

Benefits of introducing door-to-door separate collection in rural areas

J. Vaz . ECOGESTUS Ltd., Figueira da Foz, Portugal

joao.vaz@ecogestus.com

V. Sousa. Instituto Superior Técnico, Lisboa, Portugal

C. Dias-Ferreira. Universidade Aberta, Lisboa, Portugal





Waste management, since 1998
Projects in Europe, Africa and in
Brazil
Based in Figueira da Foz,
Portugal







- Testing site in Penacova (pop. 14 678), in inland Portugal
- 128 hab – living in the area
 - One “Café” and one “Mini-Market”
 - People work in town and the elderly practice family farming





Residual waste
9x 800 litre
units



Paper/ Glass/
Packaging
3x 2,5m3 units

Papel e Cartão

ECOPONTO Azul

Coloque:



NÃO Coloque:



Vidro

ECOPONTO Verde

Coloque:



NÃO Coloque:



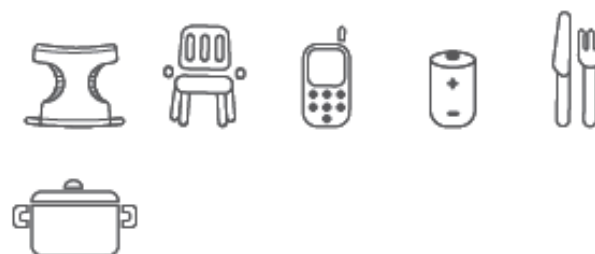
Plástico Metal

ECOPONTO Amarelo

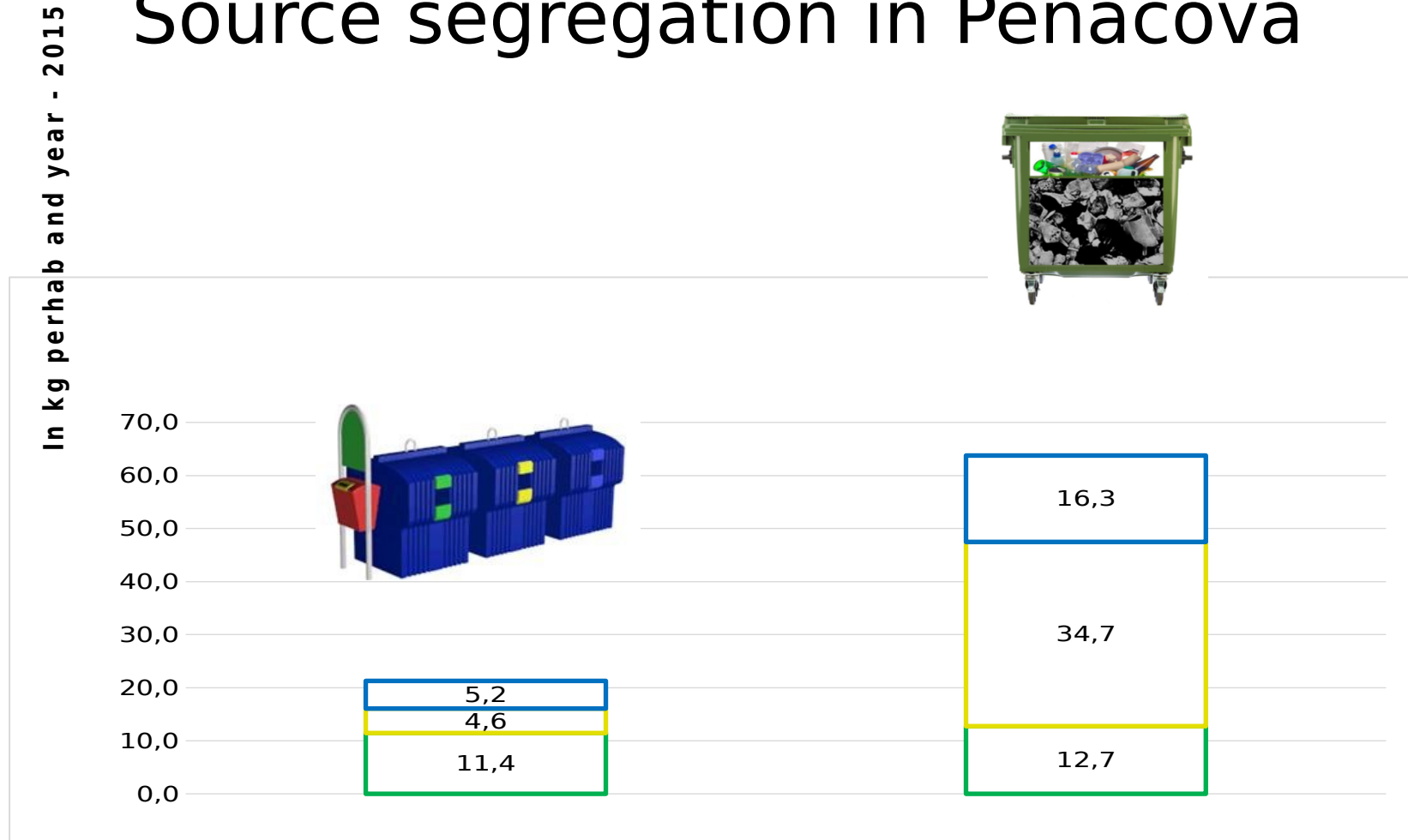
Coloque:



