

#### Technical Assistance for Assessment of Türkiye's Potential on Transition to Circular Economy

#### EuropeAid/140562/IH/SER/TR

Activity 3.3.1. Zero Waste Management System Practices Workshop

Impact of Integration of Economic Instruments on Collection

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## Presentation Content

- Extended Producer Responsibility (EPR) and Ecomodulation
- Landfill/Incineration/Plastic Tax
- Pay As You Throw (PAYT)
- Municipal Solid Waste Collection,
   Transportation and Disposal Fee
- Incentive System



# Extended Producer Responsibility in the EU

EPR: Producers (and other actors) take responsibility for the environmental impact of their products and cover (in some cases organise) the costs of collecting, sorting and treating post-consumer waste.

EU Waste Framework Directive (2008/98/EC) - the necessity for member states to establish EPR plans

#### Minimum scope of the EPR cost

separate collection, transport and processing (taking revenues into account)

raising awareness,

data collection and reporting

#### **Specific Obligations of Member States**

Monitoring and enforcement mechanisms to reduce free movement

At least 1 public institution to audit the implementation (for countries with more than one EPR programme)

#### Special obligations for PROs

geographical coverage and products covered

suitable waste collection systems

financial instruments or financial and organisational instruments self-control mechanism

# Extended Producer Responsibility in the EU

#### Regulatory Framework for Specific Products

Legislation setting mandatory requirements for environmental sustainability

- Packaging Waste Directive,
- End-of-Life Vehicles (ELV) Directive
- Batteries Directive
- Waste Electrical and Electronic Equipment (WEEE) Directive

A comprehensive framework to organise the life cycle of products and ensure that they are managed appropriately

- Ecodesign for Sustainable Product Regulation (ESPR)
- Products that do not have specific legislation mandating environmental sustainability requirements
- 31 different product groups sustainable design principles and applications

European waste legislation provides the enabling framework, while the national legislation of the Member States determines the operational aspects of the EPR systems.

- EPR policies are designed and implemented in a very heterogeneous manner across the EU
- ❖ EPR systems can be applied to a range of waste streams, but are not suitable for all waste types.

# EPR application in the EU (Packaging)

EPR systems are implemented differently in each country, but there are common basic principles, such as improving packaging and product design to achieve greater recyclability or reusability, and reduction.

Producer responsibility for packaging waste is organised relatively evenly across EEA countries through the Producer Responsibility Organisations.

EEA countries that do not have a traditional EPR program:

EPR programmes will become mandatory for all packaging by the end of 2024

Hungary: The National Waste Management Agency has taken over the coordination of packaging waste recycling since 1 January 2012.

Croatia: Regulated through fee payments to a central fund.

Denmark: Tax-based inclusion of packaging waste management costs.

#### Good Practice Example (Packaging)

#### **Ecoembes / SPAIN**



A non-profit PRO coordinating a collective system for the collection, sorting and recycling of household packaging waste (1996)

Member of EXPRA (Extended Producer Responsibility Association) and PRO EUROPE (Green Dot Defence Symbol)

95% of packaging waste in Europe is managed with this EPR model

Stakeholders with equal responsibility representing each sector in the packaging value chain

Packaging manufacturers 60%

Marketers 20 %

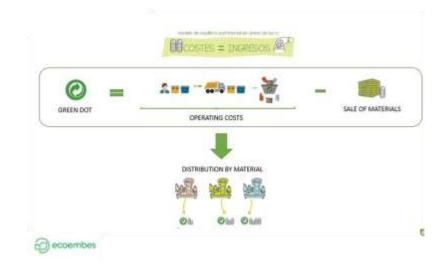
Suppliers (raw materials) 20%

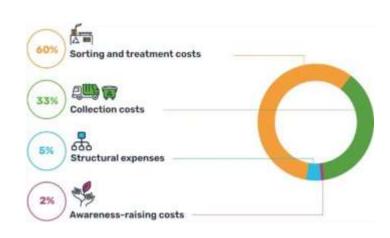
They provide technical and financial support to local administrations:

Financial support: Financing the cost related to separate collection

## The EPR Model finance model







## EPR application in the EU (EEA)

In most Member States, producer responsibility for WEEE is implemented through more than one competing PROs.

- Belgium, the Netherlands, Luxembourg, Switzerland and the RoSC: 5 countries - monopoly programme
- Hungary and Croatia: EPR fees are collected through government levies/taxes. Countries without EPR in the European market

#### Good practice: Efficiency awards for WEEE collection points, Italy

- The cost structure of the Italian EPR system for WEEE, "Efficiency Awards" for WEEE collection points
- Efficiency rewards are financial premiums paid by PROs to collection points after collection, provided that the amount of WEEE collected reaches or exceeds certain volume thresholds.
- Devices transferred to the supplier industry (e.g. refrigerators without compressor) are not included in the thresholds.
- This practice not only increases collection efficiency but also improves the overall quality of collected WEEE by preventing WEEE pilferage

Source: \*adelphi\_study\_Analysis\_of\_EPR\_Schemes\_July\_2021.pdf (erp-recycling.org )

#### **EPR** application in the EU: **Batteries** and End-of-Life Vehicles

#### Batteries

 Directive on batteries and accumulators and waste batteries and accumulators (2006/66/EC)

It prohibits the marketing of batteries containing certain hazardous substances, requires the establishment of plans for collection and recycling, and sets targets.

