

Zero Waste Live!

08 December 2020 - 02.00 p.m. CET



DOES ZERO WASTE MAKE ECONOMIC SENSE FOR MUNICIPALITIES?



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Zero-waste: Economic benefits for municipalities

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8 December 2020



Does zero waste make economic sense for municipalities?

Highlighting financial initiatives that enable municipalities to implement good separate collection practices



COLLECTORS

WASTE COLLECTION SYSTEMS ASSESSED
AND GOOD PRACTICES IDENTIFIED

Packaging waste

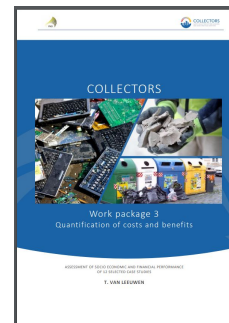


- Paper and cardboard
- Glass
- Plastics
- Metals
- Drinking cartons

WEEE



- Small Household Appliances
- Small IT
- Lamps



Economic assessment

- Identifying financial and material flows and actors
- Quantifying costs and benefits (CBA)
- Mapping financial incentives and levers

<https://www.collectors2020.eu/library/collectors-reports/>

https://www.collectors2020.eu/wp-content/uploads/2020/04/Deliverable3.2_COLLECTORS-project-1.pdf

PACKAGING WASTE



Cases

1. Tubbergen (NL)
2. Gent (BE)
3. Rennes (FR)
4. Berlin (DE)
5. Parma (IT)

Packaging waste

- Paper and cardboard
- Glass
- Plastics
- Metals
- Drinking cartons



Scope



Rationale

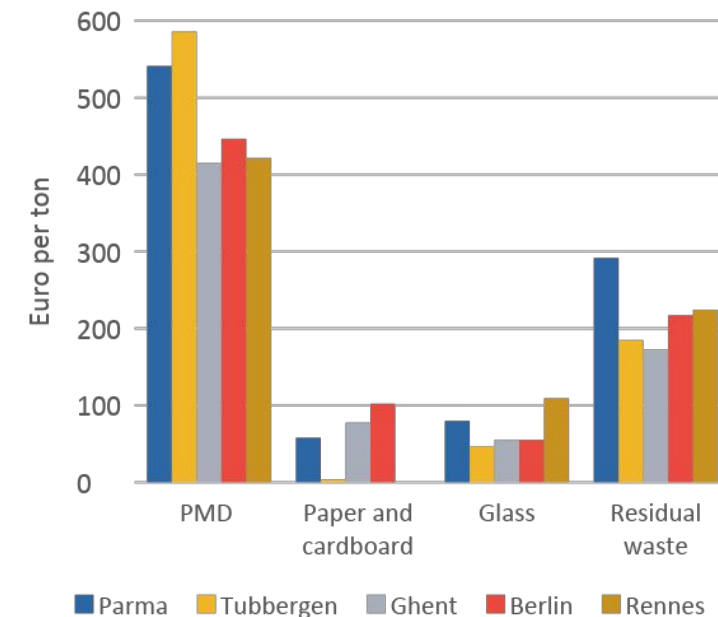
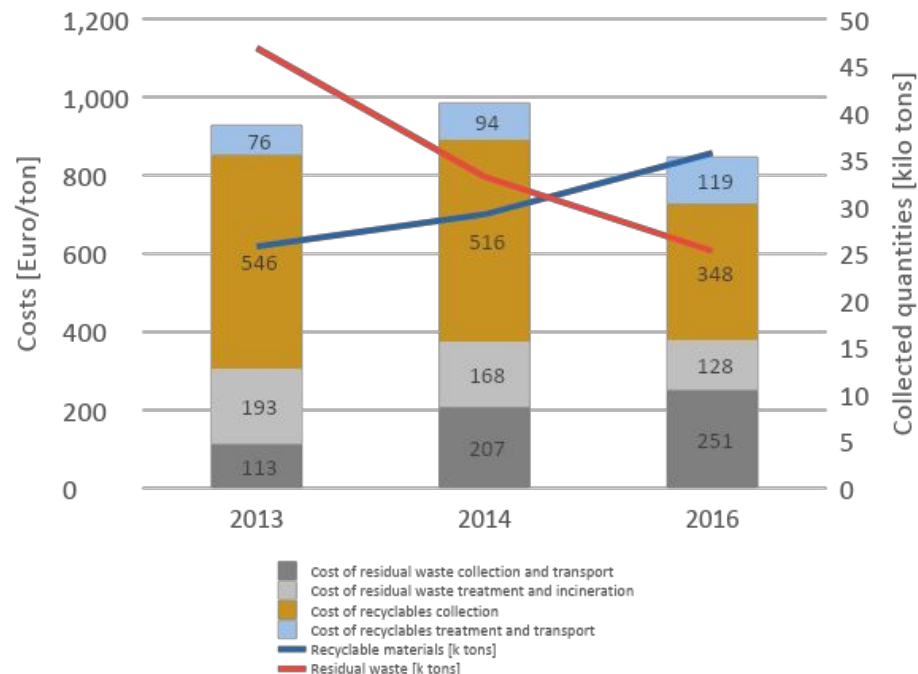
Assessment to see if good practices can be achieved by maintaining acceptable fees for citizens.