NÃO Coloque:

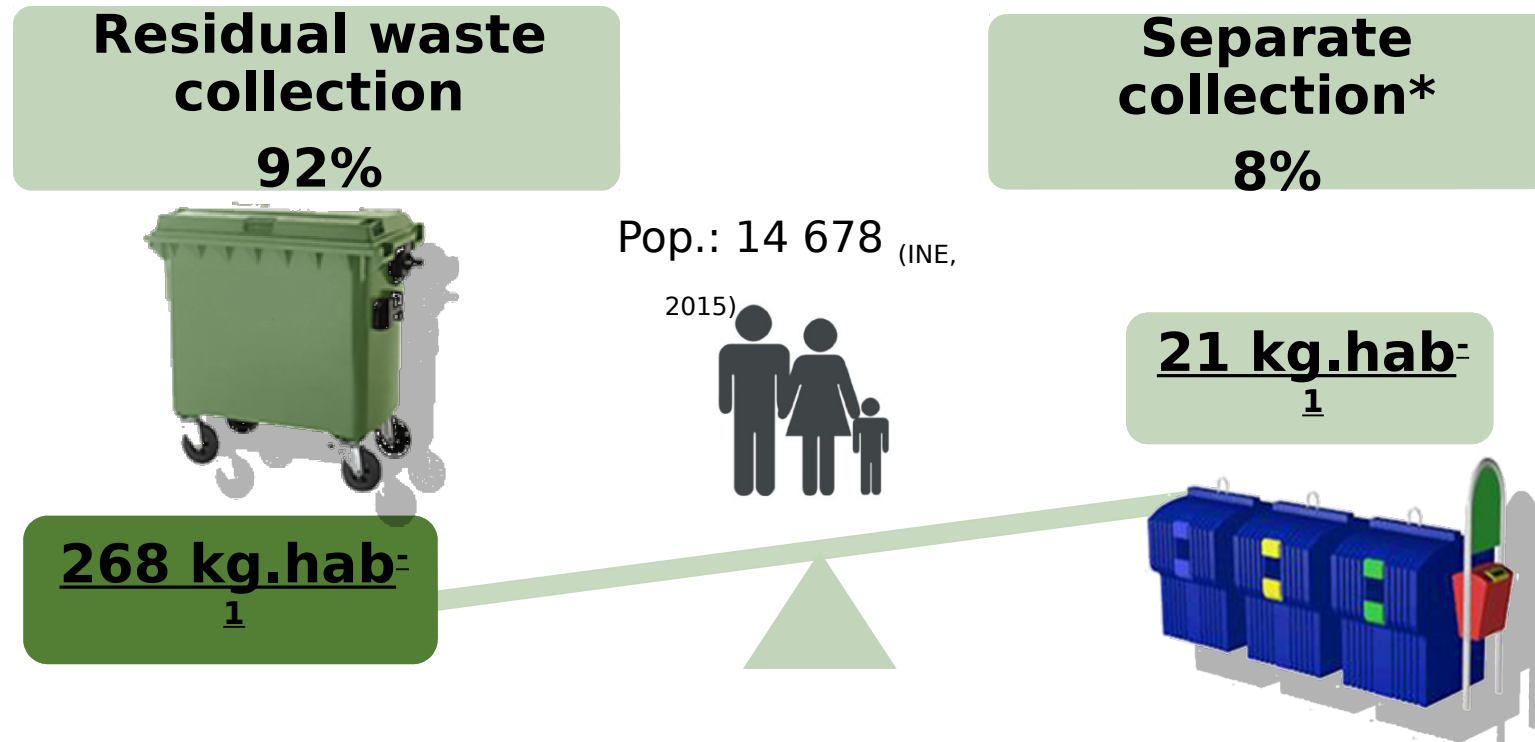


Source segregation in Penacova



Only 21 % of the total generated packaging (plastic/metal; paper; glass) was separated at source in Penacova Municipality

Waste management outlook in Penacova



* - in Portugal the average is 14% , in 2015

Regional and national trends

Table 1. Mixed and separate waste capitation per municipality size (ERSUC 2018)

Municipality size	Average Population	Mixed waste (kg/inhab/year)	Separate waste (kg/inhab/year)
Small (inhab < 10,000) (n=8)	5103	319	26
Medium (10,000 < inhab < 20,000) (n=10)	14,058	336	27
Large (20,000 < inhab) (n=18)	42,086	382	29

No significant differences between small and large municipalities regarding separate collection !

What's inside the bin rural areas?



New waste collection scheme for recyclables

Door-to-door, weekly, plastic bags

Duration: 2 month period



GUIA DE RESÍDUOS DE PENACOVA



O NOSSO CONCELHO
MAIS LIMPO

RESÍDUOS EM PENACOVA (% EM PESO)