➤ Batteries and Waste Batteries Regulation (2023)

It sets collection targets and obligations, targets for the recovery of materials and endof-life requirements, including extended producer responsibility.

> The first EPR plans for batteries

Austria, Belgium: early 1990s

Germany, France, Spain late 1990s

The majority of EU member states implemented it in the 2000s.

more than one competing PROs in most countries

Monopolistic systems 6 countries (small countries in terms of area)

#### End-of-life vehicles

- Proposal for a Regulation on circularity requirements for vehicle design and management of end-of-life vehicles (2023)
  - The focus is on incentives to increase the collection of ELVs and to improve waste treatment through the establishment of EPR requirements to increase the collection of ELVs and to compensate costs for improved treatment quality
  - Special measures on 'cross-border' EPR mechanisms designed to ensure that waste management operators in the Member States where the ELV is processed are not disadvantaged

## EPR and textile waste

- An amendment of the Waste Framework Directive is pending with a focus on textile waste.
- Objective: More circular and sustainable management of textile waste in line with the vision of the EU Strategy for Sustainable and Circular Textiles.
- Proposal to introduce mandatory and harmonised Extended Producer Responsibility (EPR) schemes for textile products in all EU Member States
- The level of financial contributions from producers will be based on the circularity and environmental performance ("eco-modulation") of textile products.
- It will encourage research and development in innovative technologies that promote circularity in the textile sector.
- It will ultimately incentivise manufacturers to design more circular products.



## Türkiye EPR application: Producer Responsibility Organisations

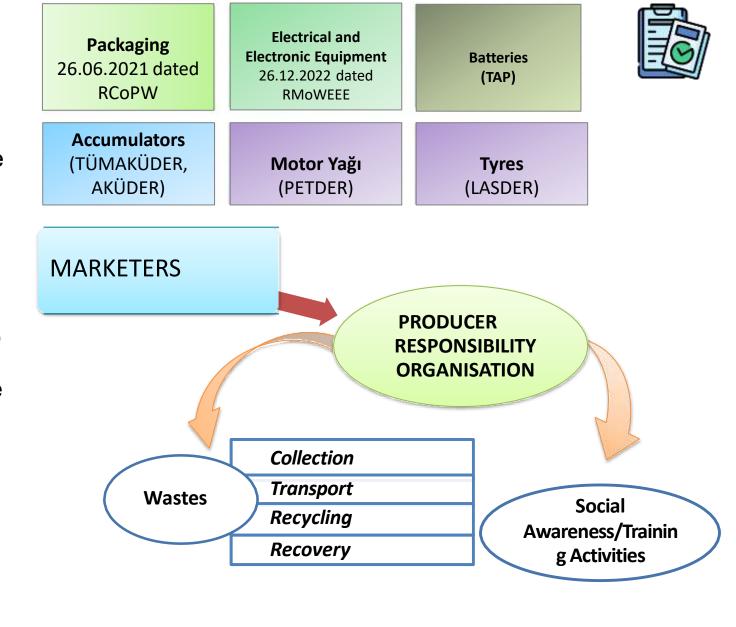
**Environmental Law No. 2872 (Art. 11)** 

Producers, importers and marketers, who are subject to obligations within the scope of the responsibility of producers, importers and marketers, come together under the coordination of the Ministry and form associations with legal personality in order to fulfil their obligations regarding the collection, transport, recovery, recycling and disposal of wastes generated as a result of the useful life of their products, to meet the necessary expenses for these, and to carry out training activities.

Fulfils the collection, transport and recovery obligations of the marketer.

A mandatory application in some types of waste

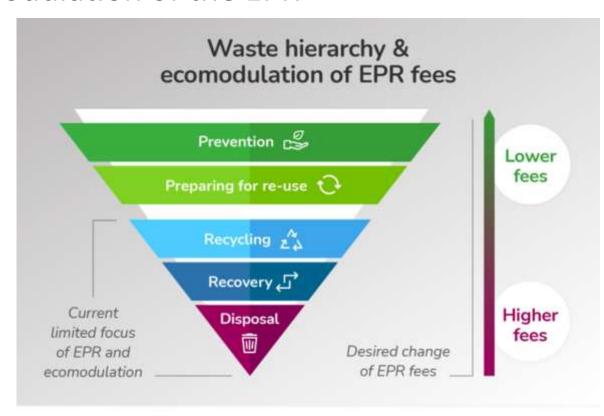
Providing representation share



#### **EPR and ECOMODULATION**

## The 2018 revision of the Waste Framework Directive (2008/98/EC) as part of the first Circular Economy Action Plan of 2015 introduced the idea of ecomodulation of the EPR

- Ecomodulation of fees can play a vital role in setting design priorities such as waste prevention, reusability, repairability and recyclability.
- Products or packaging with circular design (e.g. minimum proportion of recycled content, high repairability index, reduction in material weight, change from less recyclable to easily recyclable materials) may benefit from reduced fees,
- Products with design problems may be subject to higher prices.