Parameters

- Investment costs (infrastructure, bins, chips,..)
- Operational costs (collection, sorting, street cleaning, taxes)
- Revenues (sold materials, incineration revenues, EPR fees, tax savings, citizens waste fees)

	Parma (IT)	Ghent (BE)	Berlin (DE)	Tubbergen (NL)	Rennes (FR)
Glass (G)	Separated (G, PC, PMD)	Separated (G, PC, PMD)	Separated (G, PC, PMD)	Separated (G, PC, PMD)	Separated (G, PMD+P)
	Road containers CAS	Dtd (monthly) Bring-points (monthly) CAS	Dtd (2-weekly) Bring-points CAS	Bring-points	Dtd (weekly-monthly) Bring-points
	Free	Free	Free	Free	Free
Paper and cardboard (PC)	Separate	Separate	Separate	Separate	Comingled (P,M,D,PC)
	Dtd (weekly) Ecostations CAS	Dtd (monthly) Bring-points (monthly) CAS	Dtd (4-8 weekly) CAS	Dtd (monthly) Bring-points (monthly) CAS	Dtd (1-2weekly) Bring-points CAS
	Free	Free	PAYT: € 2.38 per emptying of 120L	Free	Free
Plastic (P), Metal (M) & Drinking (D) composite packaging	Comingled (P,M,D)	Comingled (P,M,D)	Comingled (P,M,D)	Comingled (P,M,D)	
	Dtd (weekly) Ecostations	Dtd (biweekly) Bring-points (biweekly) CAS	Dtd (weekly-biweekly)	Dtd (monthly) Bring-points (monthly) CAS	
	Free	PAYT: € 6 for 20 blue bags	Free	Free	
Residual waste	Dtd (weekly)	Dtd (1-2weekly)	Dtd (biweekly)	Dtd (monthly)	Dtd (1-2weekly)
	FIXED € 249/y (3p - 100m ²)	FIXED € 25 /y bringbank (5 uses) € 100/y container (5 uses)	FIXED € 6.39 /quarter	FIXED € 80 /y	
	PAYT: First 960L free, then € 1.40 emptying Discount system for disposed recyclables ¹⁰ .	PAYT: € 17.50 for 10 60L/15kg yellow bags € 3.50 for 120L container	PAYT: € 55.38 / quarter for 60L container	PAYT: € 0.24/kg at CAS € 5.60 for 140L container	Waste tax based on the property value

Table 1 - Overview of the collection modes and waste fees



Waste fees

Overview of collection modes & waste fees

PAYT element in almost all cases

Many different PAYT approach/charges

Shift in costs

From comingled collection to separate collection

With **dropping volumes, residual waste**

1. collection cost increases
2. treatment cost decreases

With **increasing volumes, recyclables**

3. collection cost decreases
4. treatment cost increases

Operational costs

PMD as most expensive waste stream to collect, followed by residual waste.

