



This project is co-funded by the
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Türkiye

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

EuropeAid/140562/H/SER/TR

Economic Instruments Used in Integrated Waste Management in EU and Türkiye

Activity 3.2.4. Training on Integrated Waste Management in Circular Economy

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Presentation Content

- Extended Producer Responsibility (EPR) and Ecomodulation (EU, TR)

- Taxes (EU,TR)

- Pay As You Throw (PAYT), (EU, TR)

- Good Practice Examples from EU Member States

Extended Producer Responsibility (EPR)

early 1980s

- **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 (EPR)

➤ **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)

GERMANY: Public Registration Authority

With the entry into force of the Packaging Act, all packaging producers and first distributors are obliged to register with a public registry, the Zentrale Stelle Verpackungsregister (ZSVR), as of January 2019.

ZSVR is also responsible for registering the quantities of packaging placed on the market by each producer, monitoring data reporting and declarations of completeness, as well as quality control of the data submitted.

The ZSVR is collectively financed by all PROs in proportion to their respective market share and is monitored by the German Environmental Protection Agency (Umweltbundesamt; UBA).

A complete list of all registered manufacturers and first distributors is publicly available. With more than 200,000 companies registered and a corresponding participation rate of about 76% in 2020 the ZSVR has already made a significant contribution to increasing the participation rate of producers in the German EPR scheme

Source: *adelphi_study_Analysis_of_EPR_Schemes_July_2021.pdf(erp-recycling.org)

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:

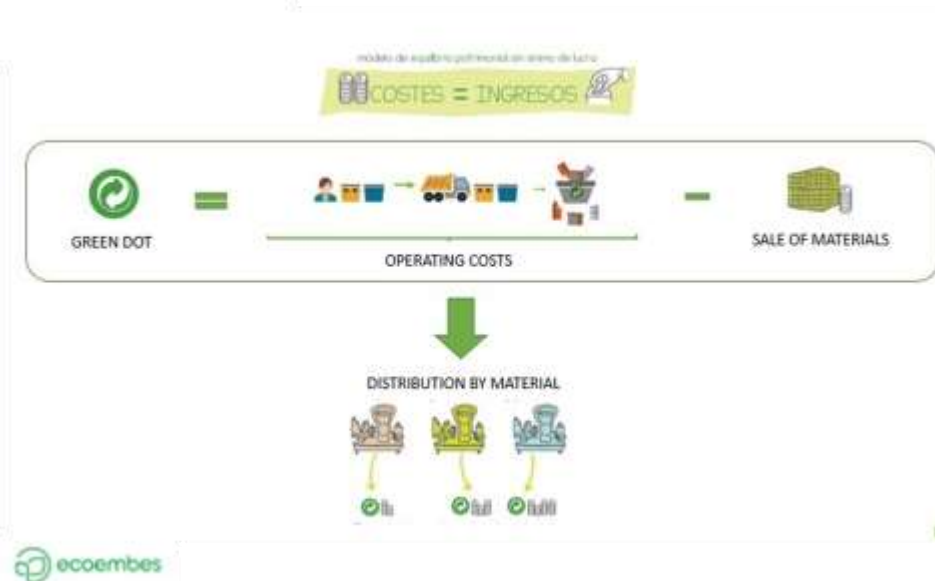
Financial support : Financing the cost related to separate collection

The EPR Model finance model

Packaging cycle



This graph illustrates PROs' role within the product and waste management circular process.



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 end-of-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

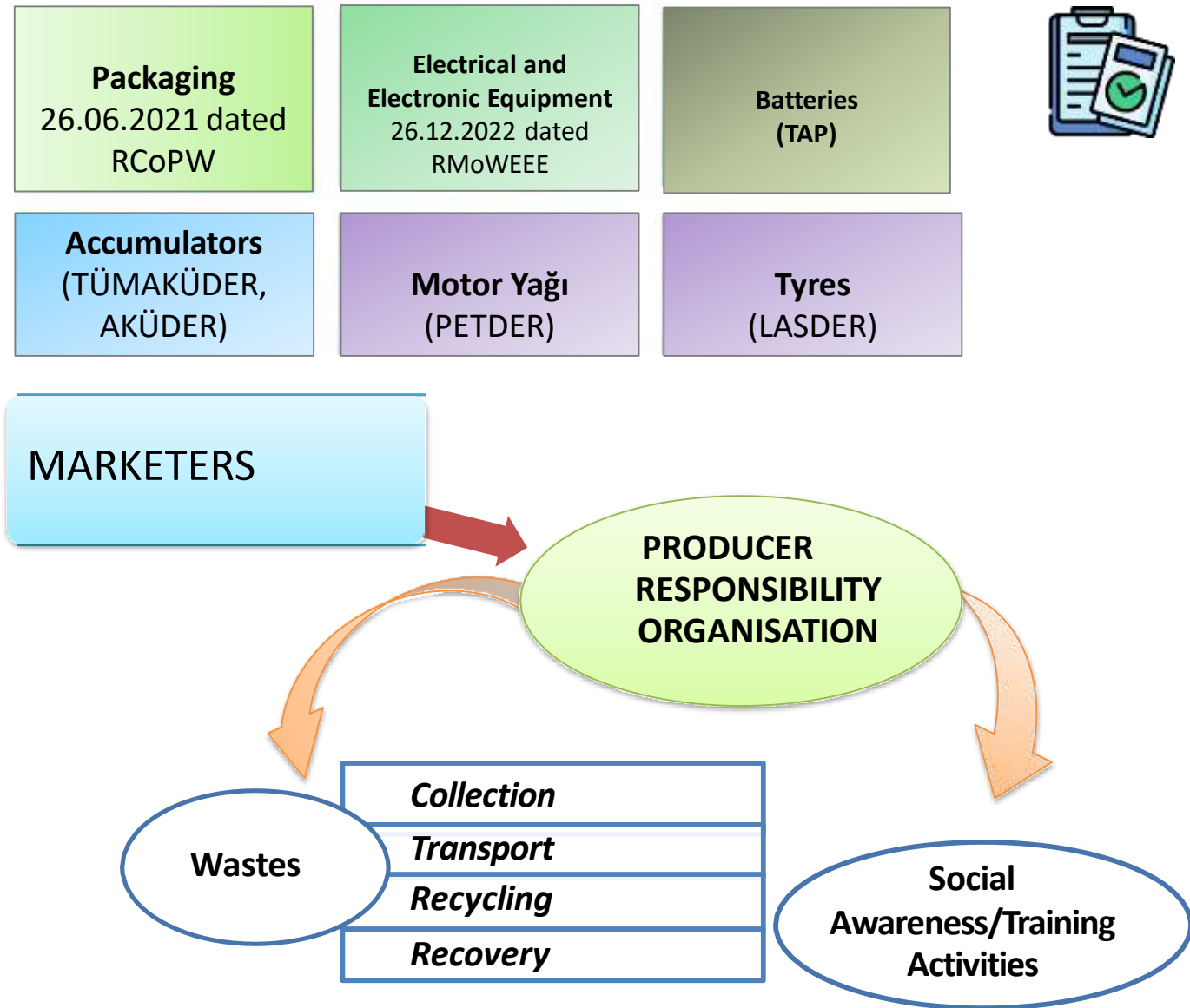
Environmental Law No. 2872 (Art. 11)