Source: Adapted from waste hierarchy figure by European Commission (https://ec.europa.eu/environment/green-growth/waste-prevention-and-management/index\_en.htm)

### Eco-modulation of fees in the EU

#### **Packaging**

- Ecomodulation of fees is most common for packaging in 26 European Member States: simple fee modulation: a different fee structure for different types of materials such as plastic, glass, paper etc. (Spain etc.)
- In Belgium, reusable packaging is exempt from EPR fees. 200 Euro (€)
  per tonne for transparent colourless PET and 400 Euro per tonne for
  coloured PET (making recycling difficult)
- In Estonia, consumer packaging does not have to be declared as long as it is reused (waste prevention).

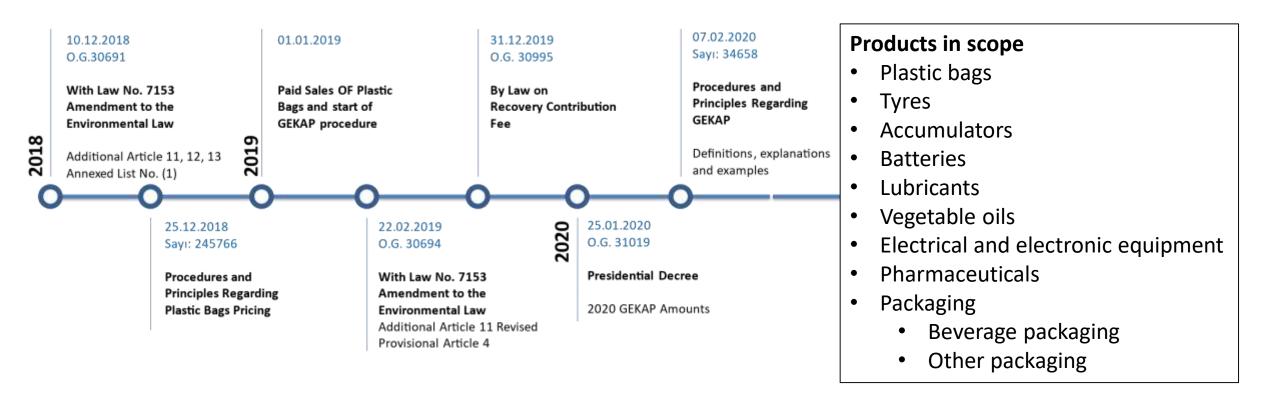
#### **Electrical and electronic equipment**

- France is the only European Member State that explicitly uses charge modulation for EEE.
- The criteria used in the French system include:
- Post-consumer recycled (PCR) plastic content;
- Ease of disassembly;
- Ease of upgrade;
- Availability of spare parts;
- Availability of technical information to facilitate professional repair;
- Lack of coatings that can inhibit recycling; -
- Absence of hazardous materials
- LEDs (lamps only)

#### **Recovery Contribution Fee-TR**

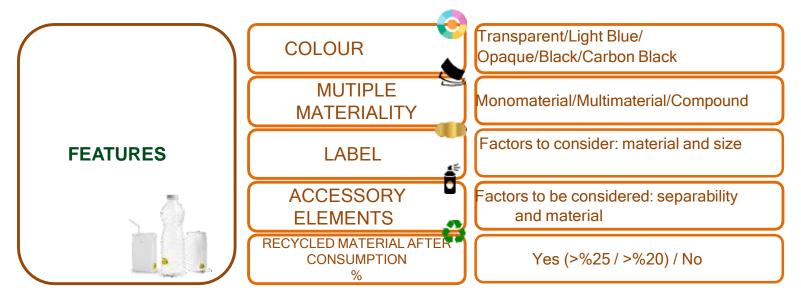


Refers to the Participation Fee to be collected from the points of sale for bags among the products listed in Annex-1 of the Environmental Law No. 2872, and from the marketers/importers for other products.



#### Eco modulation / Spain

#### **Technical characteristics of the model**



#### Distribution of discounts and penalties

**DISCOUNTS** 

The amount in euros obtained from the fined tonnages, the maximum amount to be distributed among the discounted tonnages.

**FINES** 

A single penalty percentage of 10% is set for all fractions.

