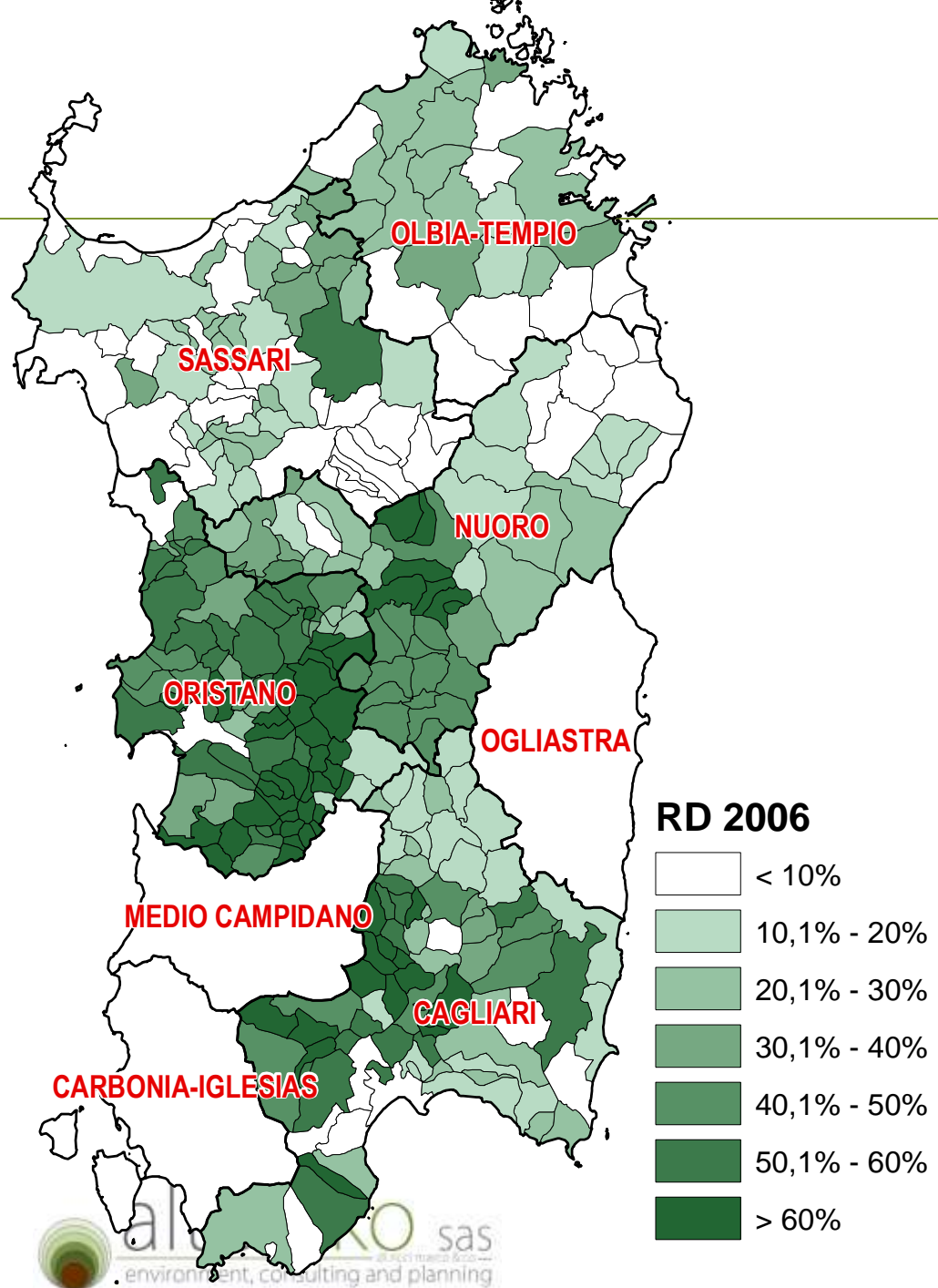
The basic incentive scheme



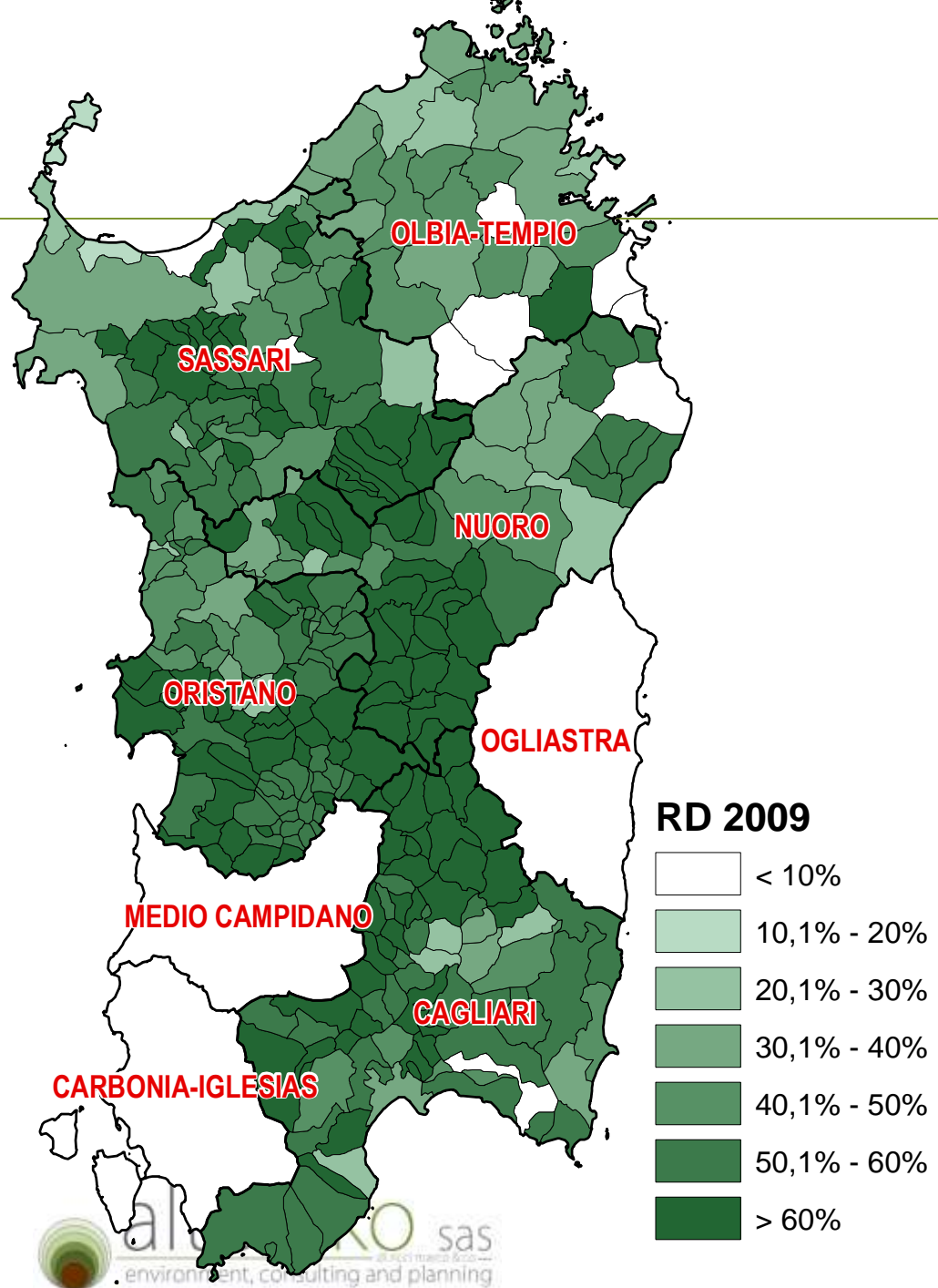
2003



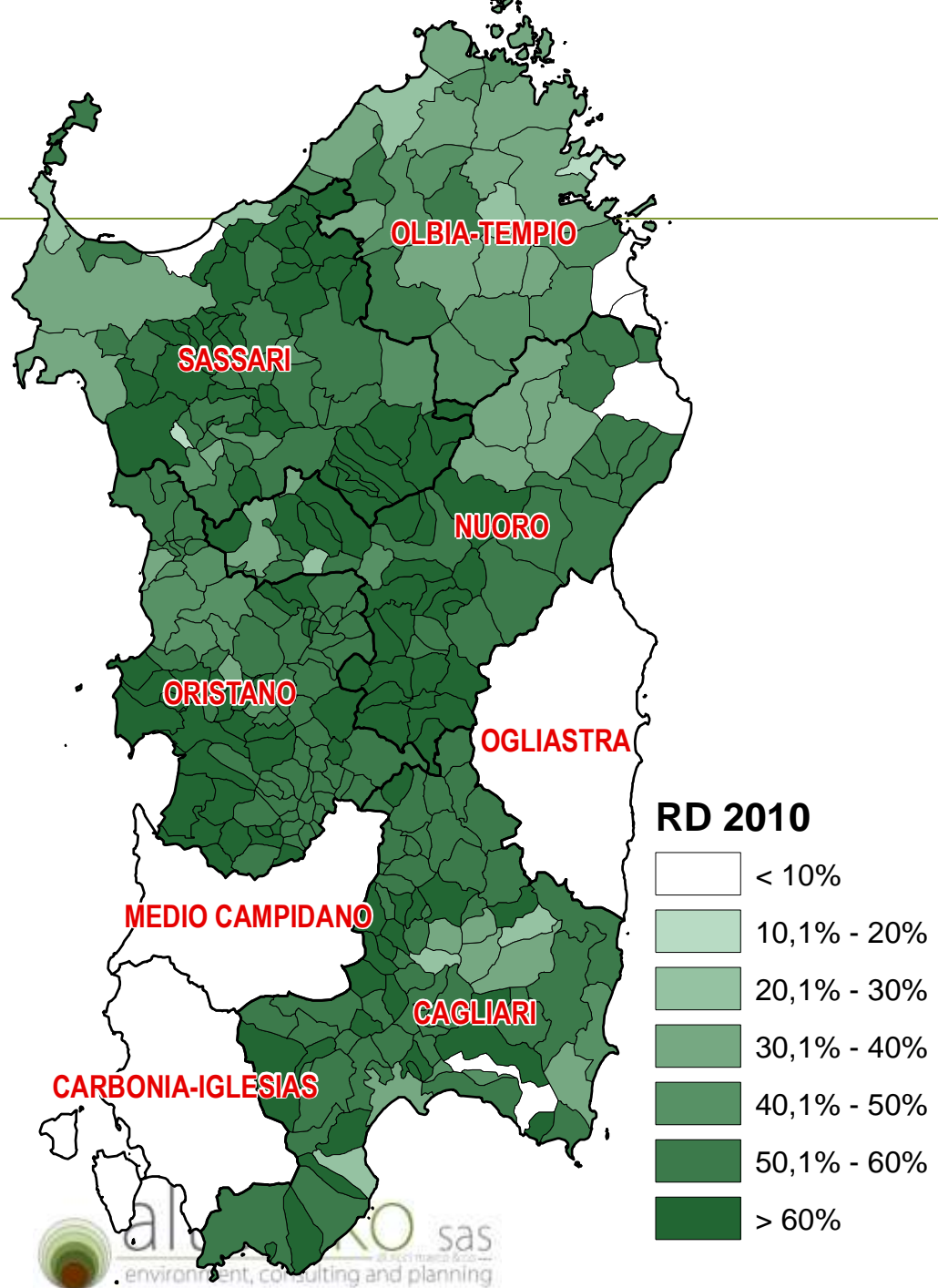
2006



2009

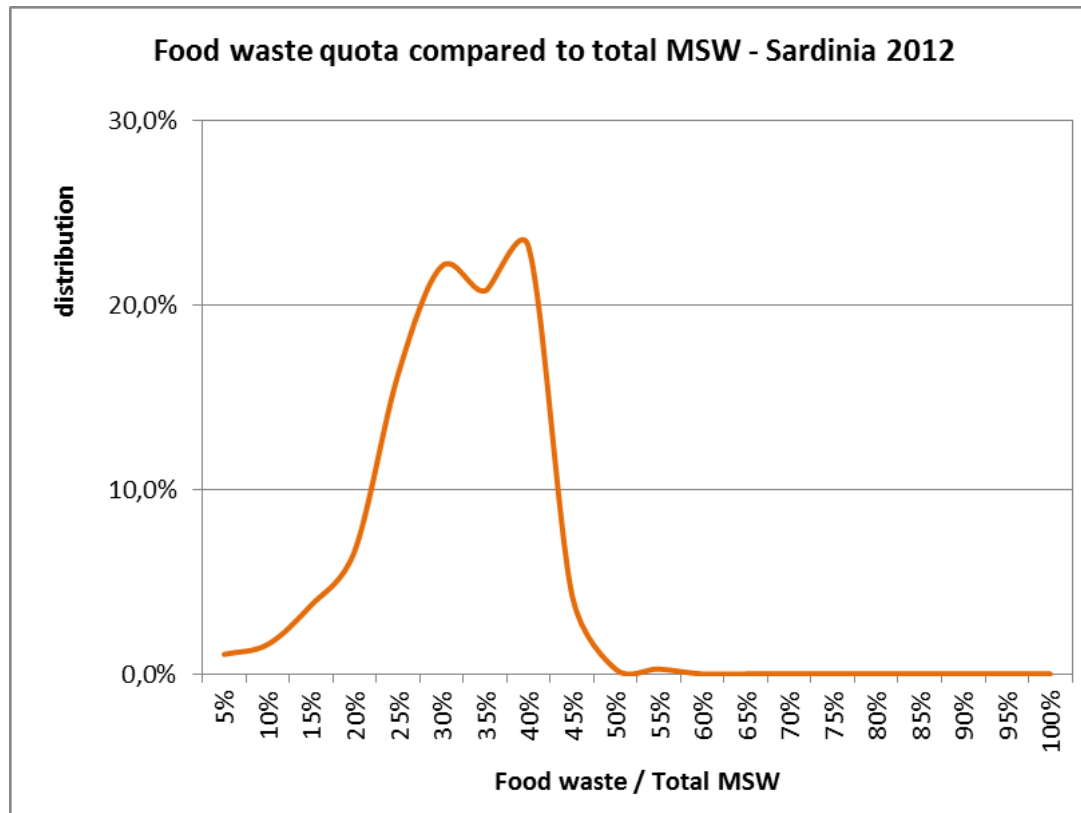


2010



% Foodwaste on MSW