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

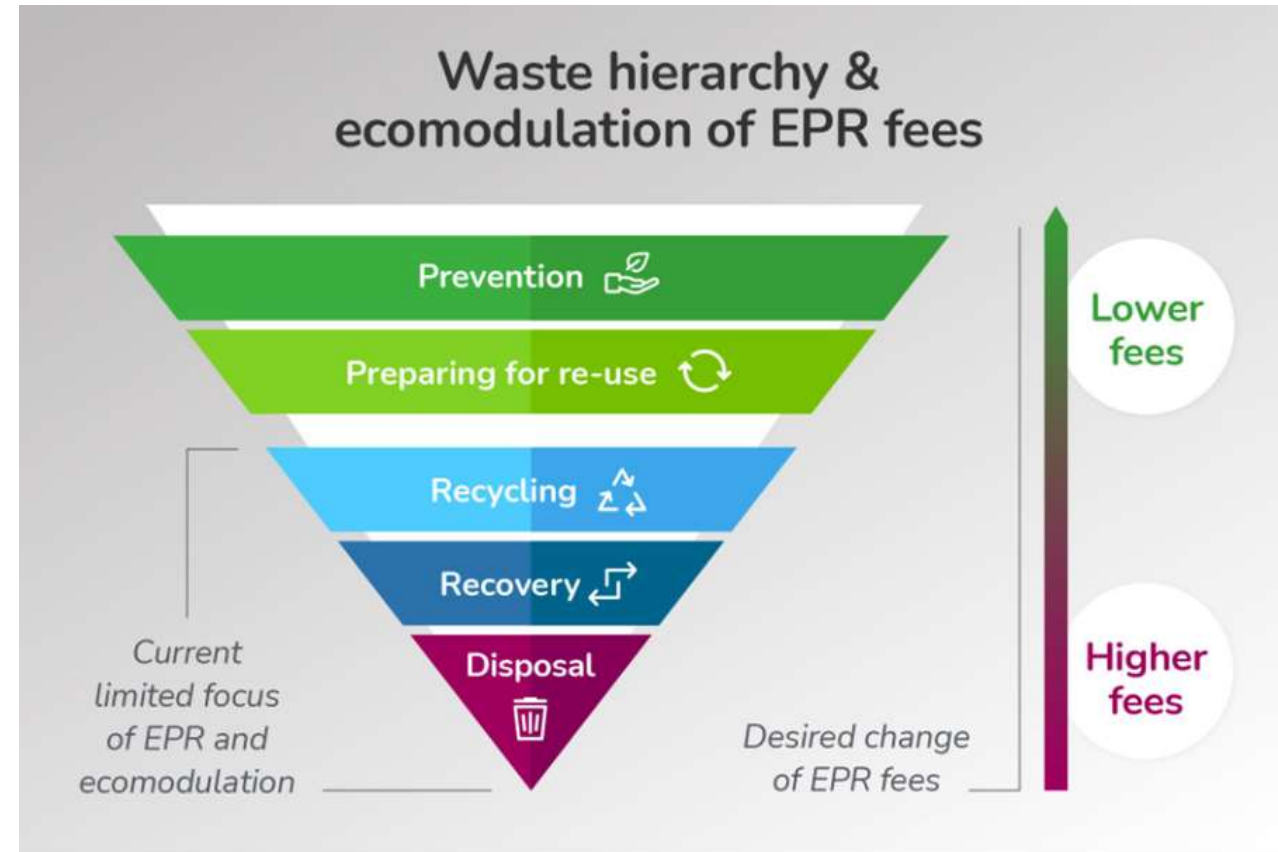
Providing representation share




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.