COMO SEPARAR



ECOPONTO VERDE

Garrafas de vidro (vinho, água, sumos, azeite), frascos, bôides e garrações.



ECOPONTO AMARELO

Garrafas, garrações e frascos de plástico; sacos e embalagens de plástico; esferovite; pacotes de bebidas; latas de bebidas e conservas; papel e folhas de alumínio e aerossóis vazios.



ECOPONTO AZUL

Caixas de cereais, bolachas, ovos e outras embalagens de cartão; papel, jornais e revistas; material de escrita, incluindo envelopes.



EQUIPAMENTO ELÉTRICO

TV's, aspiradores, ferros, torradeiras, fritadeiras, máquinas de café, facas eléctricas, secadores, escovas de dentes eléctricas, máquinas de barbear, aparelhos de massagem, relógios, balanças, etc.

AM3E - PONTOS-ELECTRÃO | ERP - DEPOSITORES



MEDICAMENTOS FORA DE VALIDADE

VALORMED



PNEUS USADOS

REDE VALOR PNEU / OFICINAS



VEÍCULOS EM FIM DE VIDA

VALORCAR



RESÍDUOS DE JARDIM

COMPOSTAGEM
APOIADA PELA CÂMARA MUNICIPAL



ELECTRODOMÉSTICOS, MOBILIÁRIO,
MADEIRA, FERRO, ETC.