Paper, cardboard and glass are fairly cheap



OV

	Berlin (DE)	Tubbergen (NL)
Glass (G)	Separate	Separate
	Dtd (2-weekly)	
	Bring-points	Bring-points
	CAS	
	Free	Free
Paper and cardboard (PC)	Seperate	Seperate
	Dtd (4-8 weekly)	Dtd (monthly)
	CAS	Bring-points (monthly)
		CAS
	PAYT: € 2.38 per emptying of 120L	Free
Plastic (P), Metal (M) & Drinking (D) composite packaging	Comingled (P,M,D)	Comingled (P,M,D)
	Dtd (weekly-biweekly)	Dtd (monthly)
	CAS	Bring-points (monthly)
		CAS
	Free	Free
Residual waste	Dtd (biweekly)	Dtd (monthly)
	FIXED	FIXED
	€ 6.39 /quarter	€ 80 /y
	PAYT: € 55.38 / quarter for 60L container	PAYT: € 0.24/kg at CAS
	€ 33.80 / quarter for 50-100m distance	€ 5.60 for 140L container

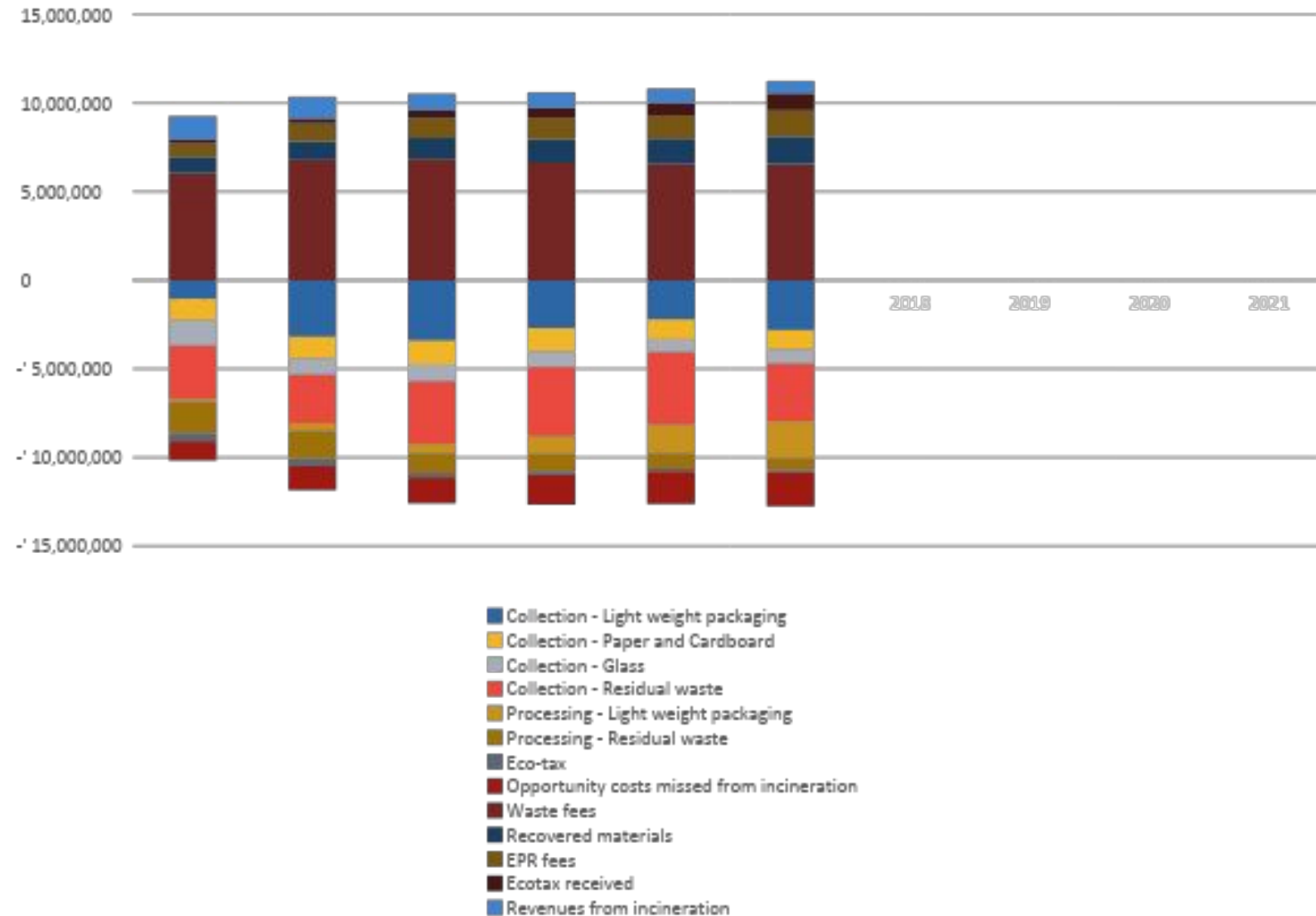
Achievements:

