

The economic instruments in support of waste prevention

Dogliani (Province of Cuneo)

North – West of Italy

Inhabitants 2009: 4.799

Waste collection system: *door to door* for paper and cardboard, plastic packaging, metallic packaging, organic (kitchen waste), residual unsorted waste. **Road collection** for glass. Municipal centre of collection

Domestic composting of organic waste: 52% of the families

Waste collection cost in 2003: 16,00 €/inhabitant

Waste collection cost in 2004: 30,00 €/inhabitant

Waste treatment and disposal cost in 2003: 43,00 €/inhabitant

Waste treatment and disposal cost in 2004: 13,00 €/inhabitant

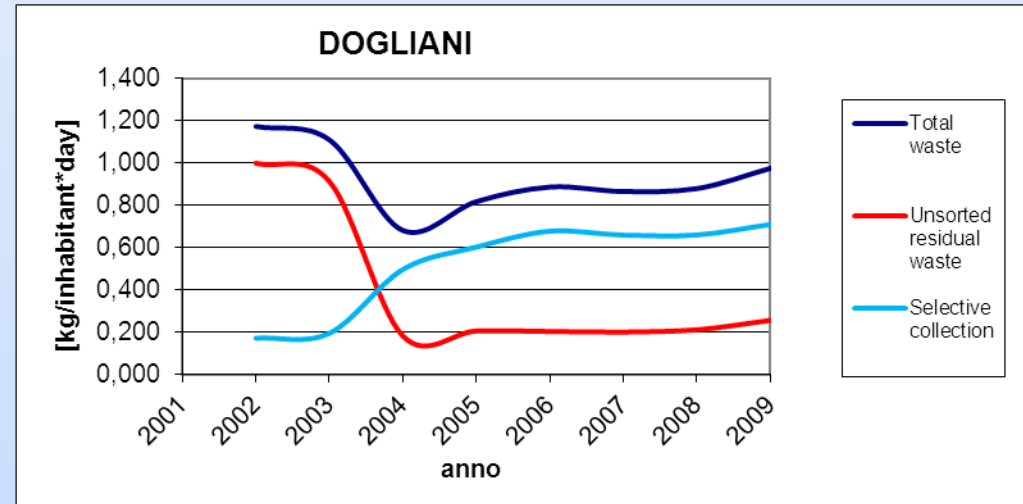
Volume based PAYT with the pre-paid bag

Selective waste collection 2005/2004: + 154%

Total waste production 2005/2004: -38,64%

Residual unsorted waste production 2005/2004: -79,96%

Year	Total waste	Unsorted residual waste	Selective collection
	[kg/inhabitant*day]	[kg/inhabitant*day]	[kg/inhabitant*day]
2002	1,173	0,999	0,173
2003	1,110	0,913	0,196
2004*	0,681	0,183	0,498
2005	0,818	0,207	0,603
2006	0,887	0,205	0,678
2007	0,866	0,202	0,660
2008	0,879	0,213	0,661
2009	0,975	0,257	0,710



2004 first year of PAYT and door to door collection

Castagnole delle Lanze (Province of Asti)

North – West of Italy

Inhabitants 2009: 3.853

Waste collection system: *door to door* for paper and cardboard, plastic packaging, metallic packaging, organic (kitchen waste), residual unsorted waste. **Road collection** for glass. Municipal centre of collection