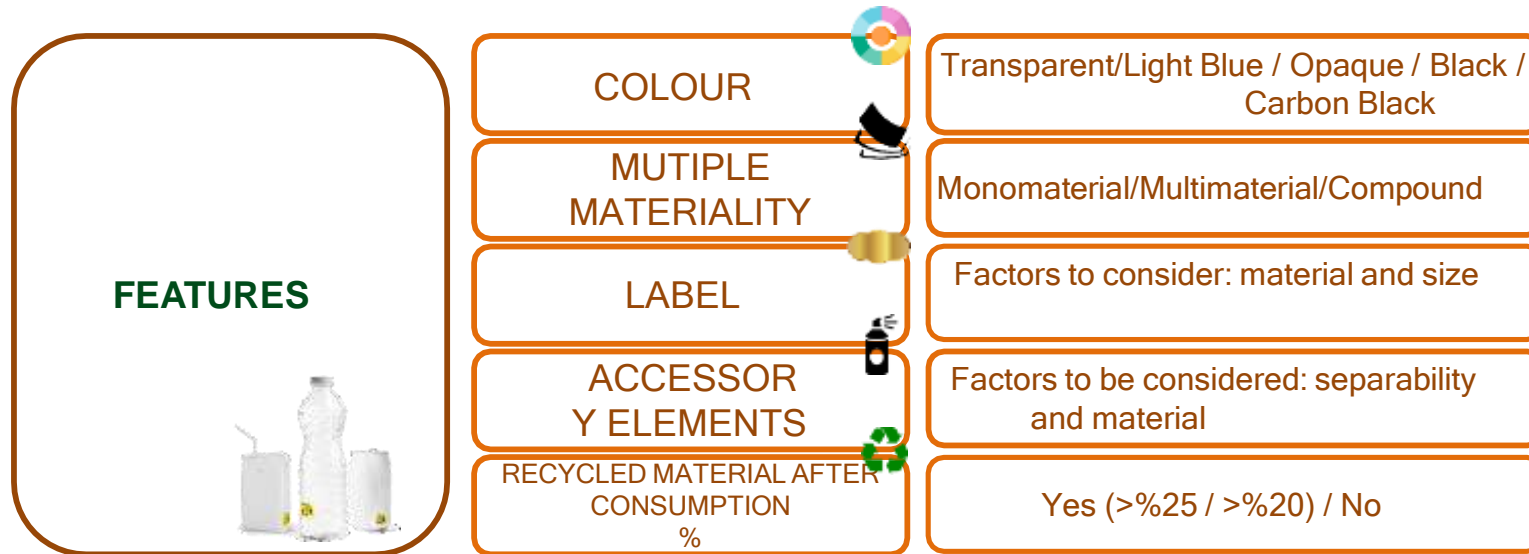


• Kapsamdaki Ürünler

- Plastik Poşetler
- Lastikler
- Akümülatörler
- Piller
- Madeni Yağlar
- Bitkisel Yağlar
- Elektrikli ve Elektronik Eşyalar
- İlaçlar
- Ambalajlar
 - İçecek Ambalajları
 - Diğer Ambalajlar

Good Practice Example / Spain

Technical characteristics of the model



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

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.**

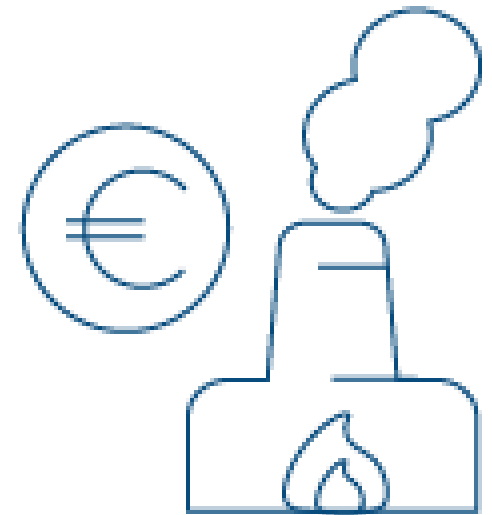
Good Practice Example / FRANCE

BONUSES		PENALTIES	
Consumer awareness On-pack sorting instructions 8%	Packaging actions Reduction (weight, volumes, refills) Recyclability actions (monomat�riel) 8%	Recycling disruptors Packaging disrupting sorting or recycling process (glass packaging with ceramic cap; PET bottles with aluminium or PVC)	Packaging with no route Packaging with no recycling route (plastic bottles other than PET, HDPE or PP) or recovery route (other than soda-lime glass)
Off-pack sorting instructions 4%	Publication in best practices catalogue 4%	50%	100%
Up to 12%		Up to 12%	
Up to 24%			

FLAT WATER BOTTLE 1.5 L plastic	OIL BOTTLE 75 cl glass	CAN 33 cl steel
<p>1994 47g. 2012 28g.</p> <p>- 40%</p>	<p>1994 545g. 2012 418g.</p> <p>- 23%</p>	<p>1994 31g. 2012 25.5g.</p> <p>- 18%</p>

