

# **Towards Zero**

***reduction, reuse, separate collection,  
and management of residuals***

***Enzo Favoino***



***Scuola Agraria del Parco di Monza***



***Zero Waste Europe***

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***“Zero waste is more the travel,  
than the destination”***



# The regulatory context: drivers from EU waste policy

- Revised WFD → waste hierarchy + recycling targets + prevention programmes
- Packaging Directive → recycling targets
- Landfill Directive → diversion targets for biodegradable waste + obligation for pretreatment



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# The “resource scarcity crisis”

[http://www.eea.europa.eu/highlights/europe2019s-demand-for-resources-reaching?utm\\_source=EEASubscriptions&utm\\_medium=RSSFeeds&utm\\_campaign=Generic](http://www.eea.europa.eu/highlights/europe2019s-demand-for-resources-reaching?utm_source=EEASubscriptions&utm_medium=RSSFeeds&utm_campaign=Generic)

“  
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”

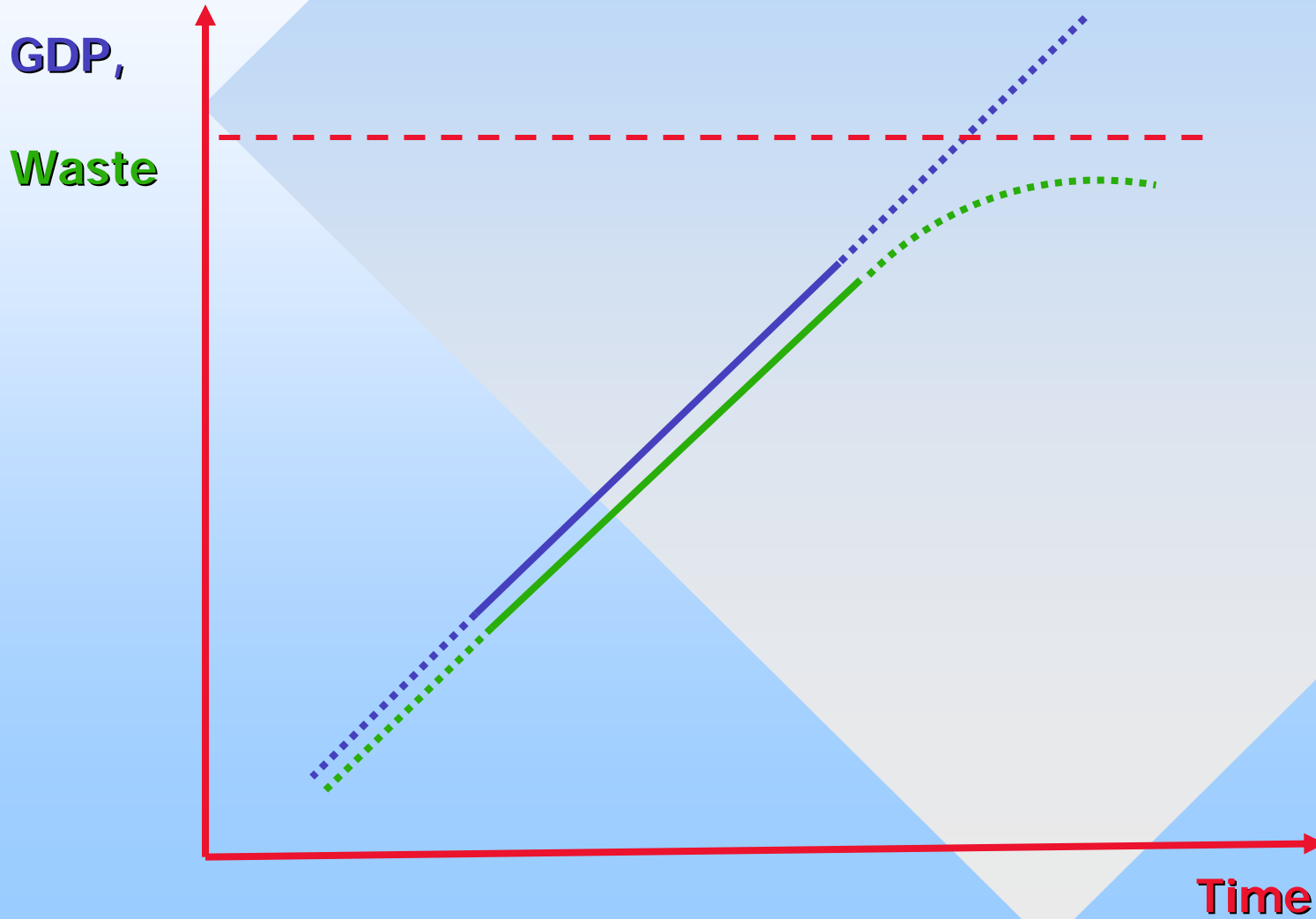
EEA Executive Director  
Jacqueline McGlade