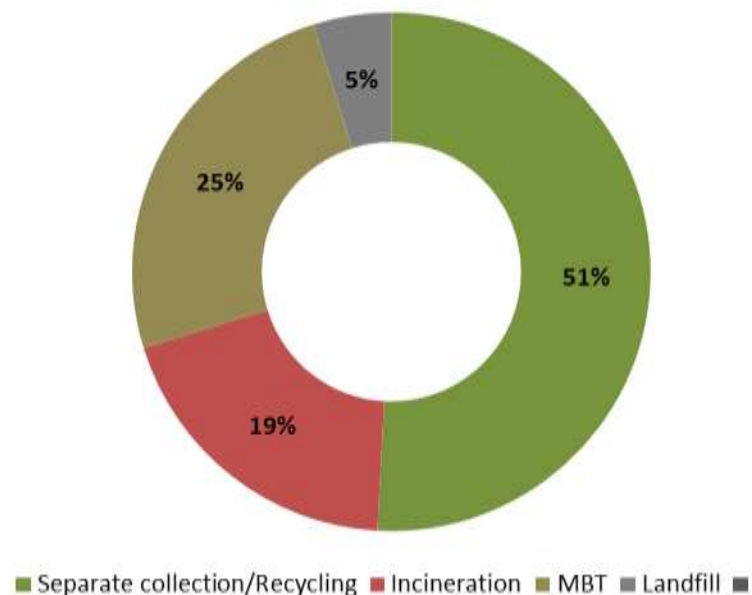
- The system gains an impressive targets of 35% of FW on overall MSW!



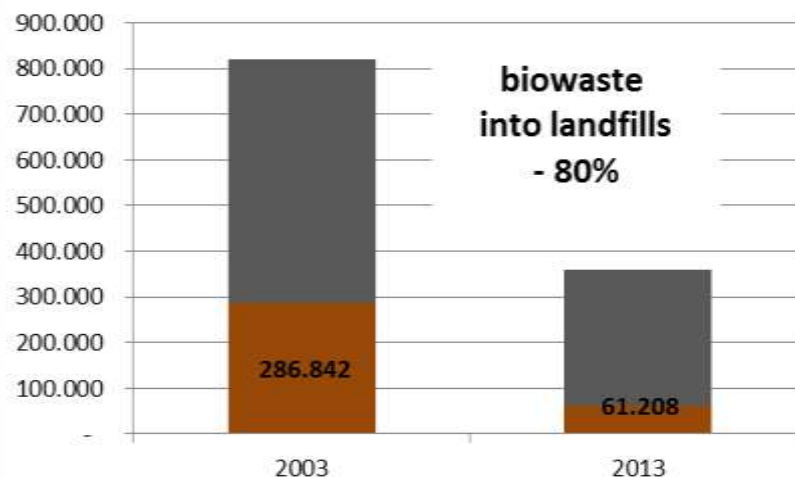
Situation in year 2013

- Biowaste about 15% of Sardinia's residual MSW
- Separate collection of MSW is above 51%
