

Towards Zero Waste

The need for flexible/adaptable options for the management of residuals

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Zero Waste Europe

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A historical track record

- **Bellusco (1993)**: first curbside scheme with separation of organics → 65%
- **Carnate (1995)**: transparent bag to collect residuals → 70-75%
- **Torre Boldone (1997)**: PAYT → 80%
- **ZW Municipalities**: hitting the high 80's, 90% in some cases



The principles of Zero Waste: the 5 "R"s

- *Reduce*
- *Reuse*
- *Recycle*
- *Rot*
- *Re-design*



Re-design

- Check the composition of residual waste
- Feed back to producers in order to address non-reusable/recyclable materials



...What about our residual
waste?



The Landfill Directive ,99/31

- mandates reduction of biodegradable municipal waste to be landfilled
 - Separate collection of paper / organics is key
- Also, it mandates pretreatment of the waste to be landfilled



Exemptions to pretreatment

Article 6 (a) of Landfill Directive:

- Only waste that has been subject to treatment is landfilled
- This provision may not apply (...) to any waste for which treatment does not contribute to the objectives of this Directive (...) by reducing the quantity of the waste, or the hazards to human health or the environment



What is left in our residuals?

organics

nappies

Categorie merceologiche	MSW	RW Capannori
	% (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	2,08%	0,61%
Imballaggi rigidi in plastica (non bottiglie e flaconi);	1,96%	1,17%
Imballaggi, poliaccoppiati 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%



Reasonable exemption principles

- Italian regions have introduced exemption principles
- The most endorsable (the «Veneto model») to relate it to the putrescible organic waste content in RW (i.e. below 15%)



A driver for steady improvement !

- Municipalities performing well (effective separate collection) → low % of organics → exempted from pretreatment
- Municipalities performing poorly (no separate collection or poor schemes) → high % of organics → pretreatment → higher costs for landfilling



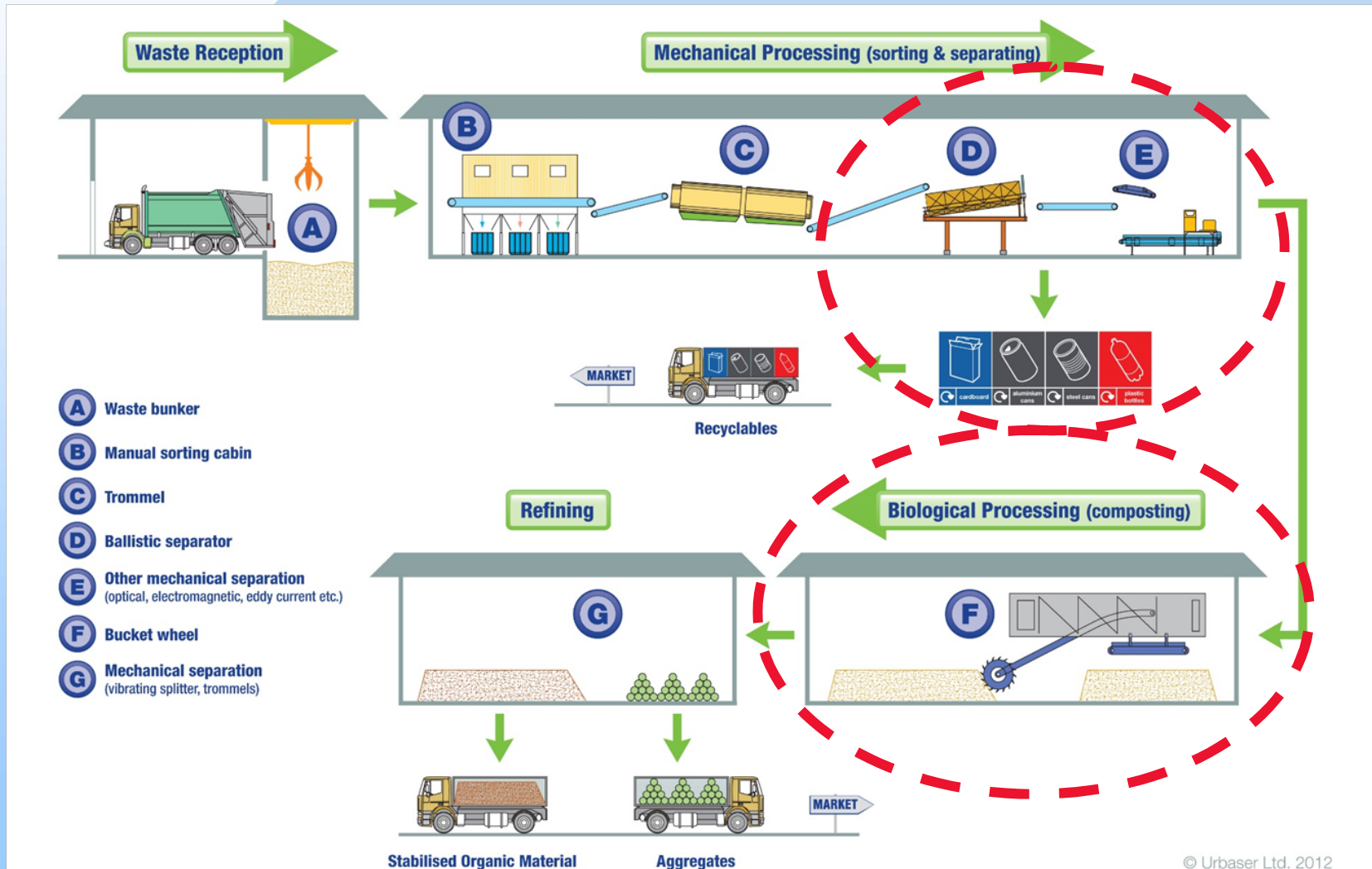
Goals

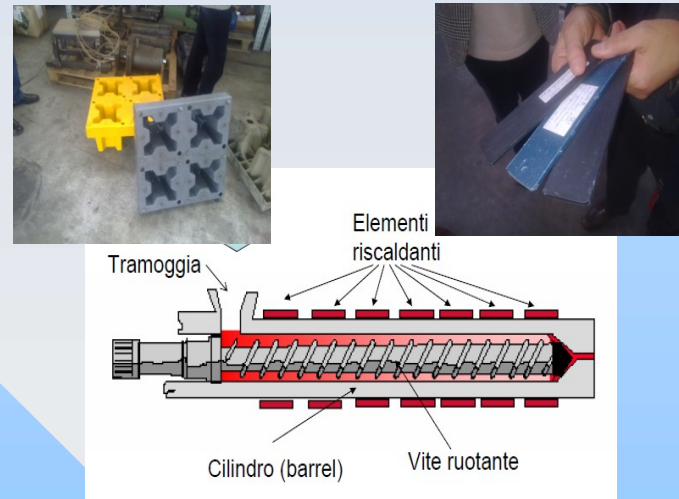
(in an European ZW perspective)

- Maximise material recovery
- Minimise reliance on landfill
- Minimise impacts of landfilling
- Keep the system **ADAPTABLE!**



What is MRBT







Benefits of MRBT

- Scalable
- Cost competitive
- Fast to implement
- Adaptable



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