Domestic composting of organic waste: 50% of the families

Waste collection cost in 2004: 24,83 €/inhabitant

Waste collection cost in 2005: 37,84 €/inhabitant

Waste treatment and disposal cost in 2004: 57,92 €/inhabitant

Waste treatment and disposal cost in 2005: 18,61 €/inhabitant

Volume based PAYT with the pre-paid bag

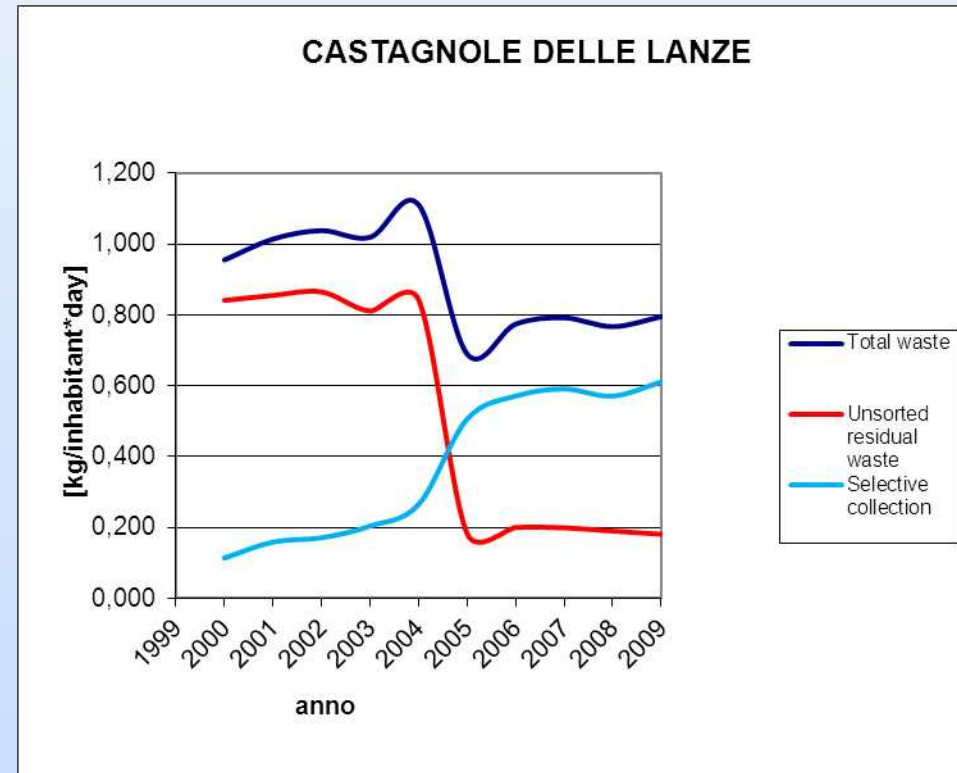
Selective waste collection 2005/2004: **+ 90,94%**

Total waste production 2005/2004: **-37,89%**

Residual unsorted waste production 2005/2004: **-78,29%**

Year	Total waste	Unsorted residual waste	Selective collection
	[kg/inhabitant*day]	[kg/inhabitant*day]	[kg/inhabitant*day]
2000	0,955	0,841	0,114
2001	1,014	0,855	0,159
2002	1,038	0,865	0,171
2003	1,019	0,811	0,204
2004	1,111	0,843	0,265
2005*	0,690	0,183	0,506
2006	0,774	0,200	0,571
2007	0,792	0,199	0,591
2008	0,767	0,190	0,571
2009	0,795	0,181	0,611

2005 first year of PAYT and door to door collection



Bruino (Province of Turin)

North – West of Italy

Inhabitants 2009: 8.503

Waste collection system: *door to door* for paper cardboard, glass, plastic packaging, metallic packaging, organic (kitchen waste), vegetable, residual unsorted waste. Municipal centre of collection

Domestic composting of organic waste: 14,35% of the families

Waste collection cost in 2005: 49,05 €/inhabitant

Waste collection cost in 2006: 71,41 €/inhabitant

Waste treatment and disposal cost in 2005: 34,50 €/inhabitant

Waste treatment and disposal cost in 2006: 19,54 €/inhabitant

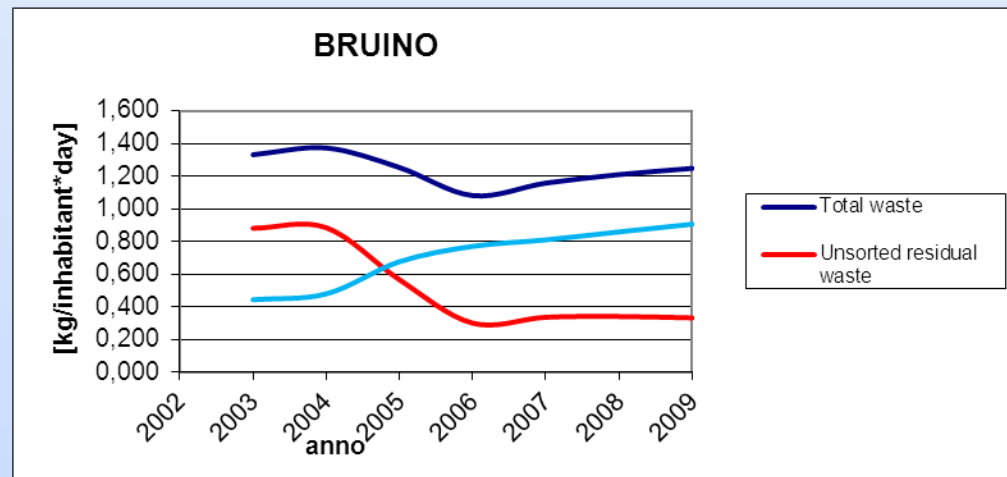
PAYT: “presumptive method”

Selective waste collection 2006/2005: **+ 13,86%**

Total waste production 2006/2005: **-13,71%**

Residual unsorted waste production 2006/2005: **-46,89%**

Year	Total waste	Unsorted residual waste	Selective collection
	[kg/inhabitant*day]	[kg/inhabitant*day]	[kg/inhabitant*day]
2003	1,331	0,881	0,444
2004	1,373	0,885	0,480
2005	1,253	0,567	0,677
2006*	1,082	0,301	0,771
2007	1,158	0,337	0,811
2008	1,210	0,341	0,860
2009	1,248	0,333	0,907