'Unsustainable resource use is a truly global problem – Europe’s voracious demand for materials is felt around the world,' EEA Executive Director Jacqueline McGlade said. "With growing demands on the world’s limited stock of resources, it is imperative that Europe makes more efficient use of both virgin materials and waste."

The report, 'Material resources and waste' is an update to the Thematic assessment on material resources and waste within the EEA’s 2010 State and Outlook report. It states that Europe is using resources more efficiently, though it has used increasing volumes of raw materials in absolute terms. While this trend has been interrupted by the economic downturn, it is likely that increasing resource consumption will resume with renewed economic growth.



# Decoupling !





- ***(the EP)* Takes the view that the 7th EAP should provide for full implementation of waste legislation, including compliance with the waste treatment hierarchy while ensuring coherence with other EU policies; considers that it should set more ambitious prevention, re-use and recycling targets, including a net decrease in waste generation**

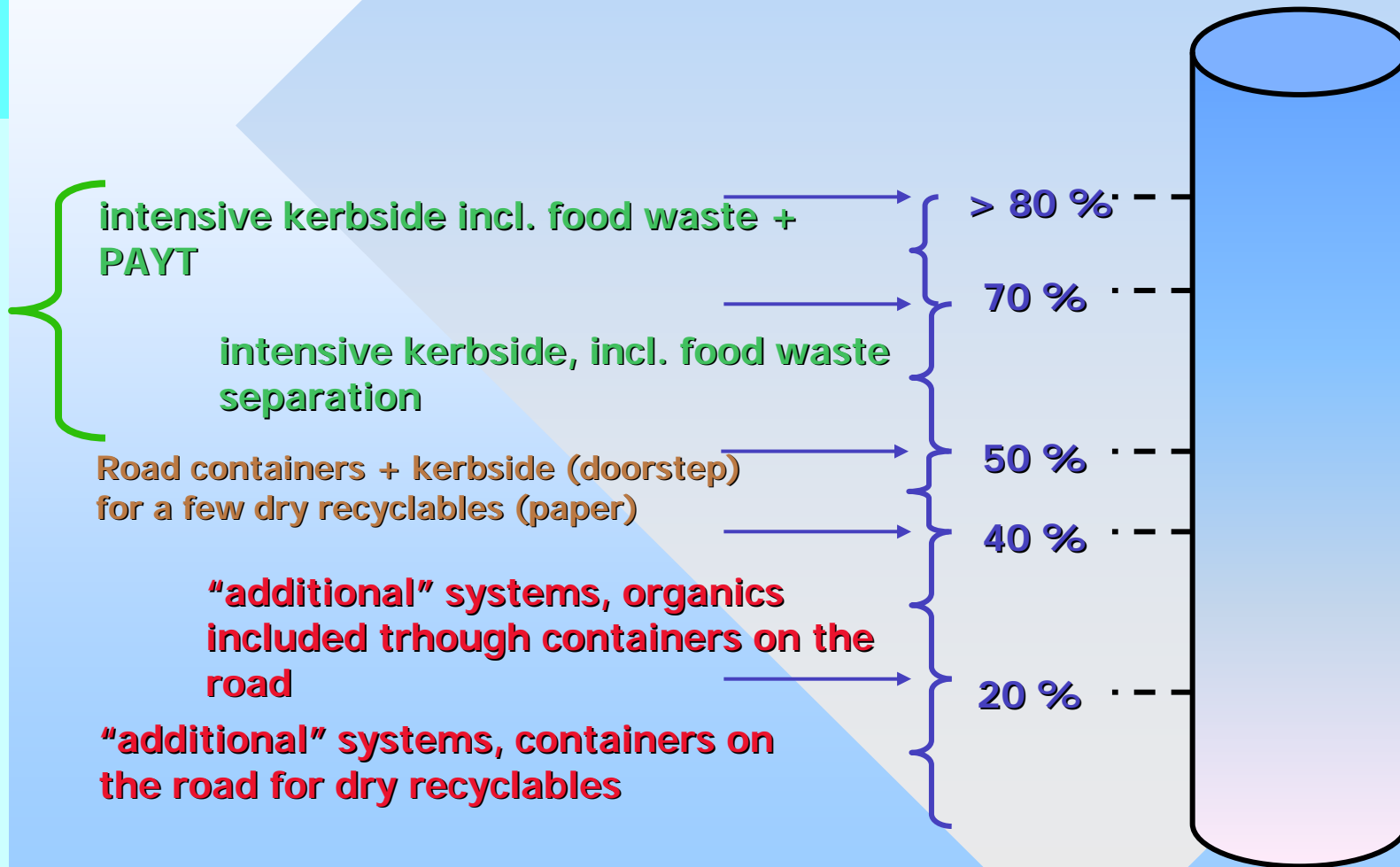
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## *"ready effect"* actions (Community level)