CÂMARA MUNICIPAL
DE PENACOVA



ROUPA, CALÇADO
E BRINQUEDOS

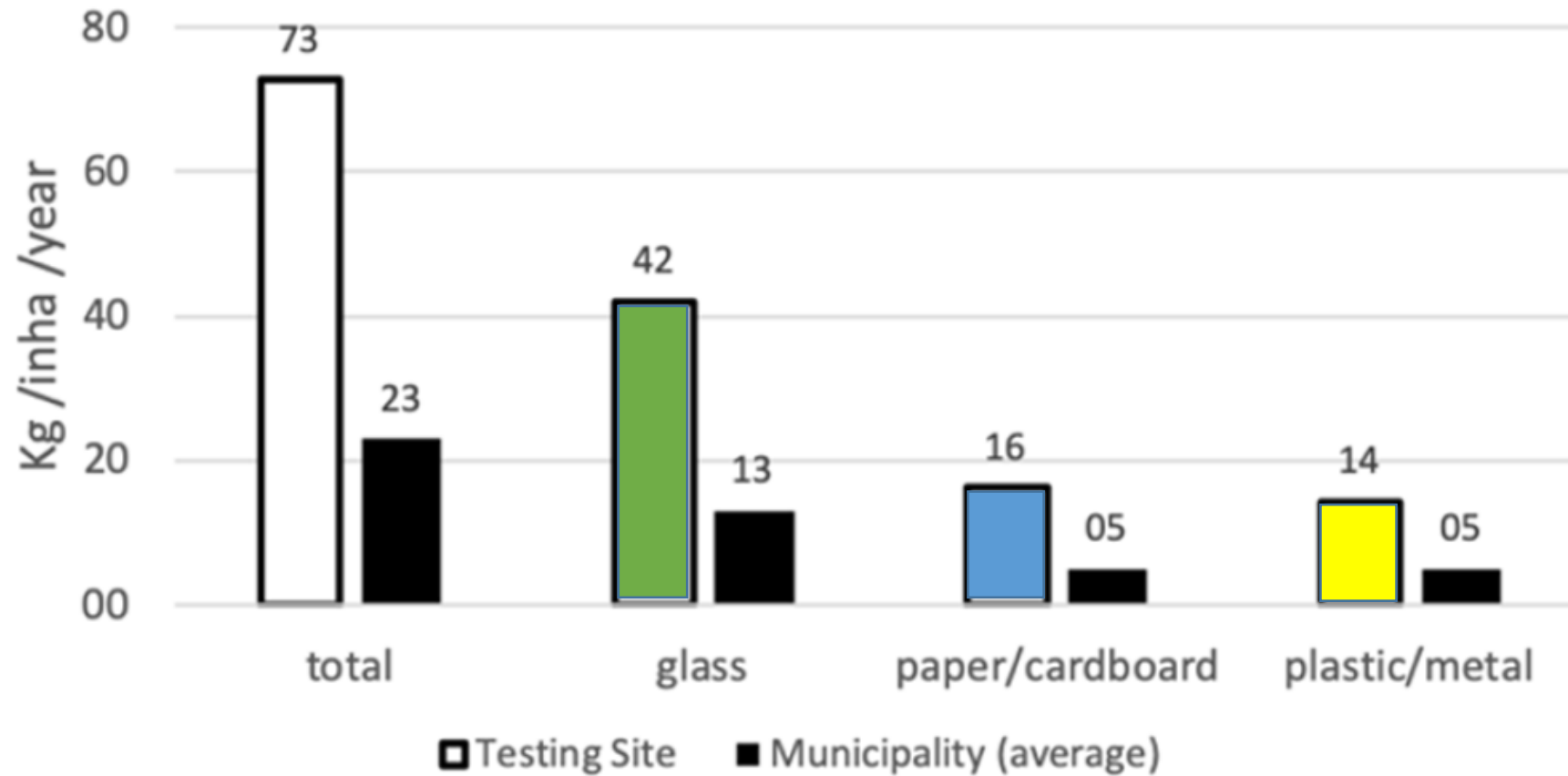
CONTENTORES
RESÍDUOS TEXTÉIS

CONTACTOS

GERAL@CM-PENACOVA.PT
TEL: 239 470 300



Results – increase in separate collection



Lessons to be learned

1. Efforts in separate collection are rewarded
2. Door-to-door collection is easy to implement in rural areas
3. People participate if given the means (bins; information)

Lets stop waste pollution !

THIS NORMALITY IS A NATURAL DISASTER