#### Application to material fractions

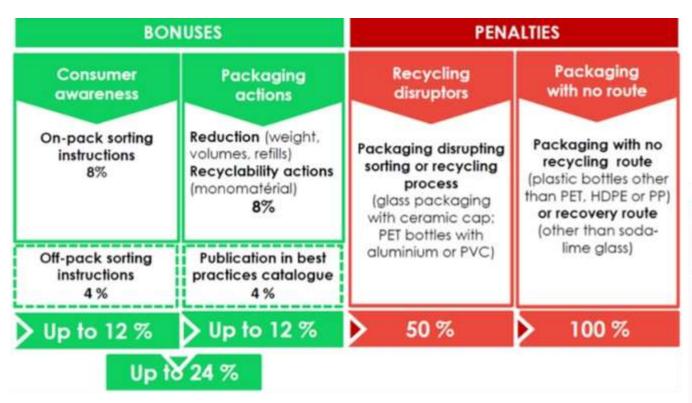
#### ECOMODULATED FRACTIONS

- Non-PET tray
- PET tray
- HDPE
- Flexible plastic
- All other plastics
- Cardboard

#### NON-ECOMODULATED FRACTIONS

- Steel
- Aluminium
- Brick
- Wood

#### Eco modulation / France



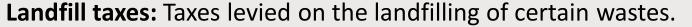


#### Landfill / Waste Incineration Taxes

EU Landfill Directive (1999/31/EC) and Waste Incineration Directive (2000/76/EC), which set standards for landfilling and incineration

#### Objective:

- Making landfill or thermal disposal of waste more expensive and thus making recycling and prevention more competitive.
- > To incentivise pre-processing and/or generate income that can be invested in better waste management.



(It is applied in 22 EU Member States)

Waste incineration taxes: Tax on thermal disposal of certain wastes

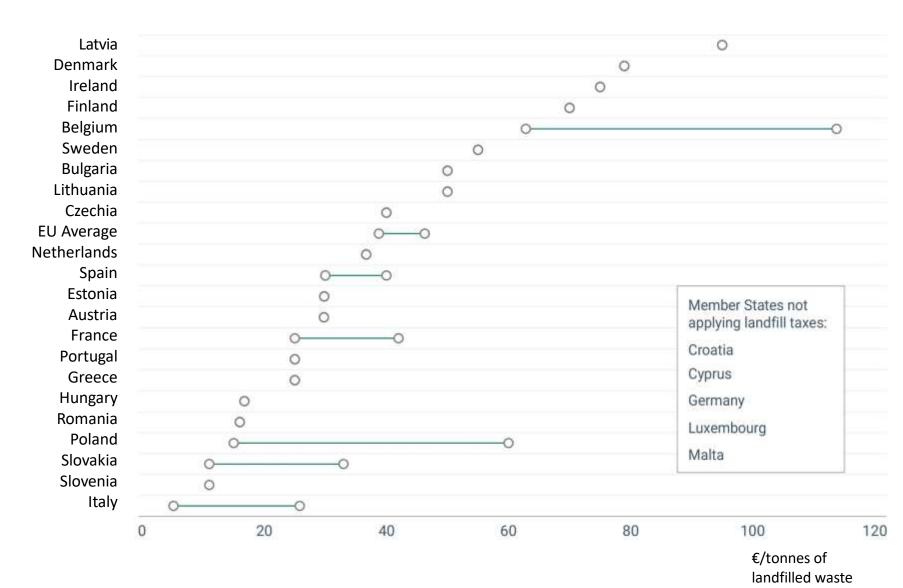
Sometimes, if the thermal process involves energy recovery, a lower level of tax is levied than the tax levied when using a process that does not involve energy recovery.





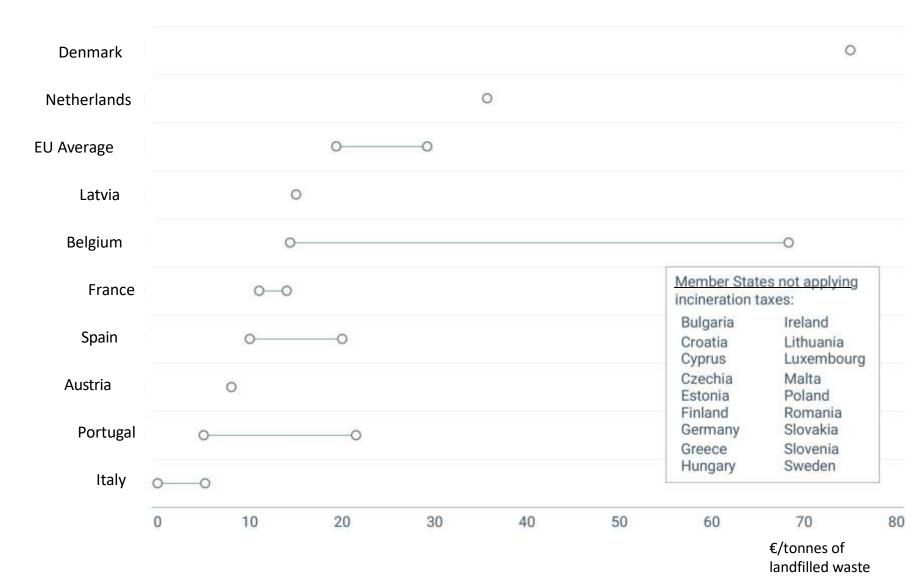
#### Landfill Tax (2023)