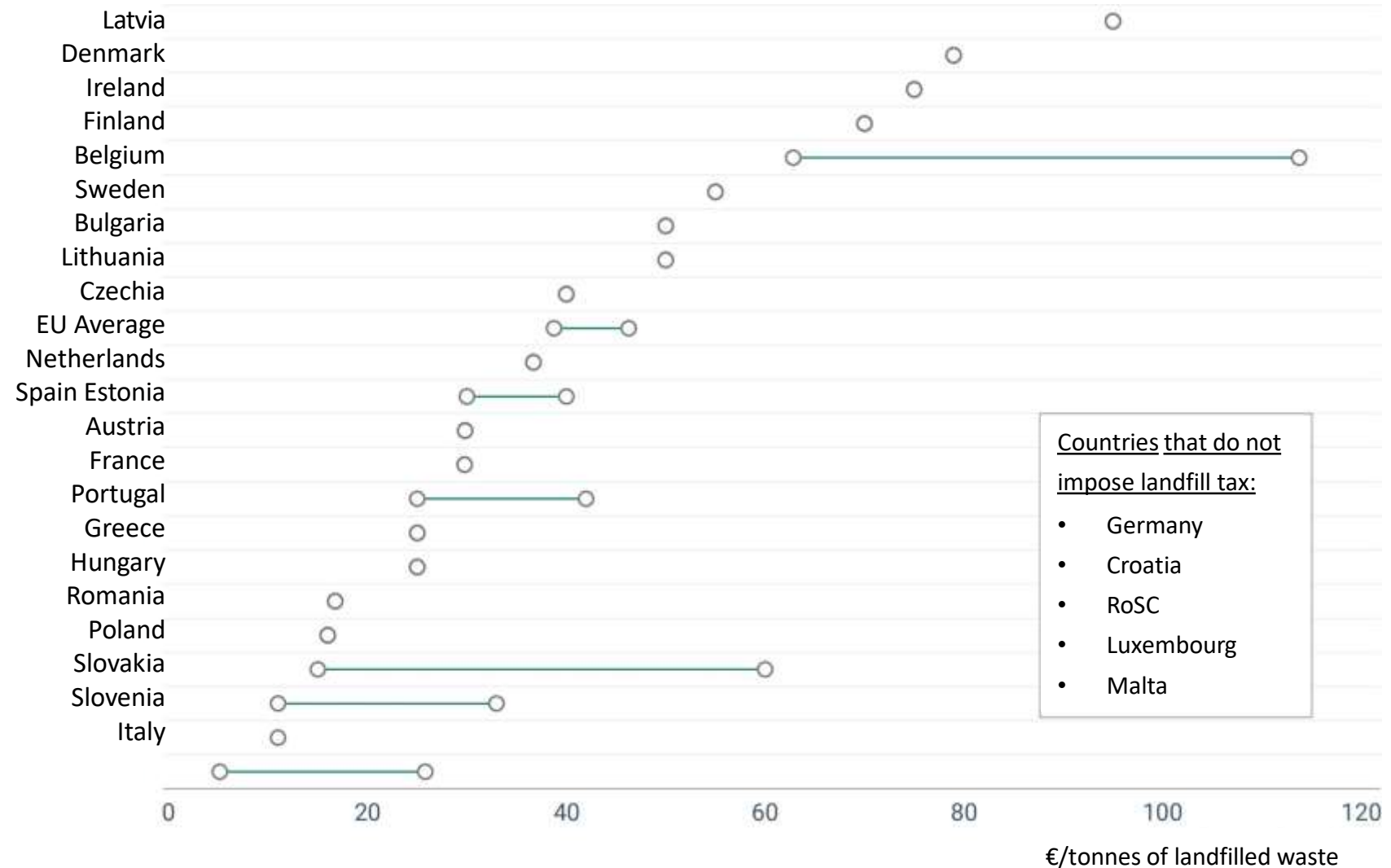
Landfill / Waste Incineration Taxes

- EU Landfill Directive (1999/31/EC) and Waste Incineration Directive (2000/76/EC), which set standards for landfilling and incineration
- **Landfill taxes:**
 - A tax levied on the landfilling of certain waste.
 - This is intended to make the landfilling of waste more expensive and thus make recycling and waste prevention more competitive,
 - It aims to incentivise pre-treatment and/or generate income that can be invested in better
 - waste management.
- Landfill taxes are currently applied in 22 EU Member States.
- **Waste incineration taxes**, re levied on the incineration of certain wastes in order to make it more expensive to incinerate them
- Waste incineration taxes a and thus make recycling and prevention more competitive.
- Sometimes it is set to a lower level when using combustion with energy recovery compared to when using combustion without energy recovery.



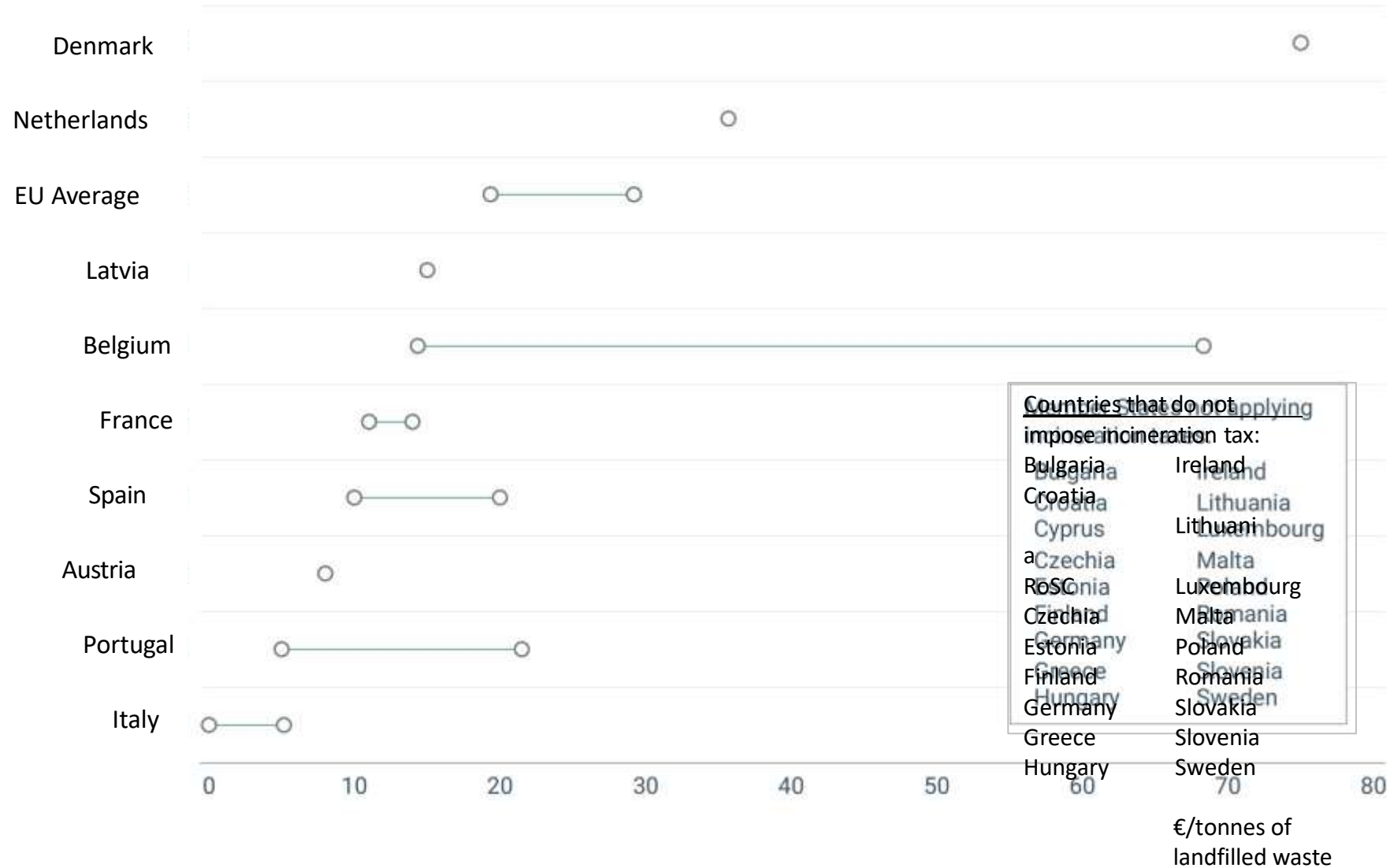
Landfill Tax (2023)

- 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 bans

Regulatory instrument used in combination with landfill taxes.

It is applied for different waste types in member states:

- Belgium, Estonia, Hungary, Lithuania, Luxembourg, the Netherlands, Slovakia (from 2024) and Slovenia ban the landfilling of **untreated municipal waste**.
- Belgium, Czechia, Denmark, Finland, Slovenia and Sweden **ban the landfilling of biological waste**;
- Austria, Germany, Luxembourg and Slovenia ban the landfilling of **waste exceeding a certain total organic carbon value**.
- Poland and Sweden ban the landfilling of **combustible waste** and Czechia (from 2030) bans the landfilling of waste **exceeding a certain calorific value**.
- RoSC, Czechia, France, Malta and Slovenia **ban the landfilling of separately collected recyclables** and Latvia (from 2030) bans the landfilling of **recyclable waste**;
- Poland bans the landfilling of **separately collected biological waste**.