- Home composting
- Sustainable event management (e.g. no throwaway dishes/cutlery)
- Tap water
- Cloth (washable) nappies

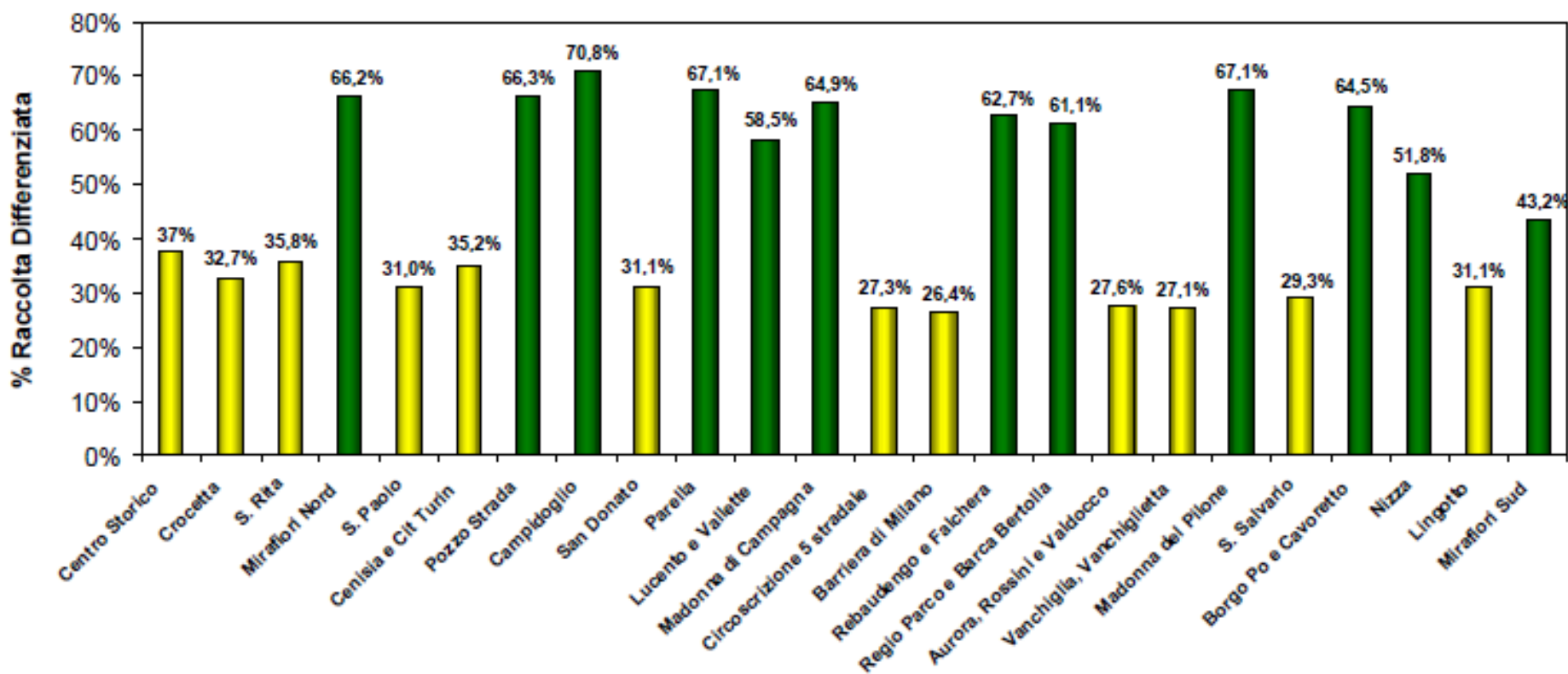
# What does it take to get there ?