- EU Average: **40-45** €
- between 5 € and 115 €
- 22 EU Countries are implementing it
- No implementation in 5
   EU countries
- 16 Member States have landfill restrictions for some waste streams(biodegradable, recyclable, etc.)
   with or without a tax.



#### **Incineration Tax (2023)**

- EU Average: **20-30 €**
- between 5 € and 75 €
- 9 EU Countries are implementing it
- No implementation in 18 EU countries



#### Landfill Tax Implementation in Some European Countries



#### **BELGIUM (FLANDERS)**

• **Tax rate**: 59.33-107.87 EUR/ton

• **Taxpayer:** Landfill operators

• Revenue: Regional Government

Ban: Landfilling biodegradable waste

Source: https://www.eea.europa.eu/publications/economic-instruments-and-separate-collection
https://eeb.org/wp-content/uploads/2022/11/Circular-Taxation-study-EEB-Final-Report.pdf
https://www.oecd-ilibrary.org/sites/72859b22-en/index.html?itemId=/content/component/72859b22-en#annex-

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#### **ITALY**

• **Tax rate**: 5,17-25,82 EUR/tonne

Taxpayer: Landfill operators

Revenue: Regional and Local Governments

Tax refund: A gradual refund of 30-70% if the 65% separate collection at source target is exceeded



#### Uk

• **Tax rate**: 3,15-98,6 GBP/tonne

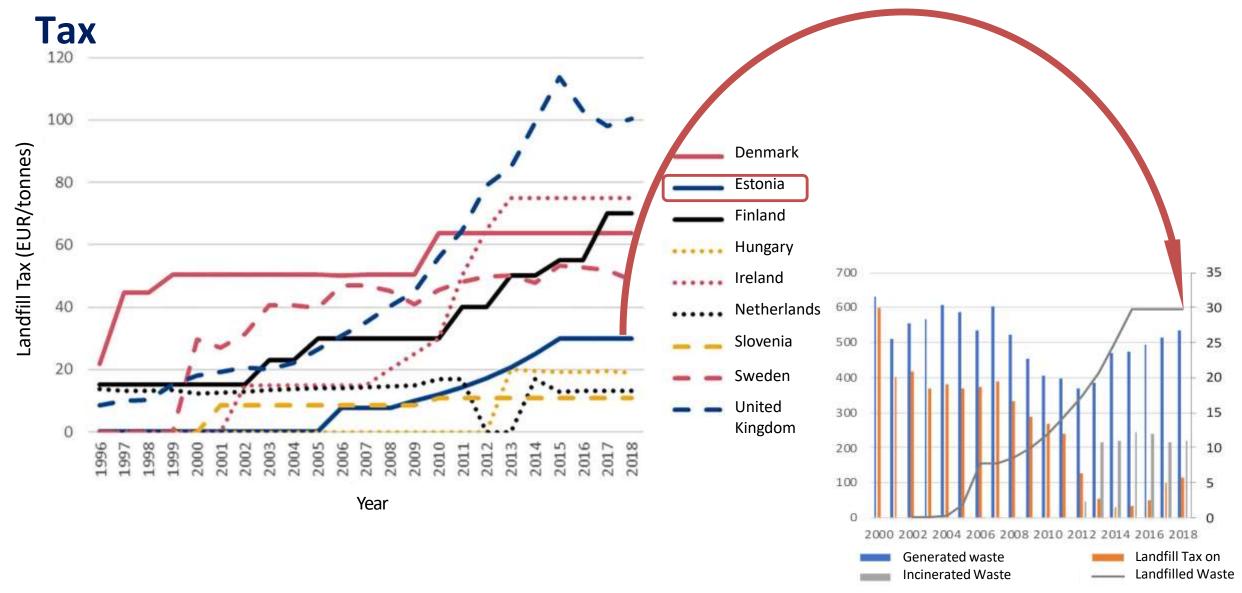
 Tax payer: Landfill operators transfer the cost of disposing of municipal waste to waste generators, the waste industry and local authorities.

Revenue: Central Government

Tax evasion: Due to tax increases, crimes such as illegal dumping, exemption breaches, illegal exports and open incineration
have

increased. The total cost of waste crime in the UK was GBP 924 million in 2018/19, not all of which is attributable to landfill tax.