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-d1e33790-9f0953c549>



ITALY

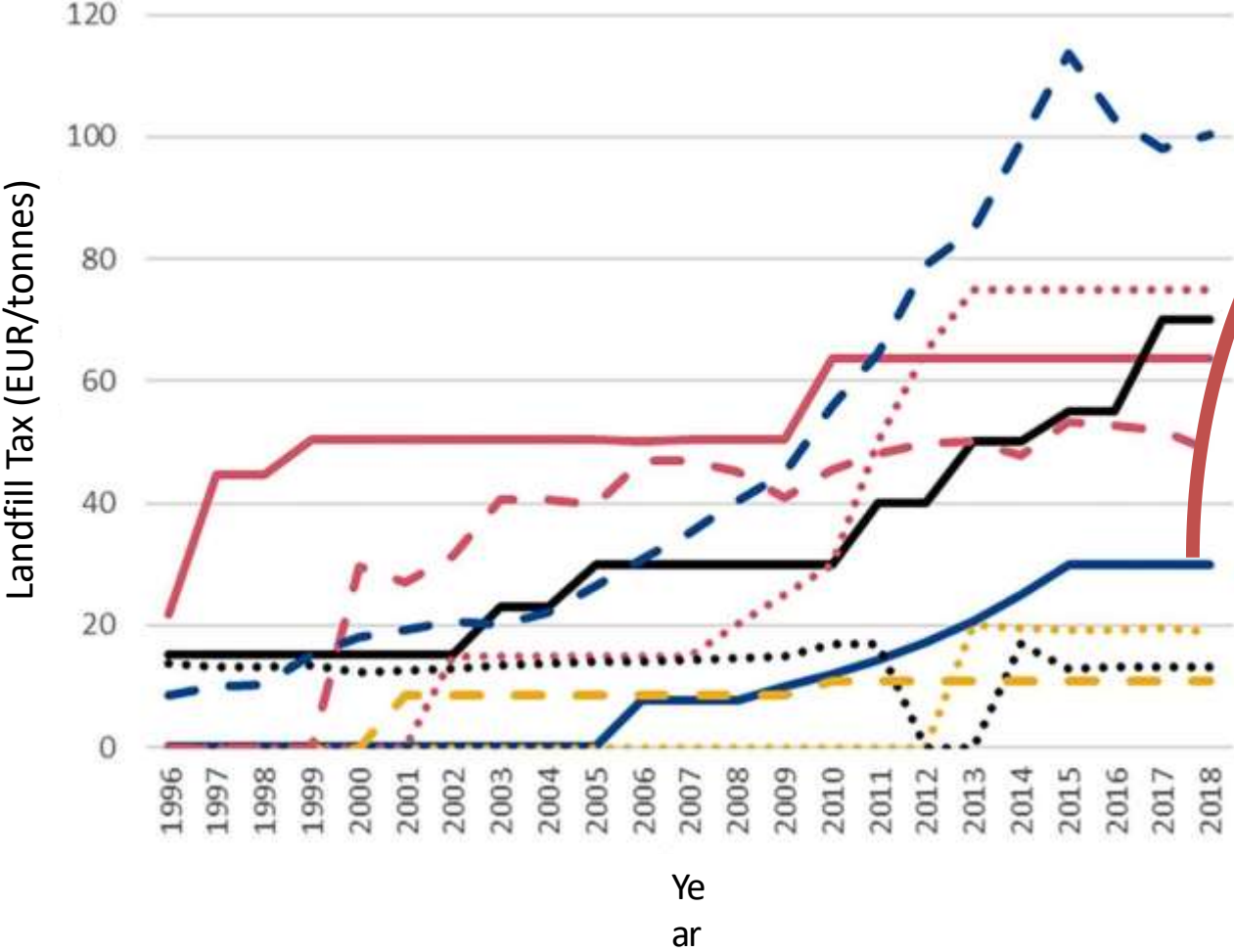
- **Tax rate:** 5,17-25,82 EUR/tonne
- **Taxpayer:** Landfill operators
- **Revenue:** Regional and Local Governments
- **Tax refund:** A gradual refund of 30-70% if the 65% separate collection at source target is exceeded



