

# ***Incentives on Packaging Waste Financing: A Step Forward for Sustainability***

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# Agenda

- *Introduction*
- *Methodology*
- *Results*
- *Final Remarks*



# Introduction

1. Introduction
2. Methodology
3. Results
4. Final Remarks

- *The experience in the waste sector points to irrefutable advantages in recycling some types of packaging waste;*
- *Indeed, even before the Directive 94/62/EC on Packaging and Packaging Waste (PPW) entered into force, significant quantities of packaging were recycled in several member states.*
- *However, recycling is not all advantages ! ...*



# Introduction

## 1. Introduction

## 2. Methodology

## 3. Results

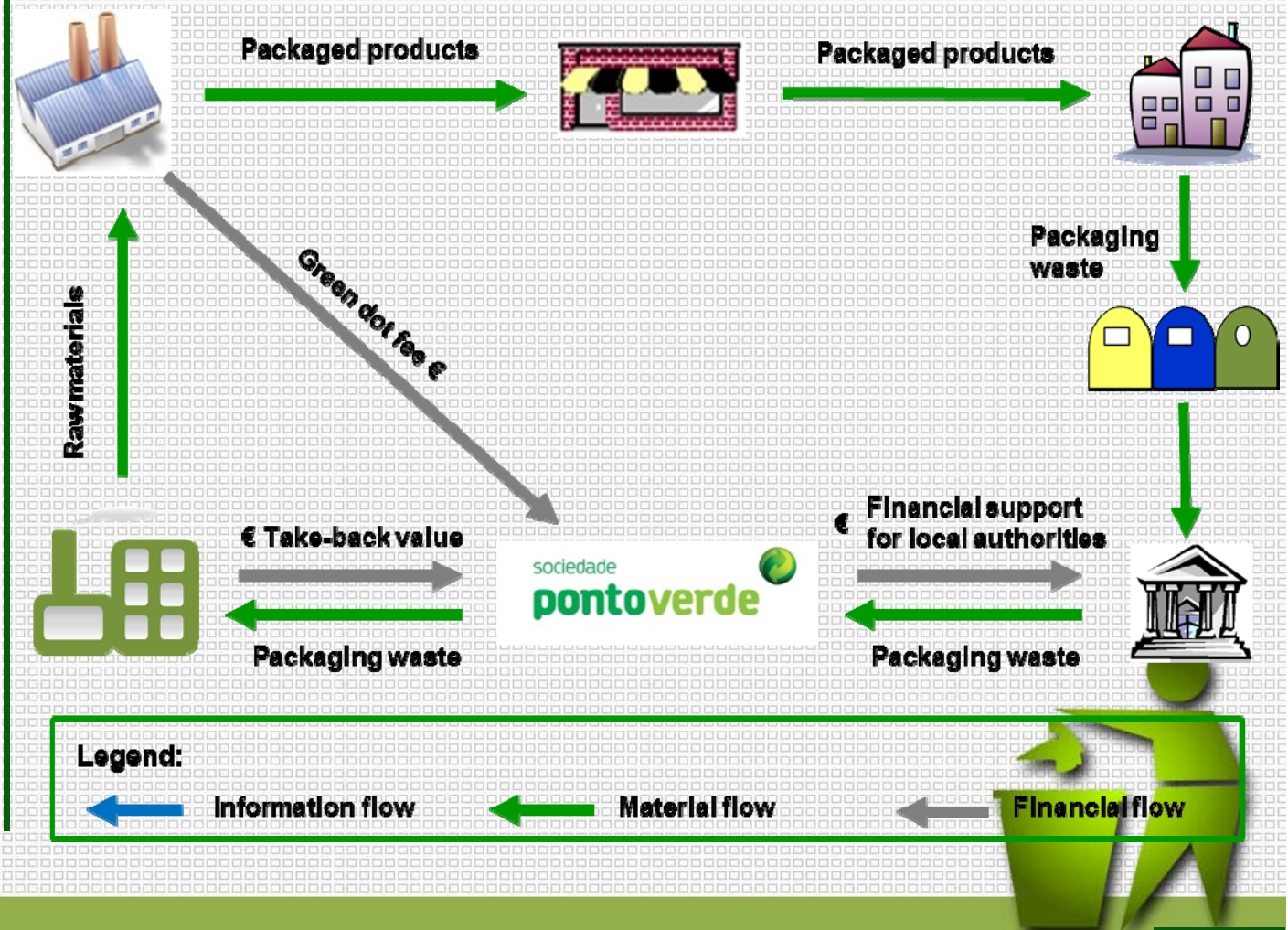
## 4. Final Remarks

- According to the PPW Directive (and to the polluter-pays principle) “those involved in the production, use, import and distribution of packaging and packaged products” must accept the responsibility for packaging waste;
- A relevant aspect in this process and in the correct implementation of EPR system is related to the financing of the recycling system.



# Introduction

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# Methodology

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- *The current model for calculating the financial support (to companies) needs to be revised;*
- *Several innovations were introduced to the model of financial compensations:*
  - *Promote the efficiency and effectiveness of systems by providing appropriate incentives for the recovery of packaging waste;*
  - *To integrate the quality of service stimulating its improvement, through the awarding of the companies that ensure a better quality of service and penalizing the ones that evidence a worse quality;*
  - *Ensure the financial sustainability, through an adequate remuneration for the services of selective collection and sorting of packaging waste.*



# Methodology

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## *Incentives to Efficiency:*

- *The standard enterprise or benchmark model encourages company performance improvement as the additional efficiency (and productivity) gains obtained will be retained by itself;*
- *That is, if a company exceeds the performance of the standard or reference company being more efficient and / or more innovative in its production (it presents less costs) it will obtain greater profits / benefits in this activity;*
- *In this way, the incentives are guaranteed so that the company can do more (more outputs) with fewer resources (fewer inputs or factors of production) or to recycle more with less costs.*