Mapped in detail the relevant costs of the PPW collection system

Findings:

- Highest cost: residual waste collection
 - Highest revenue: waste fees
 - Costs have stabilized despite increasing recycling
 - Revenues have increased
- Better recycling can be done without net increasing costs!
 - With acceptable fees for citizens!

Parma – overview of costs and benefits 2012 - 2017



	Parma	Ghent	Berlin	Tubbergen	Rennes
Landfill ban	X	✓	✓	✓	✓
Landfill tax	✓	✓	X	✓	✓
Incineration tax	✓	✓	X	✓	✓
EPR scheme	✓	✓	✓	✓	✓

Case	Average waste fee [€/hh]	Waste fee part of total revenues [%]	Trend
Parma	243	59%	Steady
Ghent	61	27%	Steady
Berlin	126	38%	N.A.
Tubbergen	140	42%	Dropping
Rennes	133	44%	Dropping

Case	EPR fee of total revenues [%]
Parma	10 %
Ghent	22 %
Berlin	52 %
Tubbergen	40 %
Rennes	N.A.



ELECTRONIC WASTE

Cases

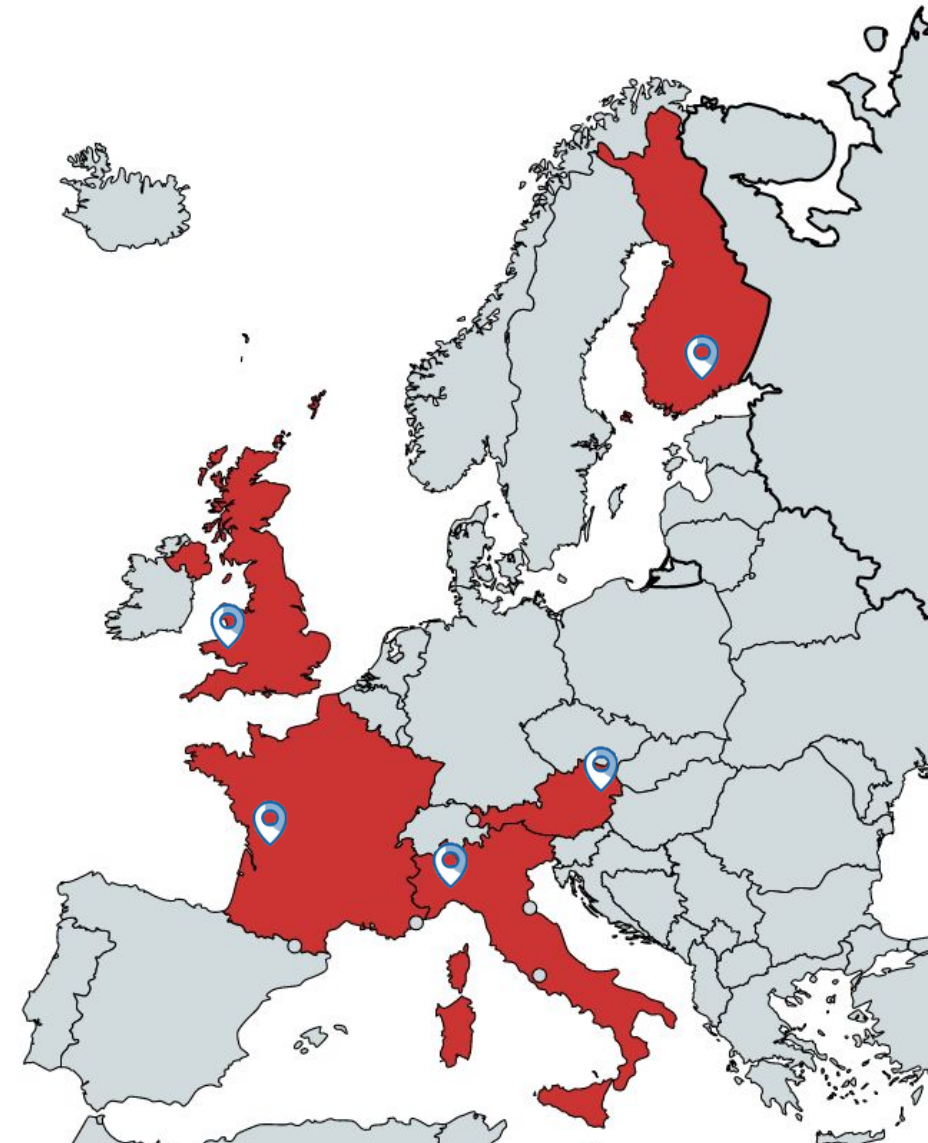
1. Pembrokeshire (UK)
2. Helsinki (FI)
3. Genoa (IT)
4. Cyclad (FR)
5. Vienna (AT)