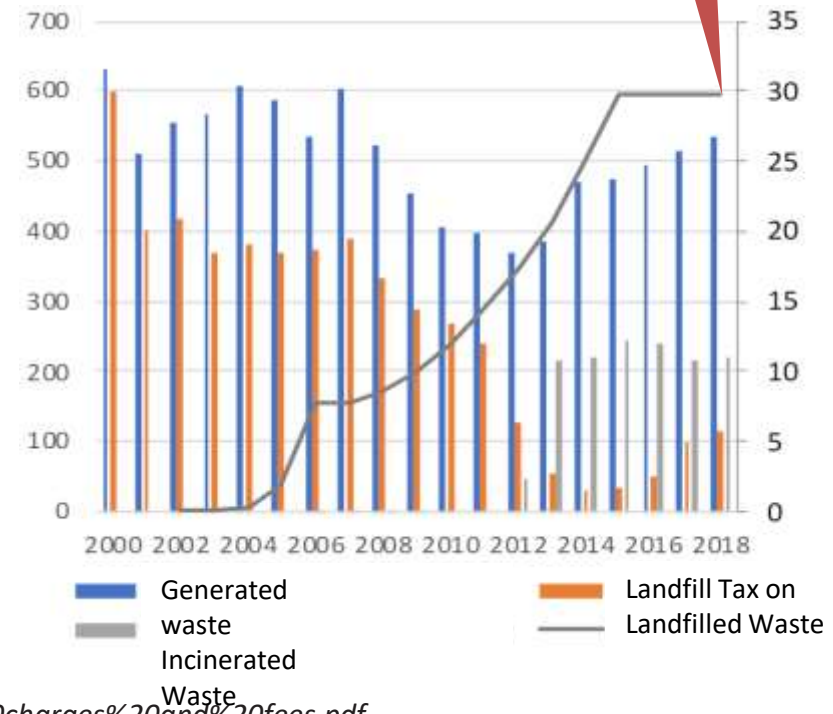
UK

- **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 Tax



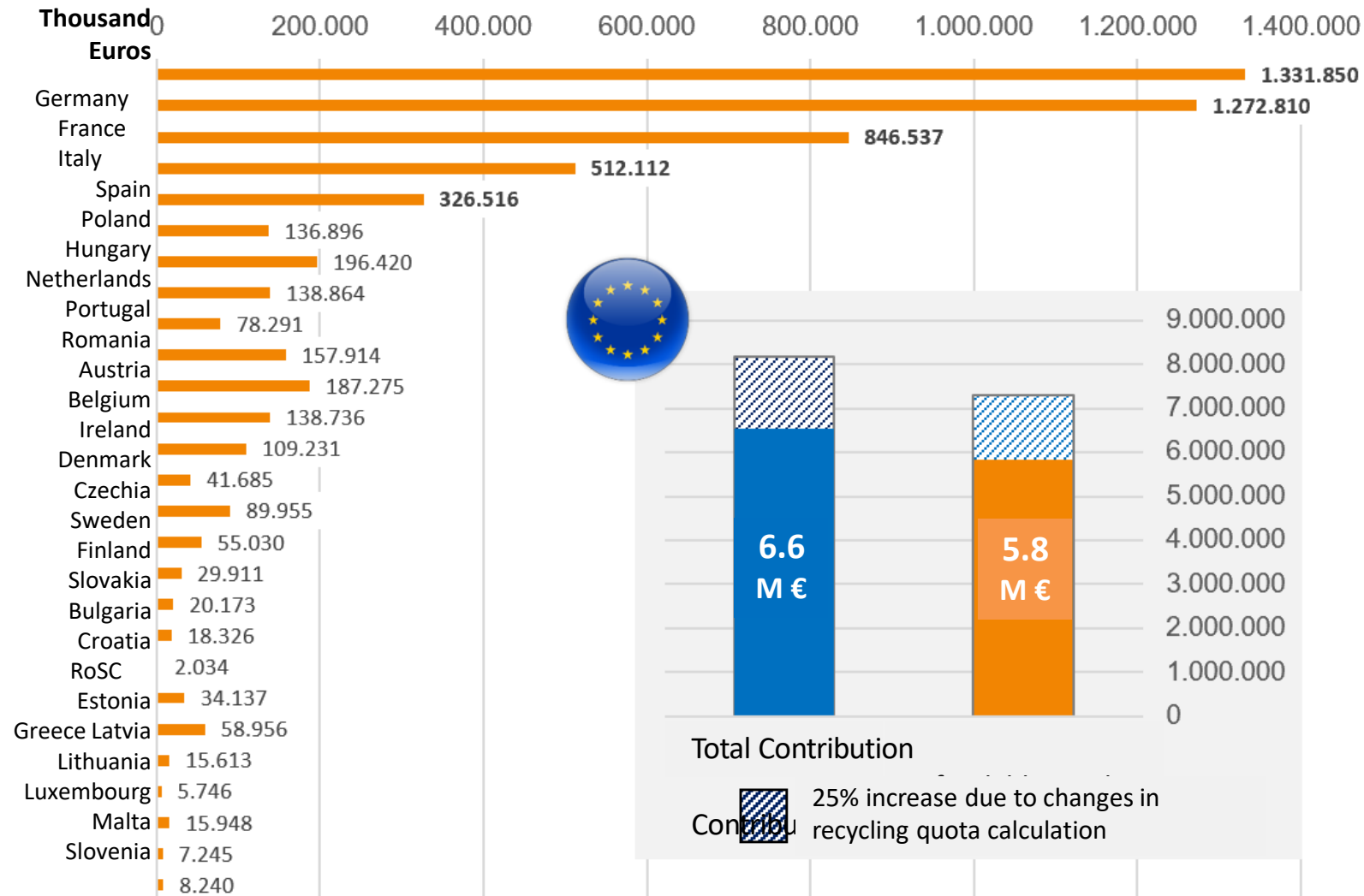
- Denmark
- Estonia**
- Finland
- Hungary
- Ireland
- Netherlands
- Slovenia
- Sweden
- United Kingdom



Source: <https://www.sciencedirect.com/science/article/pii/S0956053X23002659>
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/legal-content/EN/TXT/PDF/?uri=CELEX:32020D0519>

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



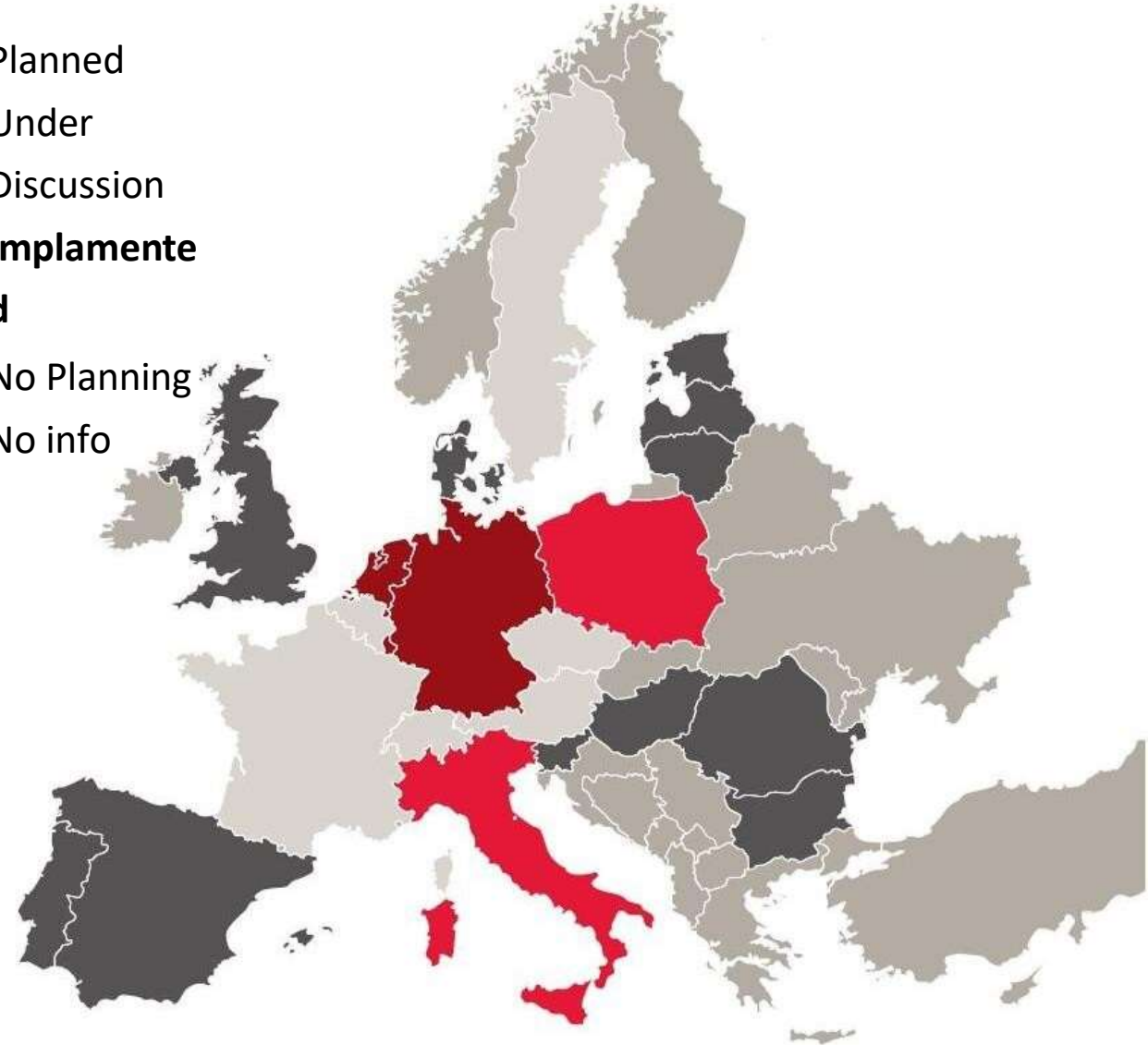
SPAIN (2023)