2006 first year of PAYT and complete door to door collection

Pecetto (Province of Turin)

North – West of Italy

Inhabitants 2009: 3.898

Waste collection system: *door to door* for paper cardboard, glass, plastic packaging, metallic packaging, organic (kitchen waste), vegetable, residual unsorted waste. Municipal centre of collection

Domestic composting of organic waste: 16% of the families

Waste collection cost in 2004: 52,72 €/inhabitant

Waste collection cost in 2005: 61,26 €/inhabitant

Waste treatment and disposal cost in 2004: 29,75 €/inhabitant

Waste treatment and disposal cost in 2005: 28,59 €/inhabitant

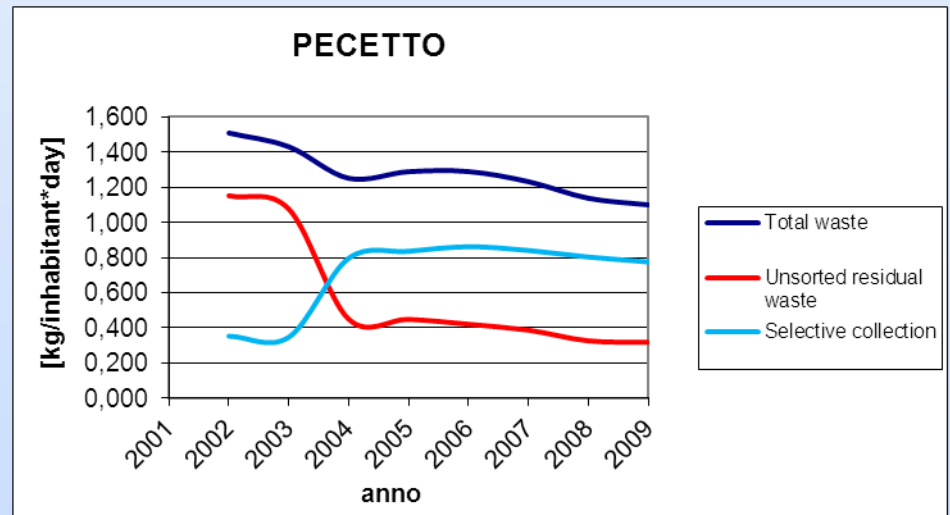
Volume based PAYT: bins equipped with microchips

Selective waste collection 2006/2005: + 3,10%

Total waste production 2006/2005: +0,01%

Residual unsorted waste production 2006/2005: -6,57%

Year	Total waste	Unsorted residual waste	Selective collection
	[kg/inhabitant*day]	[kg/inhabitant*day]	[kg/inhabitant*day]
2002	1,510	1,153	0,353
2003	1,432	1,077	0,347
2004	1,252	0,450	0,797
2005	1,290	0,449	0,836
2006	1,290	0,421	0,863
2007	1,233	0,387	0,841
2008	1,139	0,326	0,804
2009	1,101	0,317	0,776



door to door collection since 2004

2006 first year of PAYT

Priula (Association of Municipalities, Province of Treviso)

North – East of Italy

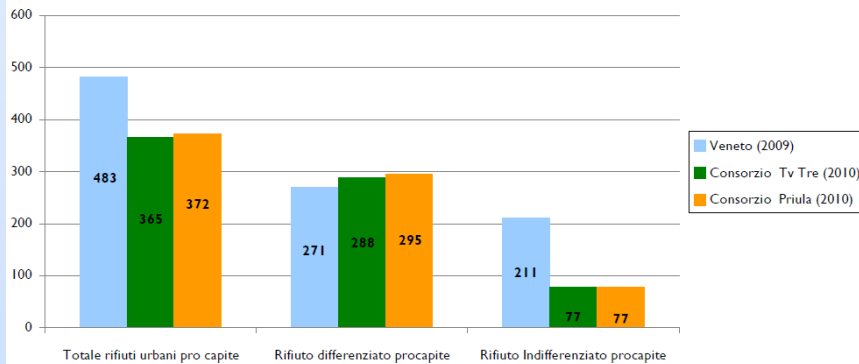
Inhabitants: 245.000

Waste collection system: *door to door* for paper and cardboard, glass, plastic packaging, metallic packaging, organic (kitchen waste), vegetable, residual unsorted waste. Municipal centre of collection