# Best Recycling Municipalities, pop < 10,000 inhabitants

	<b>COMUNE</b>	<b>Pr</b>	<b>Abitanti</b>	<b>Indice</b>	<b>% RD</b>	<b>Kg CO<sub>2</sub> *</b>
1	<b>GIFFONI SEI CASALI</b>	<b>SA</b>	<b>5.350</b>	<b>82,58</b>	<b>84,4%</b>	<b>142,9</b>
2	SALENTO	SA	1.049	75,96	76,1%	199,1
3	SAN MARTINO IN PENSILIS	CB	4.848	75,77	70,6%	72,3
4	VILLAFRANCA SICULA	AG	1.458	75,03	73,6%	72,8
5	FONNI	NU	4.138	74,78	66,0%	126,9
6	ROCCADASPIDE	SA	7.447	74,26	81,3%	66,9
7	ATENA LUCANA	SA	2.362	73,80	98,1%	195,6
8	ROFRANO	SA	1.727	73,26	77,4%	33,4
9	FOGLIANISE	BN	3.550	72,99	73,5%	56,4
10	CERRETO SANNITA	BN	4.209	72,88	74,4%	45,7
11	TORREVECCHIA TEATINA	CH	4.077	72,47	69,3%	81,0
12	MOIO DELLA CIVITELLA	SA	1.922	72,28	66,7%	51,7
13	CASTEL SAN LORENZO	SA	2.724	71,30	72,8%	90,1
14	SANZA	SA	2.761	70,80	77,6%	162,9
15	ANACAPRI	NA	6.742	70,16	69,1%	162,3

### Raccolta Differenziata per Quartieri - anno 2010





# Waste “management” in critical areas ?



# Salerno

- 150,000 inhabitants
- Separate collection= 70 %
- Organics 50% !