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



ITALY (2024)

- **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



Environmental Tax

TR

2464 numbered Municipal Revenues Law

- Repeated Article 44

Residential, business and other buildings within the municipal boundaries and adjacent areas and benefiting from the environmental cleaning services of the municipalities are subject to environmental cleaning tax.

The prices are updated every year. The prices for 2024 were published with the **General Communiqué on Municipal Income Law (Serial No: 57)**.

Environmental cleaning tax for residences is calculated as 2.30 TL for metropolitan municipalities and 1.70 TL for other municipalities per cubic metre based on the amount of water consumption (2024).

Collection and Transfer:

Water and sewerage administrations transfer 80% to the municipality until the evening of the twentieth day of the month following the collection. The remaining 20% shall be transferred to the account of the metropolitan municipality to be used exclusively for the establishment and operation of waste disposal facilities until the evening of the twentieth day of the month following the collection. The 20% of the environmental cleaning tax collected by the municipalities within the borders of metropolitan municipalities shall be transferred to metropolitan municipalities within the framework of the same principles.



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.

➤ Different PAYT programs implemented throughout the EU:

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).

Pay As You Throw (PAYT) systems across the EU

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

		Type of PAYT system in place		
		Mixed advanced/basic	Basic	No PAYT
Population coverage of the PAYT system	High	Austria Belgium Croatia Ireland Slovenia	Finland Hungary Sweden	
	Medium	Denmark Lithuania Luxembourg Romania	Estonia	
	Low	Czechia Germany France Netherlands Slovakia	Spain Italy	
Plans for implementation of PAYT				Cyprus Greece Malta
No plans for implementing PAYT				Latvia Poland Portugal

Note: No information was available for Bulgaria. Poland applies a PAYT system to only non-household waste producers. Further details are provided in the Technical note.

Source: Compiled by the ETC CE based on the EEA early warning assessments related to the 2025 targets for municipal waste and packaging waste (EEA and ETC CE, 2022).

Source:
<https://www.eea.europa.eu/publications/economic-instruments-and-separate-collection>

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.

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)

- 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)

Tariff Types (Article 20)

- Variable tariff (calculation of the producer's waste quantity according to Article 18)
- Fixed tariff (where the waste producer cannot influence the quantity of waste)

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

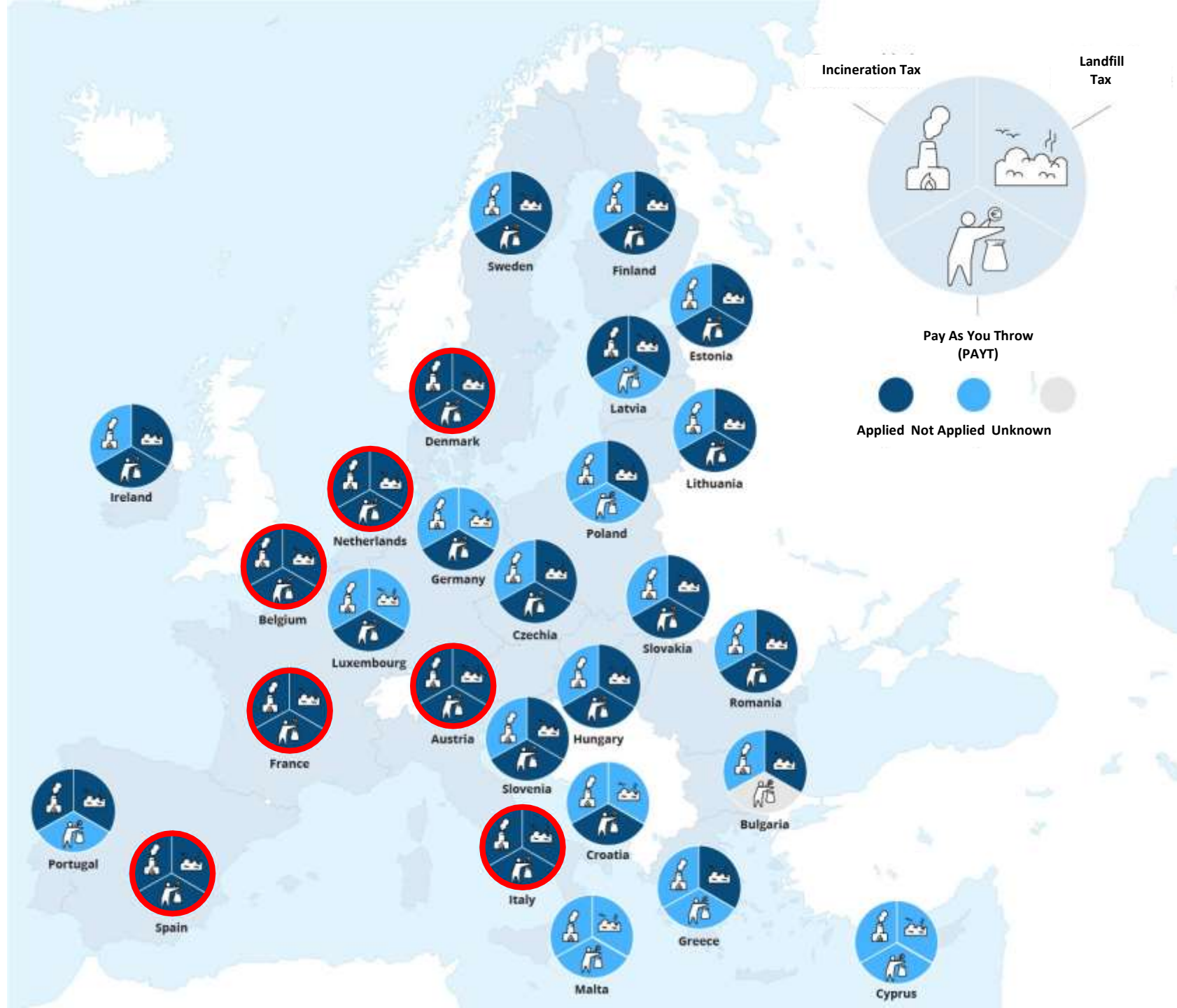
Combined Use of Landfill Tax, Incineration Tax, Pay-As-You-Throw