- 5% of al residual MSW is directly landfilled
- 2 incinerators
- 7 MBT plants
- 15 composting plants

MSW management in Sardinia - 2013



MSW disposed in Sardinia (t/yr)



Promote compost use

- Manual for farmers
- Demo-cases
- Practical information
- QAS for better market



Examples of intensive sorting schemes for organic waste



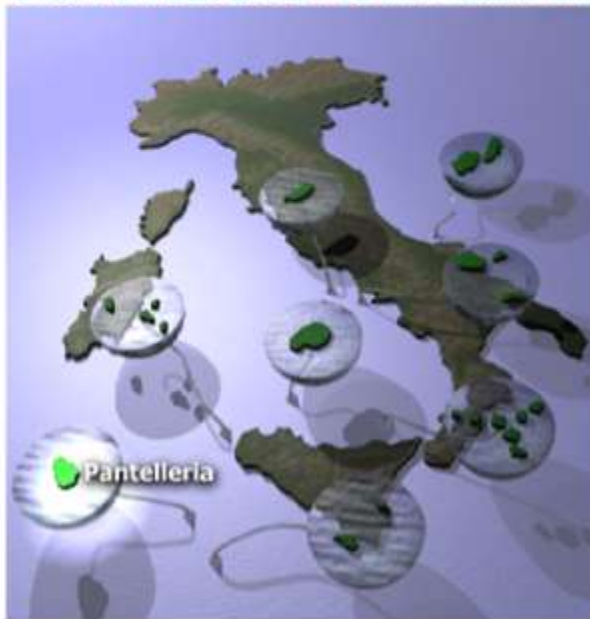
Pantelleria: key data

- Volcanic Island (UNESCO Heritage)
- Economy: Vineyards and Tourism
- Area: 83km²
- Location: 110km from Sicily, 70km from Tunisia