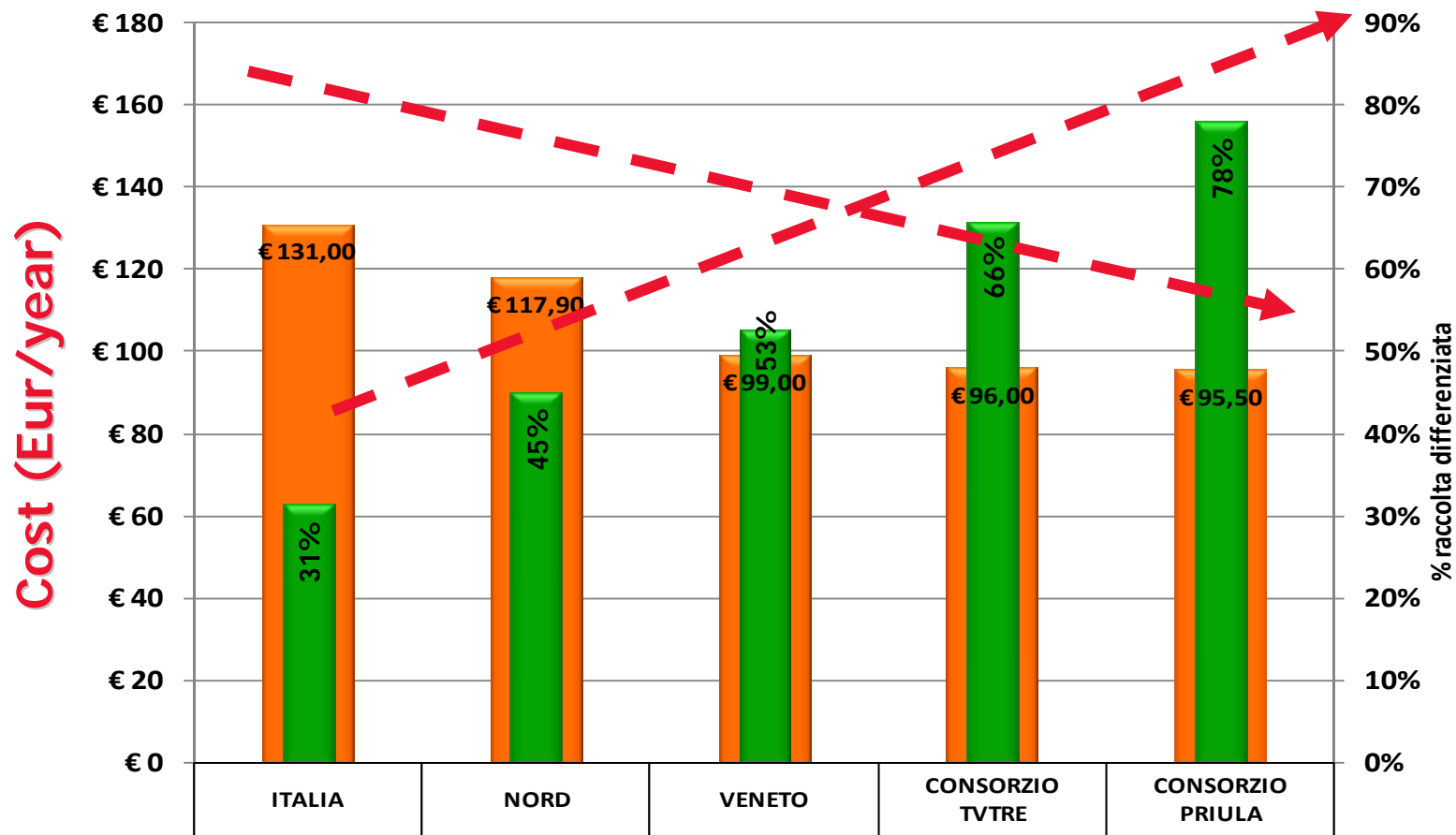


# Costs of MSW management – some general remarks

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- Increased cost of disposal
  - Landfill Directive
  - Incineration Directive + IPPC
- Also, cost of collection may be optimised
  - Savings on disposal

# Separate collection - more



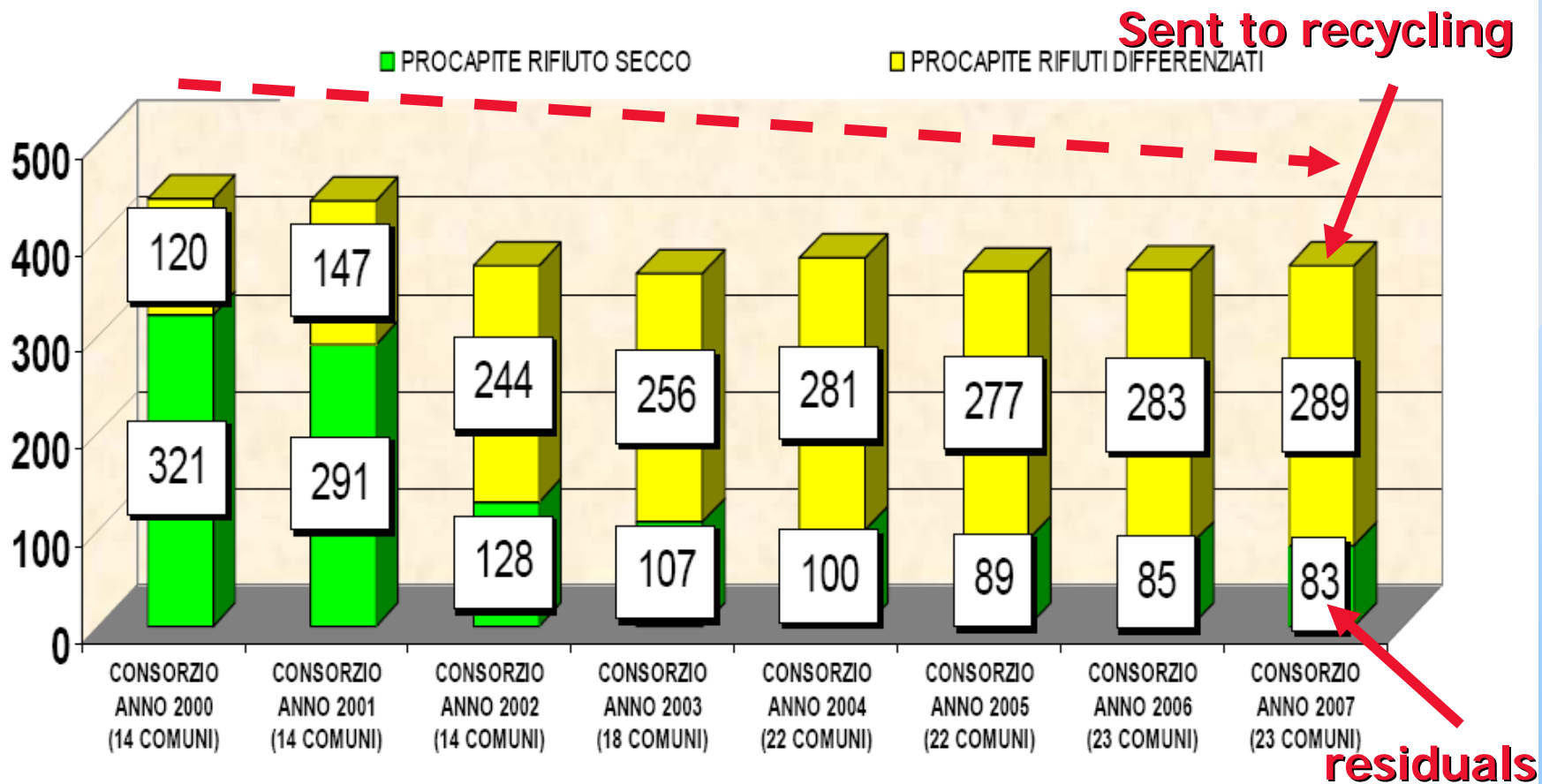
Separate collection (%)