Use of Applications Together(2023)

"A consistent and stable combination of economic instruments is needed for high recycling rates and landfill reduction."

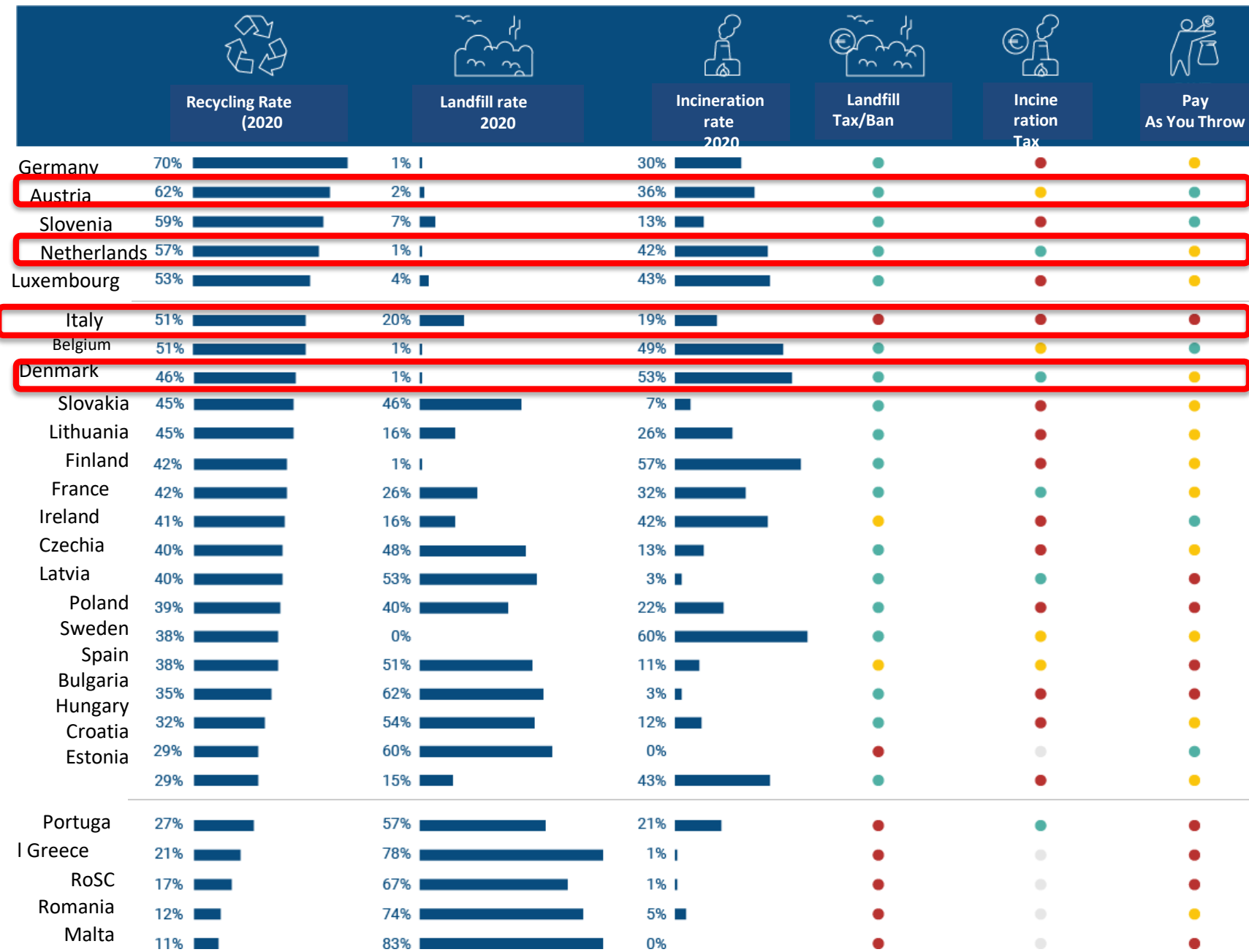
Source:

<https://www.eea.europa.eu/publications/economic-instruments-and-separate-collection>



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

- Powerfully designed
- Poorly designed, no implementation or no information
- Medium-level design of the instrument
- No incineration plant



Source: <https://www.eea.europa.eu/publications/economic-instruments-and-separate-collection>



Conclusions

- There is no single approach to achieve high recycling rates and diversion of waste from landfill.
- There is a need to use a consistent and stable combination of economic instruments.
- The effectiveness of economic instruments depends on how they are designed, implemented and enforced.



This project is co-funded by the European Union and the Republic of Türkiye

Thanks for your attention.



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