Small WEEE collection (consumers)

- Lamps
- Small household appliances
- Small IT

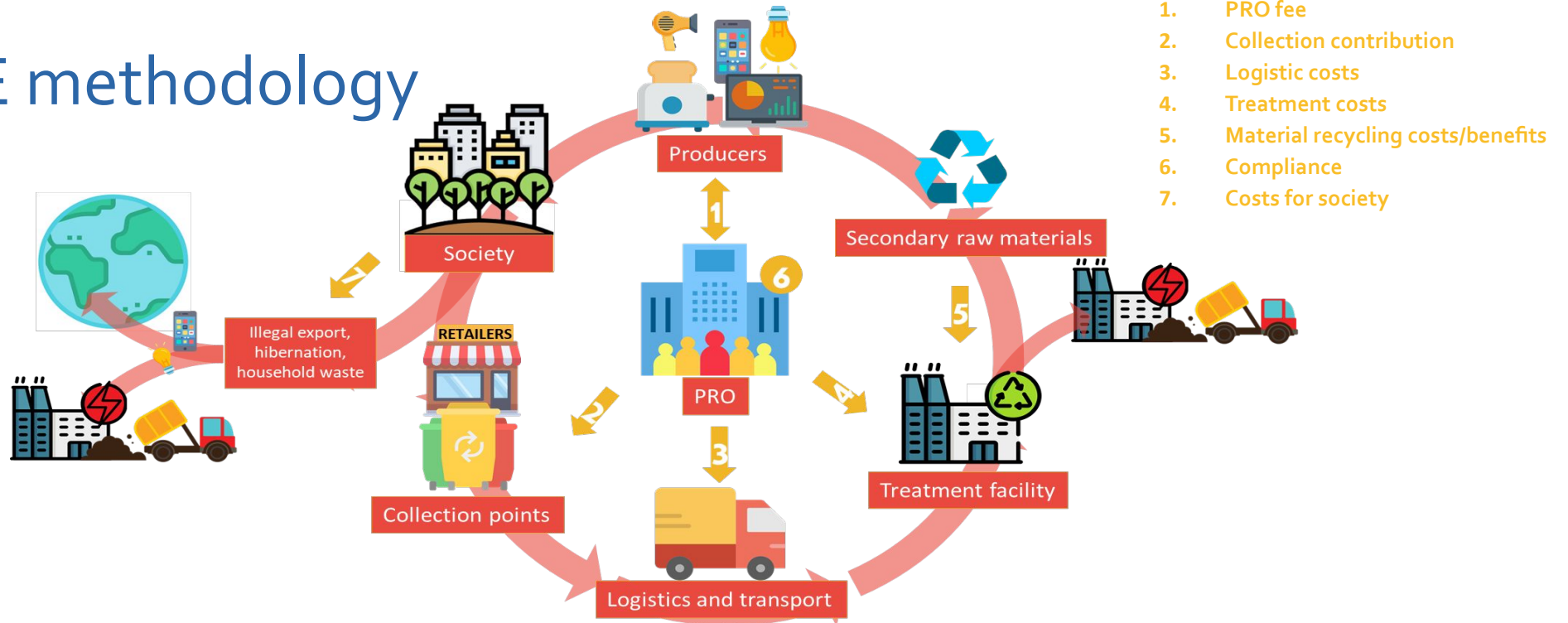
Focus on measures to increase WEEE collection