■ COSTO PROCAPITE (€/ab.*anno)	€ 131,00	€ 117,90	€ 99,00	€ 96,00	€ 95,50
■ % RACCOLTA DIFFERENZIATA	31%	45%	53%	66%	78%

Italia, Nord e Veneto: dati 2006 (fonte Rapporto Rifiuti 2007 APAT - ONR)  
 Consorzio Priula e Consorzio TvTre: costi dati 2008 - % RD stima anno 2008



## A new way of assessing performances!





# What is left in residuals?

	Prov. Lucca		Capannori
Categorie merceologiche	% (peso/peso)		% (peso/peso)
Materiale organico da cucina;	25,12%		14,84%
Materiale organico da giardino;	9,16%		4,36%
Giornali (quotidiani e riviste);	5,09%		0,95%
Cartone ondulato;	6,12%		0,06%
Cartone teso;	2,49%		0,27%
Imballaggi cellullosici poliaccoppiati;	0,98%		1,46%
Altra carta (non imballaggio e non giornali e riviste);	5,68%		9,77%
Imballaggi flessibili in alluminio;	0,28%		1,07%
Imballaggi rigidi in alluminio;	1,00%		0,00%
Imballaggi in acciaio;	1,20%		9,35%
vetro;	2,11%		1,26%
Imballaggi flessibili in plastica;	8,76%		1,60%
Imballaggi rigidi in plastica (bottiglie e flaconi);	2,08%		0,61%
Imballaggi rigidi in plastica (non bottiglie e flaconi);	1,96%		1,17%
Imballaggi flessibili in plastica;	0,64%		1,91%
Altra plastica: sacchi neri;	4,83%		0,61%
Altra plastica: non imballo;	2,88%		8,05%
Imballaggi in legno;	0,72%		5,75%
Tessili e cuoio;	9,08%		17,30%
Materiali inerti;	0,22%		2,64%
Pannolini;	6,07%		13,65%
RUP;	0,30%		0,30%
Sottovaglio < 20mm.	3,25%		3,05%
TOTALE	100%		100%