- Houses for vacations
- Few Hotels
- Residents : 7.715 (up to 15.000 in summer)
- Tourist: 80.000
- Service managed by Agesp, private company (tender)



SISTEMA DI GESTIONE DEI RIFIUTI
URBANI NELL'ISOLA DI PANTELLERIA



ACCORDO DI PROGRAMMA ENEA-MINAMBIENTE
Progetto 5.2 - "Sostenibilità ambientale nelle isole minori"

- Intensive sorting schemes
- Mun. Rec. Center
- 60% separate coll & recycling
- Promote home-composting
- Composting plant on the island for 1000 tpa

MSW management

2014

Bring schemes



2015/2016

Kerbside collection (stepwise)



Collection zones

- Introduction of intensive sorting schemes for MSW
- 1stQ-2015 Center
- 3rdQ-2015 South west
- 4thQ-2015 North east



Equipment for collection at HH



Equipment for collection at HH



Source separation of foodwaste is difficult....



- High moisture
- Leachate
- putrescible
- High density

Likely to be uncomfortable

?

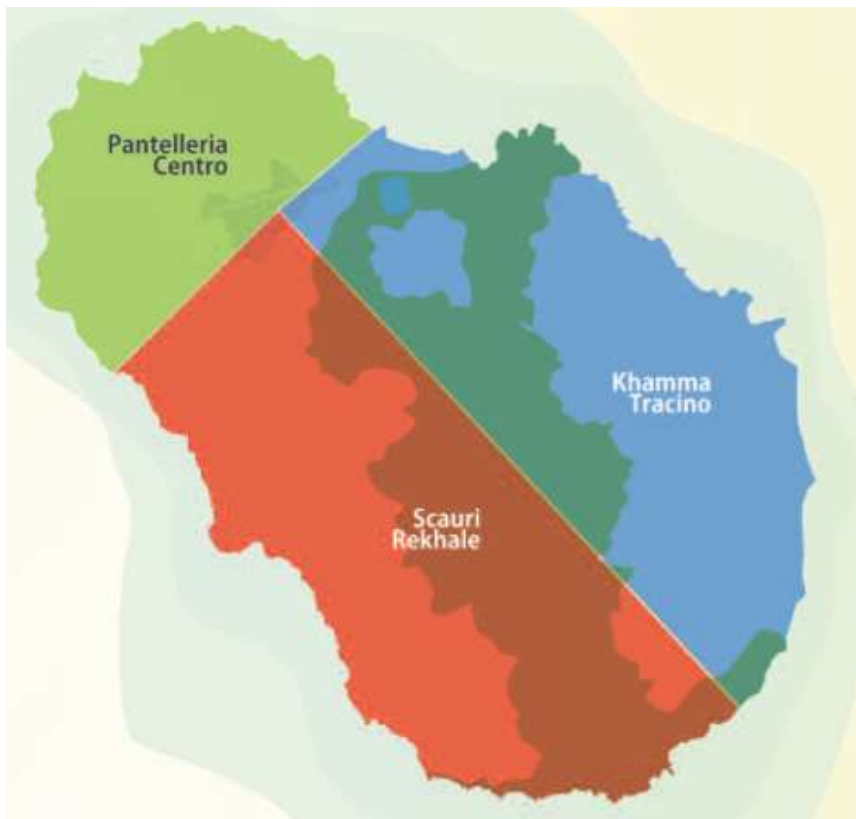
Convenient collection of Food waste



- Better acceptance at HH
- Compostable bags (EN13432 certified)
- Moisture loss
- Less odours and smell
- Water-tight