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## Incentives to Effectiveness

- *After setting the standard company and determining the costs of companies, the goals defined in legislation are taken into account;*
- *In this way, companies are provided with incentives to become more effective, since the more they recycle, the greater their financial benefits will be;*
- *The effect of efficacy was limited between 102.5% and 80% on financial support so as not to amplify the effect of the targets.*





# Methodology

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### *Incentives to Quality of Service:*

- *The performance indicators of coverage and access to selective collection service (ERSAR indicator) are considered as a representative metric of the quality of service provided;*
- *Thus, it was considered:*
  - *At least one of the indicator has less than 90% of the reference value (200 inhab / collection point or a maximum distance of 200 m) or the good quality in the accessibility performance indicator of ERSAR will have an increase of 5% in the support value;*
  - *If the company have both indicators with a % greater than 20% of the reference value and a medium or unsatisfactory quality has a 5% reduction;*
  - *If they have both indicators with a% greater than 40% and an unsatisfactory quality of service has a 10% reduction.*




# Financial Compensations

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Taking these three aspects into account, we came up with the following formula to determine the financial compensation for the packaging waste collected by the operators and paid by the green dot company:

$$FC^* = FC(STR) \times \left[ \frac{\text{Collection}}{\text{Target}} \right] \times (1 + K)$$

  
**Efficiency**                      **Effectiveness**                      **Quality of Service**

Where,

- $FC^*$  - represents the financial compensation per material, in euros per ton;
- $FC(STR)$  - represents the amount of financial compensation obtained through the standard company sizing by groups of operators with homogeneous characteristics and dynamics and, by material, in euros per ton;
- *Collection* - represents the daily production of material taken up by the operator in kg per capita per year;
- *Target* - represents the goal (of waste collected and sent to recycling) of the operator per material and per year, according to the legislation;
- $K$  - corresponds to a coefficient of correction of the financial compensation of the operator according to the level of quality of service provided to the user (which can assume the values of 5%, 0%, -5% or -10%).