- Awareness campaigns
- Mobile pickup
- Securing collection sites
- Reuse



CBA WEEE methodology

Scope:



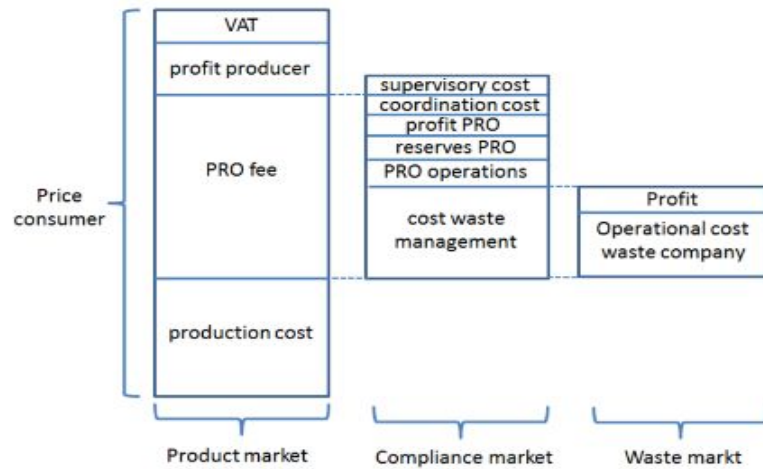
Rationale

Highlighting the financial flows and cost effectiveness of the WEEE collection system, specifically whilst boosting WEEE collection

Parameters:

- Investment costs (infrastructure, awareness campaigns,..)
- Operational costs (collection, logistics, treatment, compliance, recycling costs, leakage)
- Revenues (PRO fee, recycling revenues)