Convenient collection frequencies

Collection at HH









Collection at commercial activities



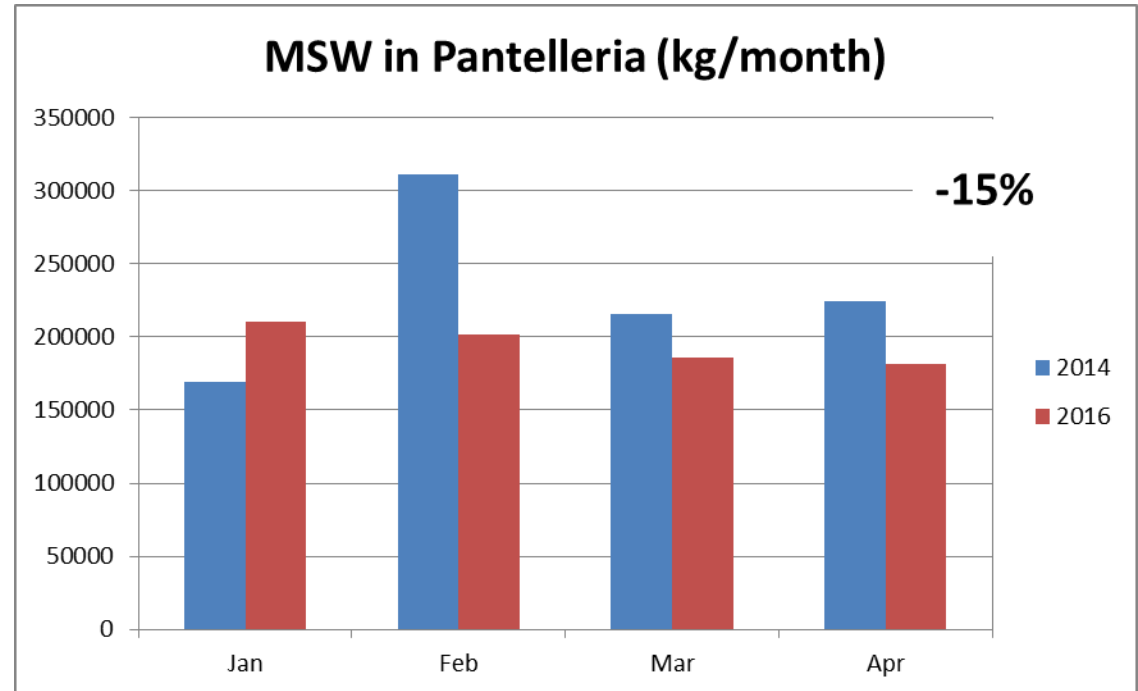
Collection in Pantelleria



MSW management Scheme	Residual waste	Food waste	Paper	Plastics & Cans	Glass	Mobile Collection	Collection Center
Main collection scheme	Kerbside	Kerbside	Kerbside	Kerbside	Kerbside	Bring scheme	Bring scheme
PAYT charge	no						
Collection tools for Households	40 liter buckes with RFID-TAG	23 liter buckes and 240 liter bins	40 liter buckes	40 liter buckes	40 liter buckes	set of 240 liter bins	
							
Collection N/week HH	2	3	0,5	1	0,5	2h/day/zone	
Collection N/week Commercial Act	2	6-7	4-7	4-7	4-7		
Amounts collected (kg/inhab/yr)	130	82	51	32	53		56

Comparison between collection schemes

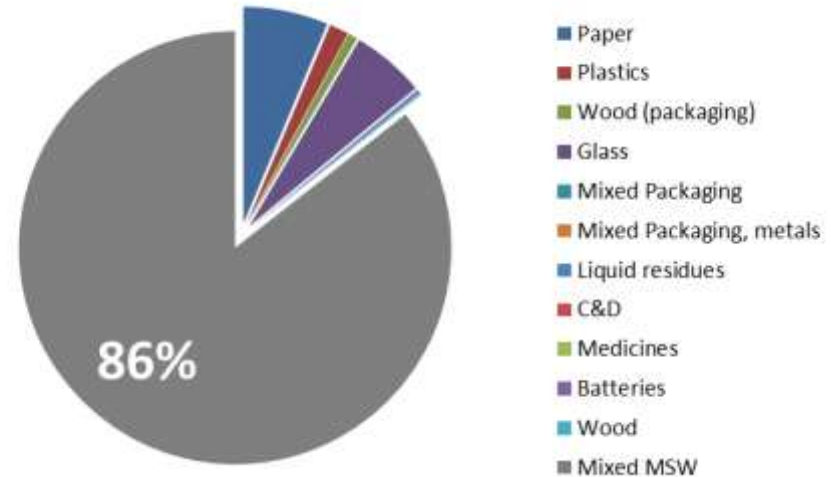
- -15% Total MSW
- -92% Disposal of MSW
- +146% recycling



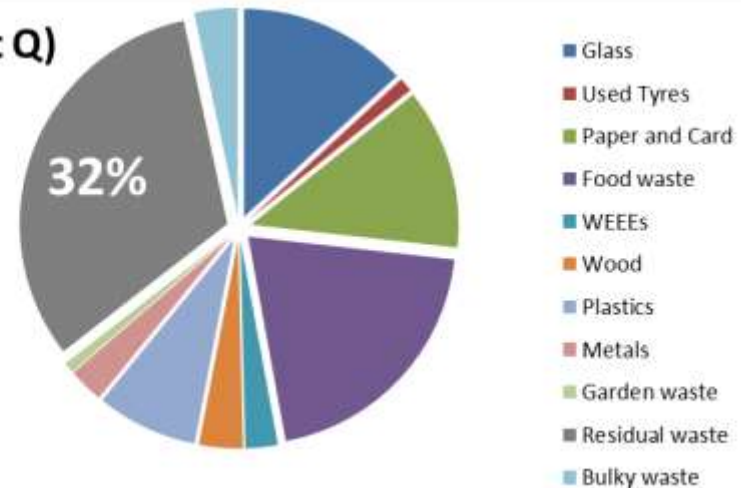
Comparison between collection schemes

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2014



2016 (1st Q)