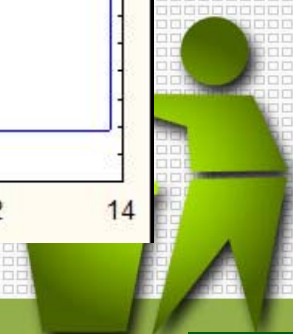
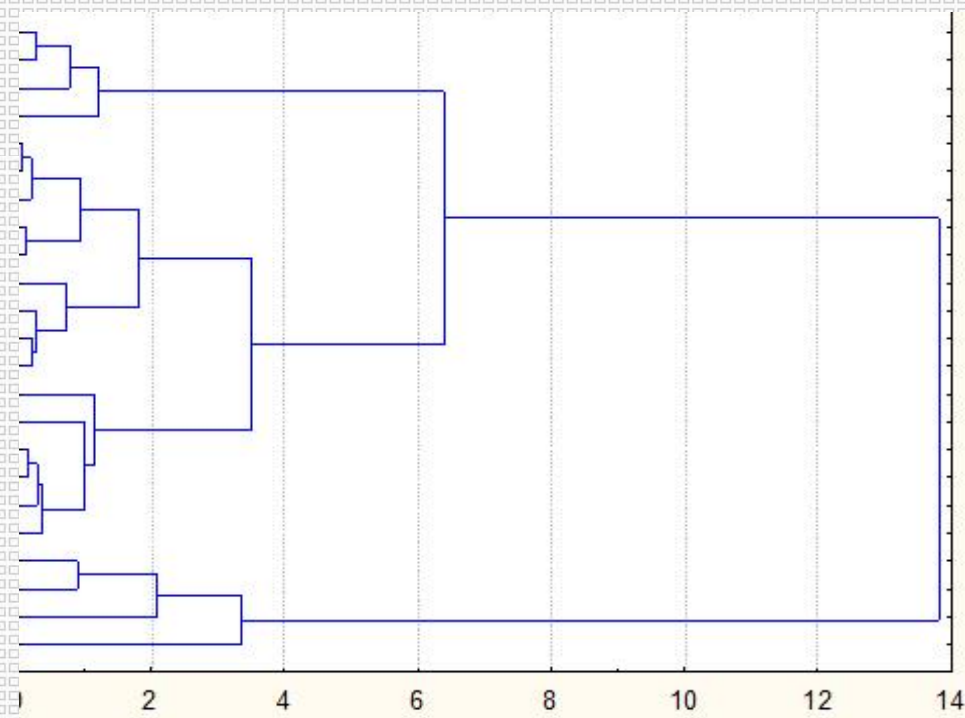


# Clusters

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## Variables

Population density, Household income, Waste produced



# Results

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## Individual:

	Glass	Paper/cardborad	Plastic	Steel	Aluminium	ECAL	Wood
47		60	567	682	801	527	39
36		131	423	617	725	431	34
105		252	768	797	950	728	30
40		152	507	677	772	475	32
90		230	768	847	1.009	666	39
47		173	591	714	815	541	27
105		291	768	868	1.035	842	39

## Group:

€/ton	Glass	Paper/cardborad	Plastic	Steel	Aluminium	ECAL	Wood
D	60	238	686	776	925	750	36
C	46	213	641	747	851	670	36
B	36	173	545	649	761	564	36
A	32	159	531	631	741	548	36

# Final Remarks

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- *The recycling / selective collection have to be improved, since new and more ambitious targets are being implemented in Portugal;*
- *A voluntary base system is almost exhausted. People must have (financial) incentives to improve their behavior;*
- *A new approached aimed to assure the financial sustainability of the companies, to introduce incentives for a more efficient service and to promote the quality of service was carried out.*