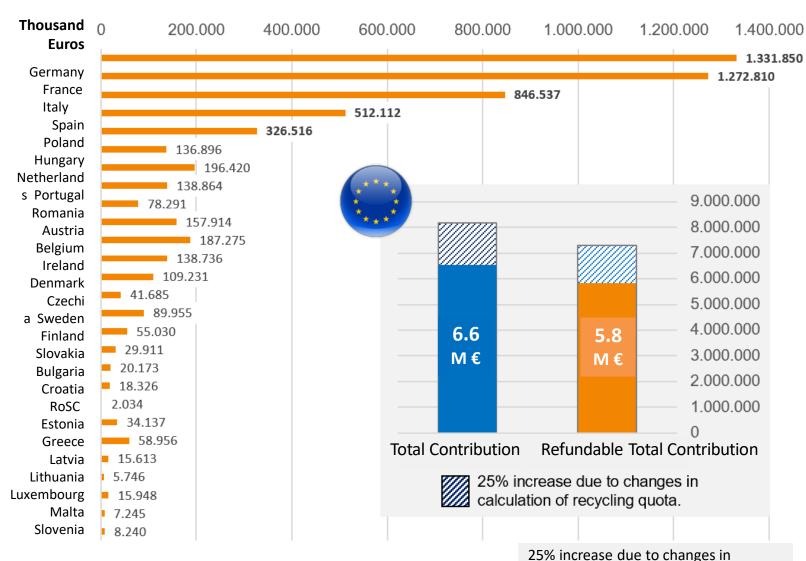
#### The Impact of the Landfill



**Source:** https://<u>www.sciencedirect.com/science/article/pii/S0956053X23002659</u> https://environment.ec.europa.eu/document/download/dfff60be-3c31-4fcb-93a6-fa6e2ea5f219\_en?filename=Taxes%2C%20charges%20and%20fees.pdf

#### **Plastic Tax**

- 'Council Decision 2020/2053 of 14 December 2020 on the European Union's own resources system'
- From 1 January 2021, each
   Member State must pay a
   contribution to the EU budget of
   EUR 0.80 per kilogram of non recycled plastic packaging waste
   it generates.
- The EU sets out the method of calculation of contributions and refunds. Member States collect them in different ways.



**Source:** EC, 2020. https://eur-lex.europa.eu/le recontent/EN/TXT/PDF/?uri=CELEX:32020D0519

25% increase due to changes in recycling quota calculation

#### Plastic Tax Implementation in Some European Countries

#### UK (2022)

- Plastic type: Plastic packaging produced/imported that does not contain at least 30% recycled plastic
- **Tax rate:** 0,20 GBP/kg
- **Tax payer:** Producers and importers
- Expected revenue: 235 million GBP/year



- Plastic type: Non-recycled plastic packaging
- **Tax rate:** 0,45 EUR/kg
- **Tax payer:** Producers and importers
- Expected revenue: 724 million EUR/year



- Plastic type: All single-use plastics produced
- **Tax rate:** 0,45 EUR/kg
- **Tax payer:** Producers and importers
- Expected revenue: 290-470 million EUR/year



**Source:** https://eeb.org/wp-content/uploads/2022/11/Circular-Taxation-study-EEB-Final-Report.pdf https://wts.com/global/publishing-article/20230522-plastic-taxation-europe-update-2023~publishing-article



#### Pay-As-You-Throw (PAYT) systems

#### **Basic Features:**

- variable fee structures based on the weight or volume of the waste generated targeting household waste at its very source
- households are responsible for the amount of waste discarded
- aims to reduce the generation of waste, and in particular residual waste, as well as increasing waste sorting at household level.

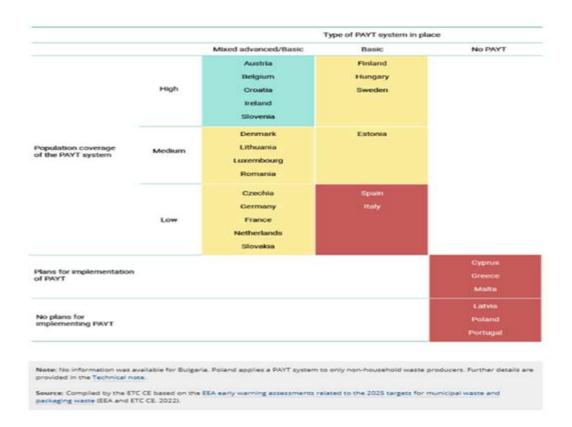
#### <u>Different PAYT programs implemented throughout the EU:</u>

- Advanced PAYT systems provide a direct and visible economic incentive at the time the waste is generated.
  - (For example; waste collectors weighing waste containers on pick-up so that waste producers pay by weight of waste generated; sack-based systems, whereby citizens buy waste sacks from the municipality or service provider).
  - **Basic PAYT systems** are volume-based systems, which depend mainly on the size of the container and sometimes also take the frequency of collection into account when setting the collection fee (e.g. households can choose the number or size of containers for mixed municipal waste when the service contract is agreed upon.