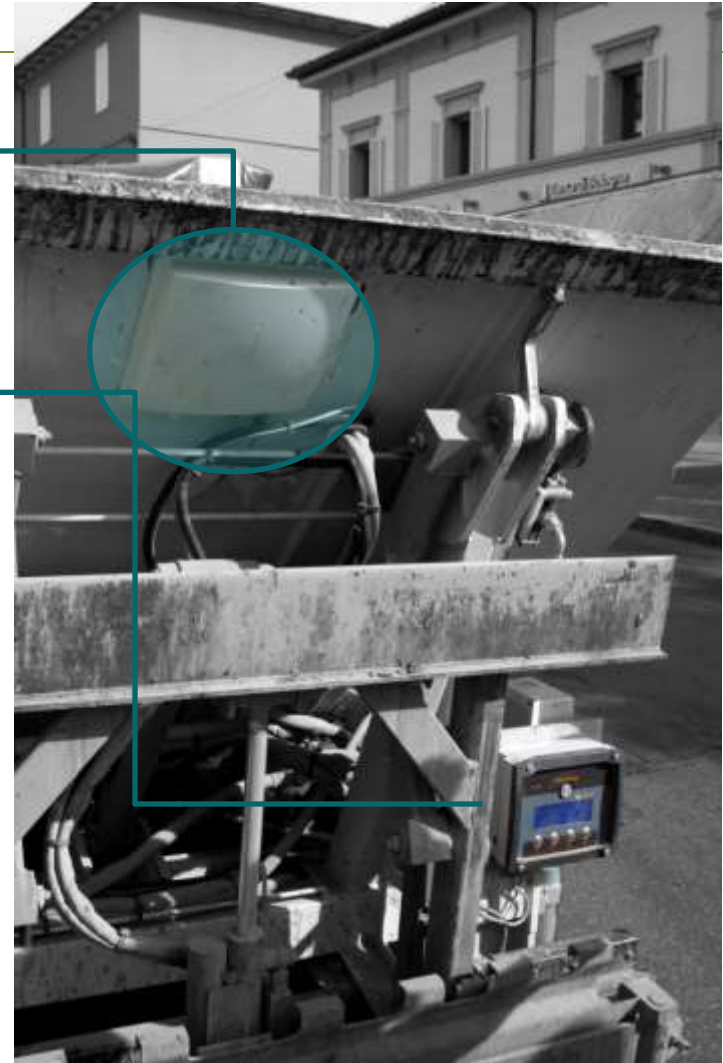


GPS & on-vehicle id. devices (UHF):

Microchip serial code are automatically detected during normal emptying operation. No extra work needed for the operator

ANTENNA

**GPS/GPRS
CONTROLLER**



DATA MANAGING

- Collection datas are visible on real time on web using a laptop, tablet, smartphone etc. etc.
- Datas can be easily exported to Excel file

Routing, collection points, stop points



VEICOLI

Veicoli Storico Temi **Svuotamenti**

Veicolo: Tutti i veicoli

Tag ID: tutti

Svuotamenti: Personalizzato

Dal: 21/12/2012 00.00

al: 21/12/2012 23.59

Cerca

Data research interface



Serial code E0040P005270
E = ECOELPIDIENSE SpA
0040 = 40 lt bucket
P = Plastic collection
005270 = serial number

Codice/Descrizione	N°
E0040P005270	21/12/2012 07.36
Strada San Pietro - San...	(102)EK 910 ZL - PRES.
E0040S000103	21/12/2012 08.10
Strada Provinciale Elpidi..	(101)EK 958 ZL - PRES..
E0040S000137	21/12/2012 07.49
Via Ippolito Nievo - San..	(110)EK 958 ZL - PRES..
E0040S000144	21/12/2012 06.38
Via Maria Giola - Sant'El..	(110)EK 958 ZL - PRES..

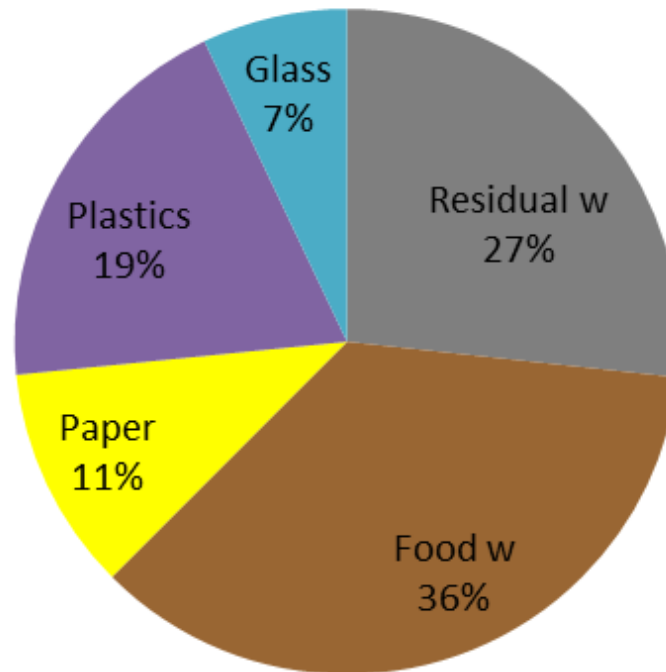
Microchip serial code, truck n° plate, address, hour etc. etc.