Volume based PAYT: bins equipped with microchips

I RISULTATI: Veneto - Tv Tre - Priula

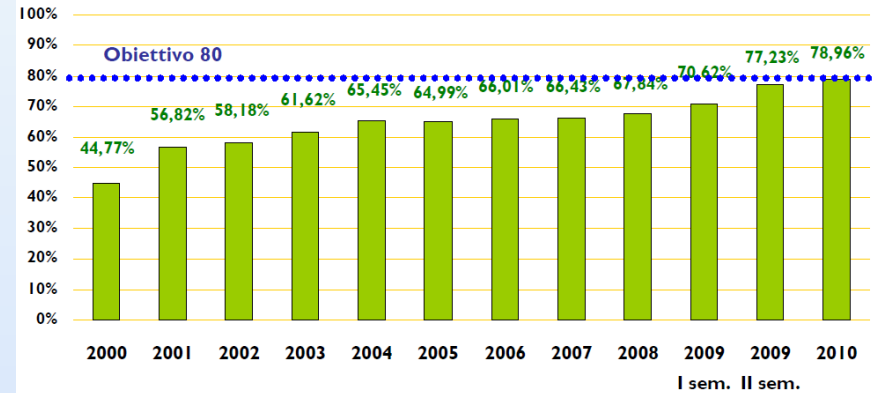
La produzione di rifiuti urbani procapite (kg/abitante*anno)



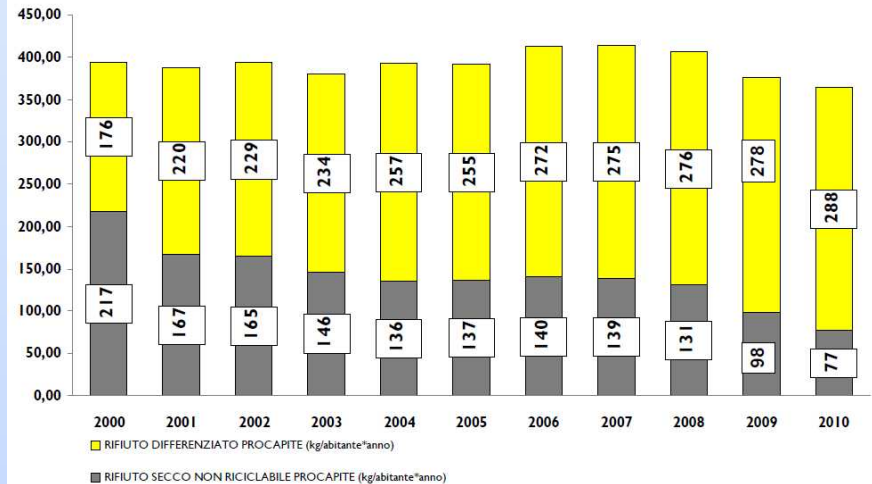
RD Veneto 2009: 56,3% RD Tv Tre 2010: 79,0% RD Priula 2010: 79,3%

Source of data and graphics: Consorzio Priula

LA % DI RACCOLTA DIFFERENZIATA nel Consorzio Tv Tre (dati 2000 – 2010)



I RISULTATI QUANTITATIVI: La produzione di rifiuti nel Consorzio Tv Tre



Conclusions

Other initiatives accompanying PAYT

a)door to door waste collection resulting in (i) increase of selection and pureness and (ii) decrease of waste given by non – households users;

b)domestic composting of organic humid waste incentivised with a **reduction of the charge** (on average 20% of the variable part corresponding to 10 – 15% of the total charge);

c)sensitisation campaigns and **economic incentives** aiming at reducing waste:

- ✓ loose goods put in reusable durable packaging;
- ✓ reusable dishes, glasses, tablecloths and napkins during fairs and public events;
- ✓ use of water directly taken from the tap (in some cases using water-softeners and depurators);
- ✓ use of washable napkins for babies;
- ✓ reusable shoppers (i.e. cotton);
- ✓ donation of left food in restaurants and supermarkets to charitable associations;
- ✓ donation of used cloths to charitable associations;
- ✓ good practises in offices, i.e. print in double sided copies, compostable coffee wafers;
- ✓ prohibition to deliver in the mail box unauthorised advertising (without address).

Conclusions

For what concerns the **costs**, generally, the introduction of the door to door waste collection resulted in:

- a) an **increase** of the **costs of collection** correlated to the necessary investments (bins, vehicles, workers);
- b) a **sensitive decrease** of the **costs of disposal** of unsorted residual waste which is the most expensive;
- c) a **sensitive increase** of **revenues** connected to sorted packaging waste through the CONAI system, especially for paper and cardboard, plastic, glass and metals.

Conclusions

Reduction of *total waste* and increase of *selective waste collection*

The best *results* and *performances* are achieved with a combination of:

- a) **PAYT** based on the quantification of real urban waste produced and given by each ratepayer;
- b) **door to door collection**;
- c) **communicative campaigns** which should be made every year;
- d) **domestic composting** of organic waste.

Thank you!

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