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## Pay As You Throw (PAYT) systems across the EU A widely us

Overview of the type and population coverage of PAYT systems for households in the EU-27, 2022



Source: https://www.eea.europa.eu/publications/e conomic-instruments-and-separatecollection A widely used economic instrument across the EU

Most Member States already have a PAYT system in place for at least part of the population

There is legislation requiring the use or development of PAYT systems or authorising municipalities to introduce such systems.

Fourteen Member States use a mix of advanced and basic PAYT systems, while the other six use only basic

- PAYT systems.
- There are no Member States using advanced PAYT systems.
- Three of the six Member States not currently using a PAYT system have firm plans to implement it.



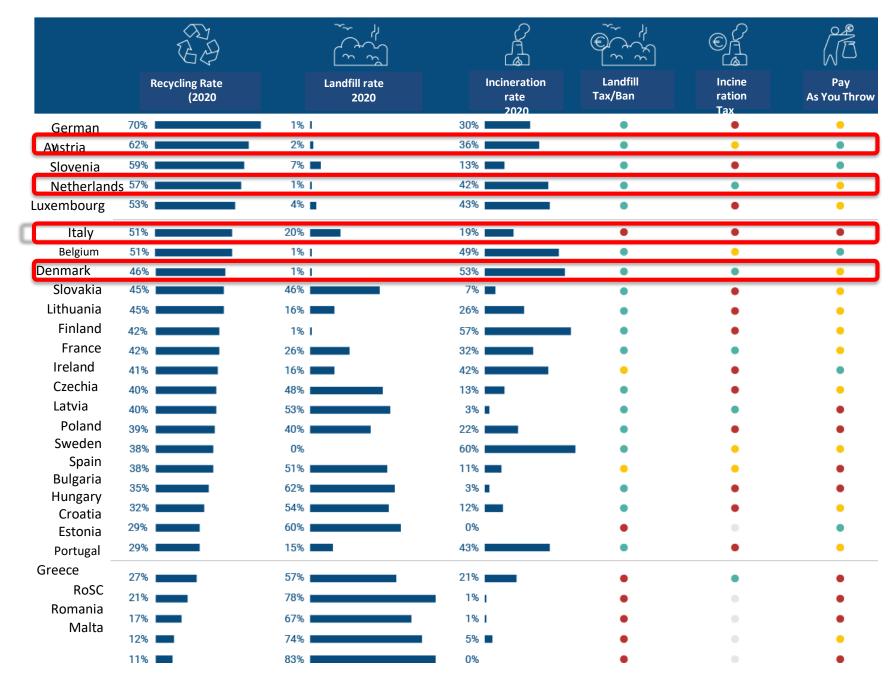
#### Pay As You Throw (PAYT)

Tariff System	Municipality Ratio (%) (Number of Municipalities)	Population Rate (%)	Average Municipal Population	
Volume	3,4 (12)	3.1	20,228	
Volume and frequency	23,3 (82)	16.7	15,707	
Paid bag	10,2 (36)	8.4	18,108	
Number of paid bags and people	2,3 (8)	1.2	11,232	
Weight	0,9 (3)	0.5	12,648	
Weight and frequency	3,2 (11)	2.7	18,210	
Weight, frequency and number of people	0,3 (1)	0.1	11,450	
Weight, frequency and number of people	6,8 (24)	4.5	14,517	
Total PAYT	50,4 (177)	37.3	16,221	
Number of people	44,8 (158)	57.0	27,871	
Fixed tariff	4,8 (17)	5.8	26,135	

Reference: European Environment Agency, 2023. <a href="https://www.eea.europa.eu/publications/economic-instruments-and-separate-collection/technical-note-accompanying-the-eea/view">https://www.eea.europa.eu/publications/economic-instruments-and-separate-collection/technical-note-accompanying-the-eea/view</a>

## The Impact of "Circular Taxes" on Landfill and Recycling Rates

- Powerfully designed
- Poorly designed, no implementation or no information
- Moderately designed
- No incineration plant



#### Municipal Solid Waste Collection, **Transportation** and Disposal Fee

#### Environmental Law No. 2872 - Art. 11

Metropolitan municipalities and municipalities are obliged to establish, have established, operate or have operated municipal solid waste disposal facilities. Those who benefit and/or will benefit from this service are obliged to participate in the investment, operation, maintenance, repair and rehabilitation expenditures to be made by the responsible administrations. Solid waste collection, transport and disposal fees are charged to those who benefit from this service according to the tariff to be determined by the municipal council. Fees collected pursuant to this paragraph shall not be used for any other services other than those related to solid waste.