GOOGLE Streetview connection

GPS data about collection services

Emptying of different types of buckets and bins - 2015



Conclusion

- MSW focusing on high yield collection schemes for recyclables can be realised in touristic areas, involving families and commercial activities
- A penalty/premium driver helped Regional Authorities to finance and steer the evolution of separate collection into the desired direction
- Residual waste still needs to be pre-treated before going to landfills, but the amounts can be significantly reduced
- Results can be achieved in 5 to 10 years by assuring:
 - Significant reduction of MSW to be disposed off
 - Reducing the amount of putrescible waste disposed by direct landfilling

FW: Lessons to be learned

- Never collect Food waste without a bucket/bin
- Choose the right volumes
- Vented kitchen caddies need compostable liners
 - Paper
 - Bioplastics
- Compostable liners are always preferable to make compost

FW: Lessons to be learned



- Never collect Food waste without a bucket/bin
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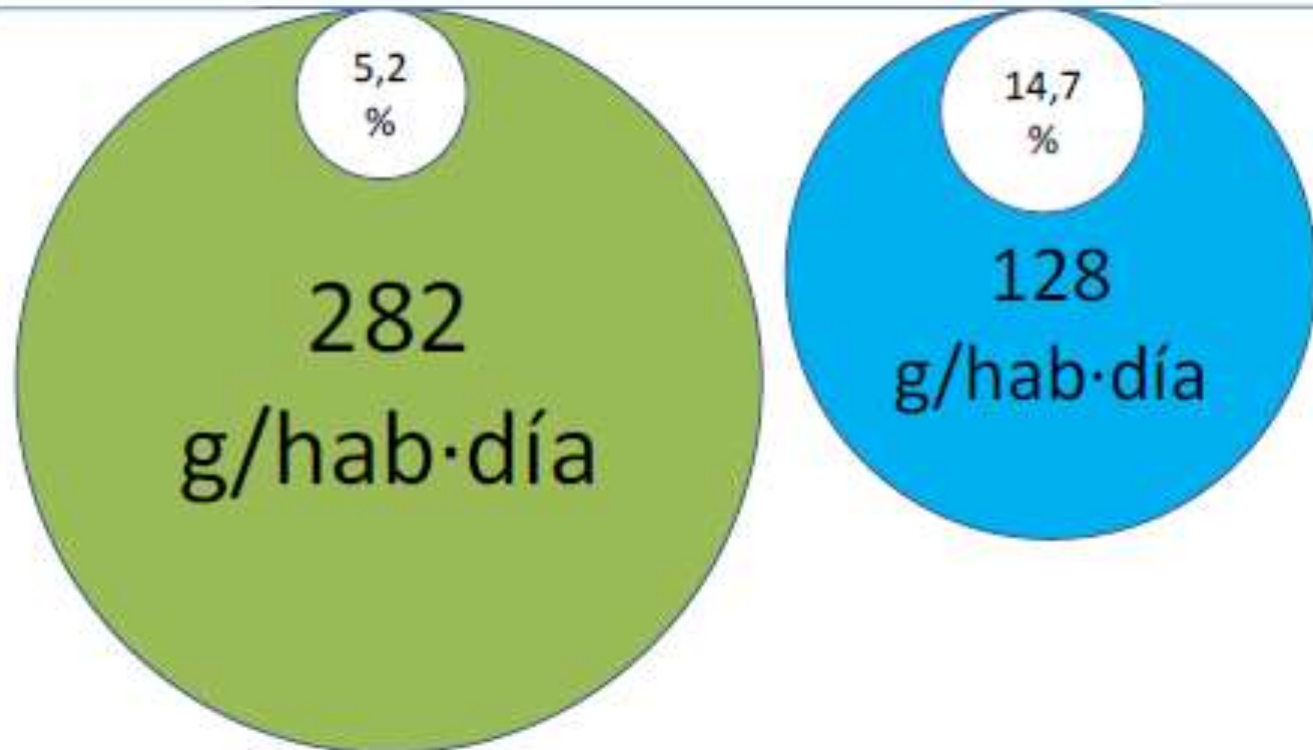
Grazie !

dott. marco ricci
+39 – 348 - 8731065
ricci.eco@gmail.com

Success in capture rate depending on the collection scheme

Door to Door

Road Containers



Malta