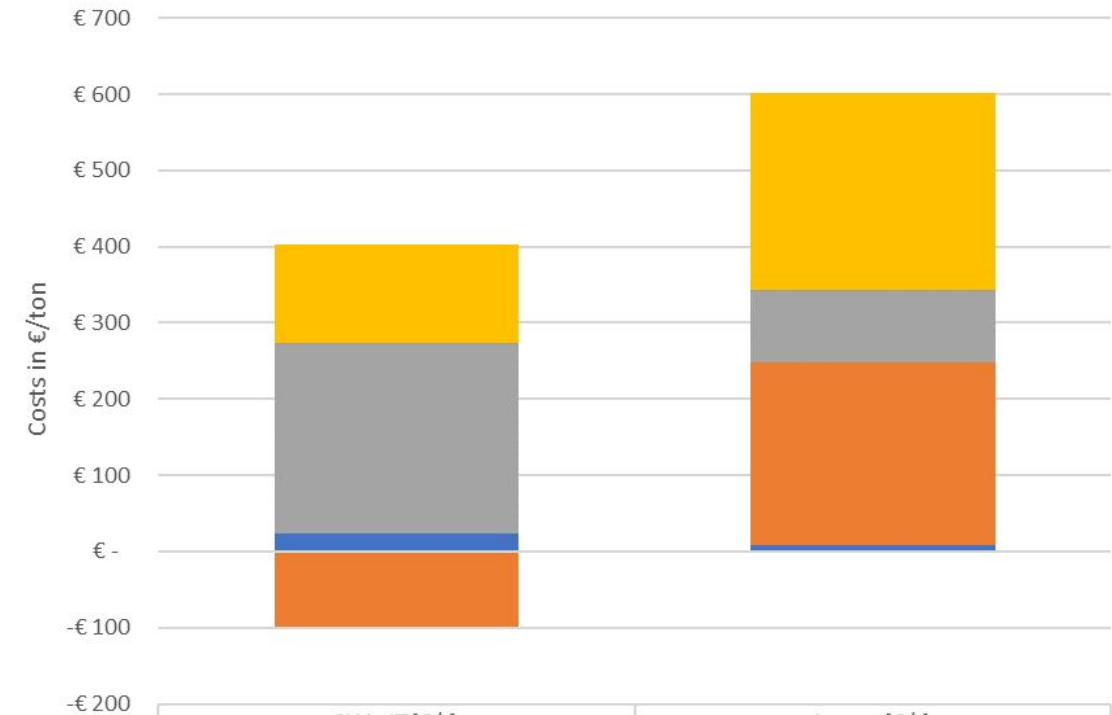
WEEE collection & recycling data



The role of Producer Responsibility Organizations for batteries and electrical and electronic equipment in the Flemish waste market, OVAM, 2016

	Collection	Logistics	Pre-treatment	Treatment
United Kingdom ¹²⁴	Yes	Yes	No	Yes
Austria ¹²⁶	Yes	Yes	Yes	Yes
France ¹²⁴	Yes	Yes	Yes	Yes
Italy ¹²⁷	Yes	Yes	Yes	Yes
Finland ¹²⁸	Yes	Yes	Yes	Yes

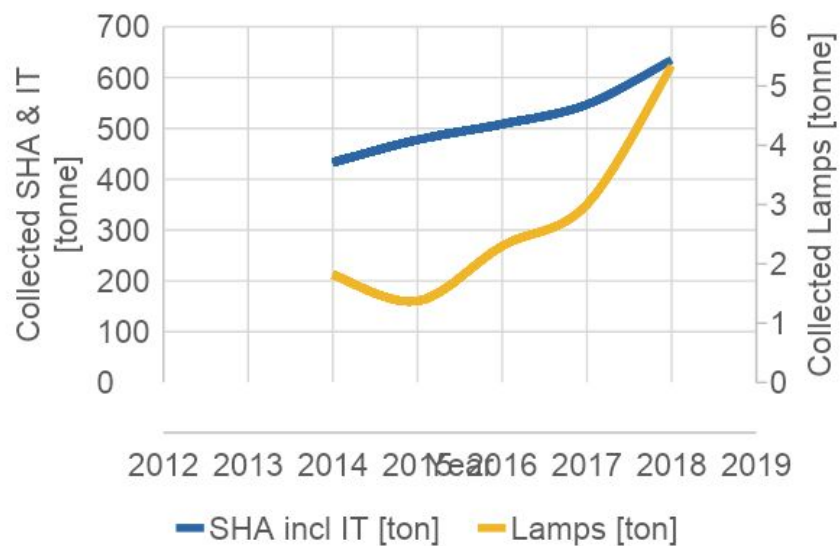
Table 43 – Overview of financial responsibilities of PRO's per country