Regulation on the Procedures and Principles for Determining Tariffs for Wastewater Infrastructure and Municipal Solid Waste Disposal Facilities

(OG 27.10.2010 - 27742)

It covers the procedures and principles to be followed in determining the full cost-based tariffs for the establishment, operation, closure and post-closure monitoring and maintenance of collection, transport, transfer, recovery (composting, incineration) and disposal facilities for municipal solid wastes.

A subscription is compulsory for real and legal persons.

Billing is carried out through water bills.

Municipal solid waste administrations are obliged to comply until 31.12.2024.(OG-14/3/2024-32489)

#### Municipal Solid Waste Collection, Transportation and Disposal Fee



#### **Cost Calculation:**

The total system cost includes the full cost of the investment, including the financial cost of the investment, operation and maintenance of the system, depreciation costs of fixed assets, management and monitoring expenses, taxes, expropriation and return on equity to ensure the financial sustainability of the system. Total system cost does not include costs that are not linked to the operation and sustainability of the wastewater or municipal solid waste system.

#### Principles of Tariff Determination (Article 18):

When determining the fees for municipal solid waste services, the amount of waste produced by the waste generator can be determined using one or more of the following units:

- Waste weight,
- Number of containers, container volume, container occupancy rate and frequency of waste collection,
- Number of waste collection vehicles, vehicle volume, vehicle occupancy rate and frequency of waste collection,
- Specific characteristics of waste generators, such as household size, number of beds in hospitals, number of students in schools, etc.

#### Tariff Types (Article 20)

Variable tariff (calculation of the producer's waste quantity according to Article 18)

Fixed tariff (disregarding the one-to-one influence of the waste producer on the quantity of waste)

#### **Municipal Solid Waste Collection, Transport and Disposal Fee**

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Incentive Systems

#### Incentive Systems

There is a need for material and moral motivation for individuals to carry the packaging of the products they consume at home or recyclable wastes to the nearest collection point instead of accumulating them in the containers in front of their homes.

This motivation will enable individuals to adopt recycling habits and increase their environmental awareness.

The role of positive incentives such as direct payments/cash schemes, market discount vouchers, etc. in separate collection is important.

There are different applications in which citizens who separate their wastes receive rewards (money, toys, household items, etc.) according to the amount of waste they take to civic amenity sites.

#### Risk:

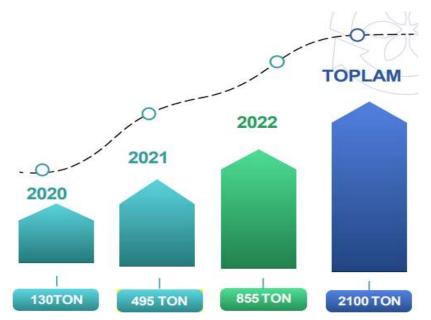
In the case of reward-only schemes, waste separation will be reduced to the same extent during periods when rewarding is discontinued or the quality of the reward is reduced.

### Incentive System- Smart Conversion Card (Fatih Municipality)

#### **Success Factors:**

It is digital, waste points can be queried instantly, balance display feature and Transformation Card is valid at many shopping points

- Service with 3 mobile vehicles, each of which is located at two different points before noon and in the afternoon 6 days a week.
- When citizens bring their wastes to the Mobile Waste Collection Vehicle points, the personnel in charge here first weigh them and record them in the point system according to the type of waste.
- Each waste type has different points and waste points are deposited into the "Transformation Card" account on a daily basis.



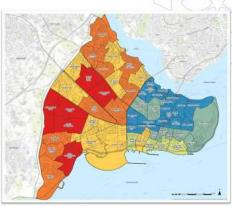
Number of people to whom cards were distributed: 11 thousand (45 thousand with households)

Amount of aid: 1 million 750 thousand TL Proportional Increase in Collection Amount: WASTE VEGETABLE OIL 137% GLASS WASTE 217% METAL WASTE 284%

PAPER WASTE 426%

PLASTIC WASTE 594%

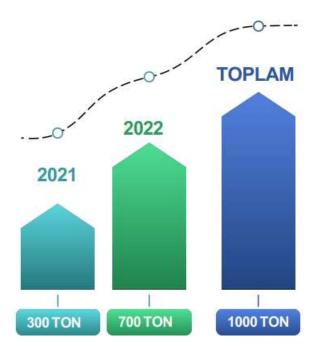
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## Incentive System - Zero Waste Incentive Market (Haliliye Municipality)





In 2021, "Zero Point of Waste Zero Waste Incentive Markets" were established in 3 different points of the district

The types of waste brought in and points per kilogram were determined.

It is uploaded as points to 'Zero Waste Transformation Cards'.

Proportional Increase in Collection Amount:
PLASTIC, METAL AND GLASS WASTE 175%
PAPER CARDBOARD WASTE 200%
WASTE VEGETABLE OIL 150%
WASTE BATTERY 125%



#### Thanks for your attention.

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