15% x 20% = 3%

15-20% paper

15-25% plastics

organics

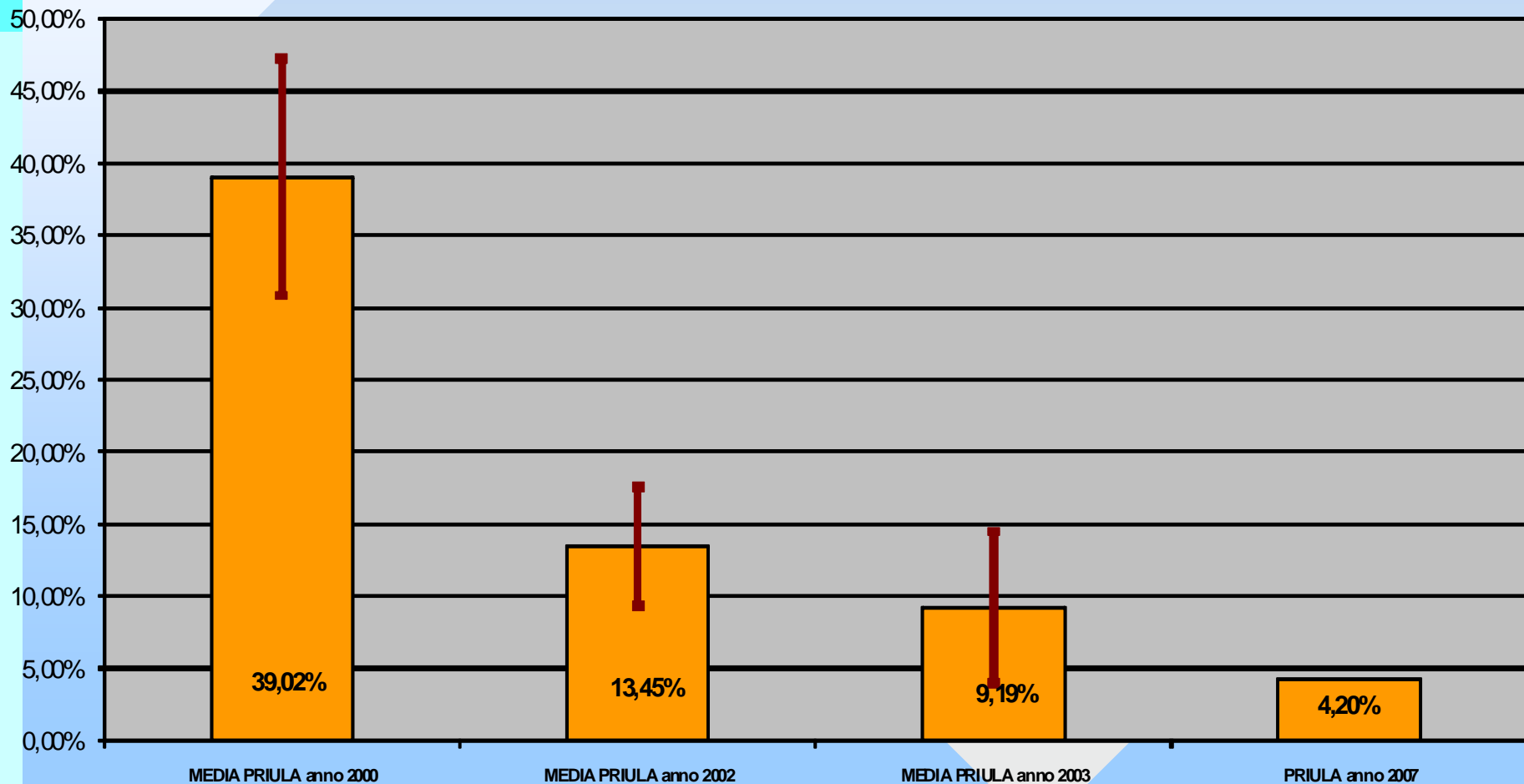
nappies

# MBT potential in Material Recovery

Recovery Performance	
Recovered Product	MBT Recovery Rate (%)
Corrugated Cardboard, Kraft Board and Mixed Paper	75%
PET Clear, PET Other, HDPE Coloured and HDPE Opaque	90%
Ferrous Metal and Non-Ferrous Metal	95%
Glass	Easily 25%; high rates possible



# Organics in residual waste





## ...in the end of the story...

- 70%+ sep collection – ACHIEVABLE
- No increase of waste arisings (rather, the contrary) – ACHIEVABLE
- Further reduction of env footprint of landfills – ACHIEVABLE, by means of biological stabilisation - another 20% process loss
- Further recovery of materials from reiduals – ACHIEVABLE , another 30-35% recovery
- Only 40 % (or so) of residual waste to be landfilled as a stabilised material – 12 % of MSW !!

***Aren't we getting damn close to zero?***



# The new paradigm of "going sustainable"

*"turn off, switch off, recycle and walk"*





# The new paradigm of "going sustainable"

*"turn off, switch off, recycle and walk"*



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# Thanks for your attention

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