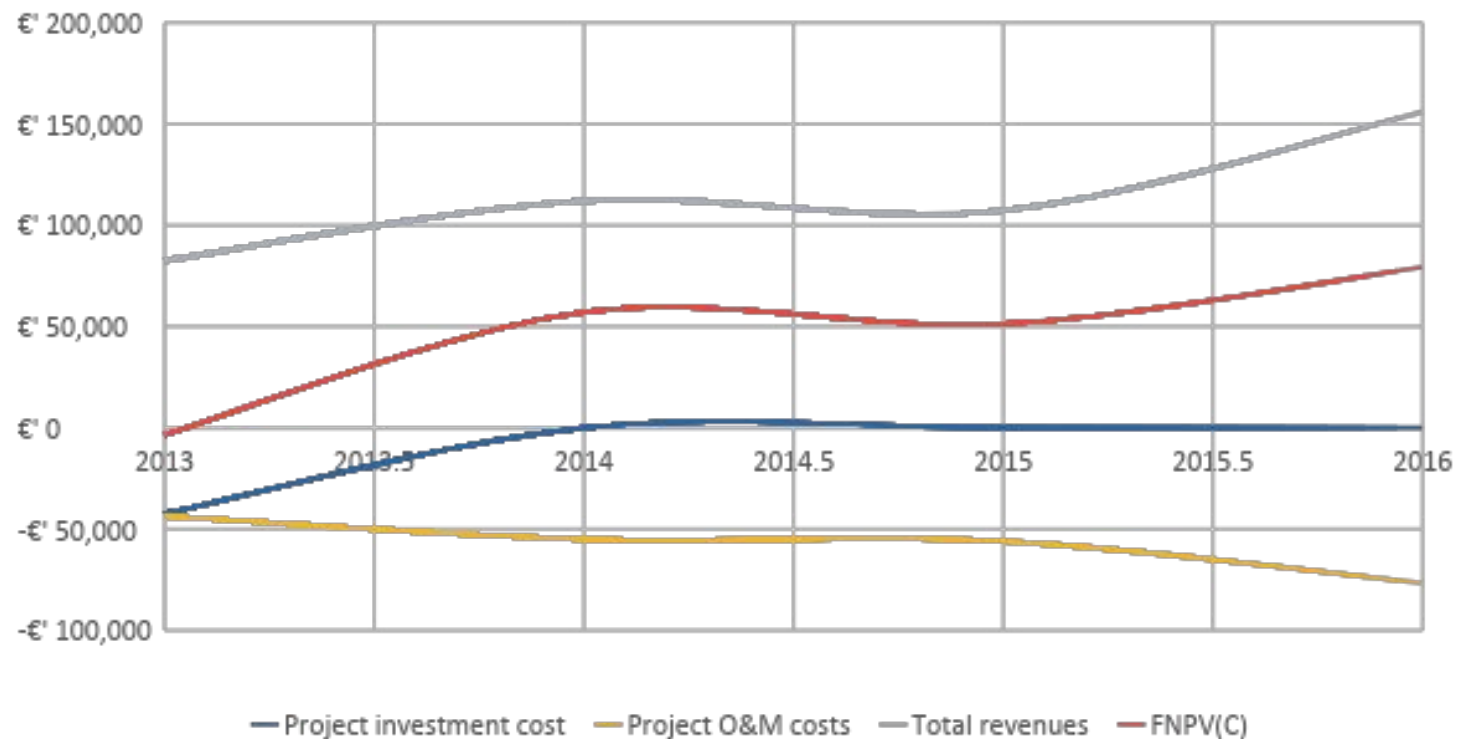
	SHA+IT [€/t]	Lamps [€/t]
■ Transport and collection	€ 129	€ 259
■ Shredding, sorting, dismantling and pretreatment	€ 249	€ 95
■ Recycling and recovery	-€ 98	€ 240
■ Incineration and landfill	€ 24	€ 8

2008 Review of Directive 2002/96 on Waste Electrical and Electronic Equipment (WEEE), United Nations University, 2008

Economic assessment WEEE



FNPV calculation for WEEE (SHA+IT+lamps) collection in Genova 2013 -2016



Economic assessment WEEE

Findings:

Economic data is not readily available:

CBA scenarios developed under large data uncertainty.

Overall it seems that measures to increase collection:

- Economic NPV > 0
- Financial NPV < 0

Public funding enabled implementation (LIFE, Horizon 2020, national/regional innovation funds).

Limited recycling and recovery revenues rightly warrant the crucial role of the PRO in the WEEE landscape.

Assessment reconfirms the importance of monitoring/enforcement and the unfair competition of unregistered treatment.



OUR CONSORTIUM



Thank you!

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