Separate waste collection

A Policy Brief from the Policy Learning Platform on Environment and resource efficiency

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Summary

The European Union (EU) is aiming to reduce the environmental impact of waste and its dependency on raw material imports and thus strongly fosters the transition towards more sustainable materials management and a circular economy. To this end, the EU is progressively increasing the targets for re-use and recycling of municipal waste to channel economically valuable waste materials back into the European economy and to protect both human health and the environment.

Separate collection of waste is a pre-requisite for achieving the ambitious European targets. Implementing separate collection schemes offers many opportunities for municipalities and regions but also represents challenges. Exchanging knowledge and experience about successful approaches is thus of utmost importance.

This policy brief provides guidance and recommendations for the separate collection of paper and packaging waste, waste electrical and electronic equipment (WEEE) and used textiles backed by a wealth of good practices and real-life examples from policy makers across Europe. Inspiring examples are not only stemming from Northern countries that are usually seen as European recycling champions but also feature good practices from Bulgaria, Cyprus, Poland, Portugal, Spain and many more.

Separate collection

The revised Waste Framework Directive[1] makes a strong point that separate waste collection is a pre-requisite *"to avoid waste treatment which locks in resources at the lower levels of the waste hierarchy, increase preparing for re-use and recycling rates, enable high-quality recycling and boost the uptake of quality secondary raw materials…"*.

Since 2015, Member States are obliged to set up separate collection at source for *at least* paper, metal, plastic and glass waste. They are also required to meet ambitious collection targets for WEEE since 2019 whilst the separate collection of textiles will become obligatory on 1 January 2025.

Separate collection could be achieved through door-to-door collection, 'bring and reception' systems or other collection arrangements. The collection and transport of waste may include the use of e.g. bins, containers, refuse collection and transport vehicles, ancillary technological equipment and IT systems, reverse vending machines and other forms of take-back systems, services useful to separate waste collection (i.e. information campaigns, waste advisers) as well as related infrastructure such as civic amenity centres, temporary storage and transfer facilities.[2]

Image Source: Astrid Severin

Assessing the true costs of separate collection

The revised Waste Framework Directive also calls upon Member States to take the overall economic benefits of separate collection into account when assessing the costs. The benefits include the avoidance of direct costs and costs of adverse environmental and health impacts associated with the collection and treatment of mixed waste. Moreover, revenues can be achieved through sales of secondary raw materials and the possibility to develop markets for such materials, as well as

[1] Directive (EU) 2018/851 of 30 May 2018 amending Directive 2008/98/EC on waste
[2] Financing a Sustainable European Economy, Taxonomy Report, Technical Annex, P. 301, March 2020

contributions by waste producers and producers of products, which could further improve the cost-efficiency of waste management systems.

Extended producer responsibility

Extended producer responsibility (EPR) schemes imply that producers take over the financial and/or organisational responsibility for collecting or taking back used goods, as well as sorting and treating their recycling. The Waste Framework Directive sets principles regarding the implementation of EPR schemes in Member States. Three product stream-specific directives (end-of-life vehicles, batteries and accumulators, waste electrical and electronic goods) introduce EPR as a policy approach. It is also used for packaging and other waste streams at varying levels in Member States. According to the Commission and stakeholders, EPR schemes are the main driver for reaching the targets set in the Packaging Directive.

Although EPR is in theory an individual obligation, in practice producers often exert this responsibility collectively through 'producer responsibility organisations' (PROs). A report[3] published in 2014 by the European Commission looks at differences in performance between PROs across Member States and six waste streams. It concludes that, in most cases, the best performing schemes are not the most expensive ones, and that no single EPR model emerges as the best performing and the most cost-effective.

Pay-As-You-Throw

Pay-As-You-Throw (PAYT) schemes are interesting policy instruments to achieve a reduction of residual waste and to create incentives for increased recycling and composting.

PAYT schemes are variable fee structures based on the weight or volume of the waste generated targeting household waste at its very source and making households responsible for the quantity of waste discarded.[4] They are generally driven by the need, or desire, to reduce the generation of waste, and in particular residual waste, as well as increasing waste sorting at household level. The schemes use different mechanisms and rates, but all systems aim to dis-incentivise the use of containers for residual waste and encourage separate collection.

COLLECTORS
WASTE COLLECTION SYSTEMS ASSESSED AND GOOD PRACTICES IDENTIFIED

The Horizon2020 project COLLECTORS aimed at harmonising and disclosing available information on different waste collection systems for Paper and packaging waste (PPW), Waste electrical and electronic equipment (WEEE) and Construction and demolition waste (CDW).

The project sheds light on the overall performance of the collection systems and provides practical tools to decision-makers that are keen to shift to better-performing systems. The website features an inventory of waste collection practices, 12 case studies, implementation guidelines for the collection of the three waste streams and a set of policy recommendations focussing on the following 6 topics:

1. Clarification and harmonisation of separation guidelines for paper and packaging waste for a better communication and a more consistent mining of secondary raw materials
2. Local collection of WEEE to improve source separation and quality, and allow high quality recycling and re-use
3. Modulation of EPR fees for packaging waste and WEEE
4. Knowledge and data availability for more alignment along the value chain, better informed local experts, and more consistent comparisons
5. Better recycling of construction and demolition waste
6. Economic relevance of higher recycling performances.

https://www.collectors2020.eu

[3] EPRS European Parliamentary Research Service, PE 614.766
[4] Cross-analysis of 'Pay-As-You-Throw' schemes in selected EU municipalities, Executive Summary, ACR+, Brussels, May 2016

PAYT schemes are widely applicable and are already used in many European countries though the level of implementation of these schemes varies greatly by country and within countries. Those areas which have introduced PAYT have seen an increase in recycling and a reduction in residual waste when compared to neighbouring regions with flat fees for waste services.[5] It was found that all countries with recycling rates above 45% employ a similar system of sorts, and in contrast most countries with recycling rates below 20% do not use them.

Innovative tariffication

In June 2020, the WINPOL project featured several case studies on innovative tariffication for separate waste collection during an online thematic seminar:

- The PAYT pilot project for large hotels led by the **Municipality of Hersonissos** in Crete (GR) showed encouraging first results and great willingness of the stakeholders involved. However, it also underlined that PAYT schemes might be complicated to implement without a national legal framework that allows treatment costs to be reduced based on a proper sorting at source.
- The case of **Limburg** (BE) showed that a transparent, fair, stable and affordable waste management invoice could be implemented. For the Belgian Inter-municipality this means that all real costs should be covered based on a system of “direct charge” including all fixed costs and a portion of variable costs.
- A fair tax, coupled with an objective of waste prevention, is also behind the model developed by **Argentona** (ES) since 2010. The use of prepaid bags, first for residual and light packaging waste then only for residual waste, has been gradually improved to reach impressive results. The separate collection rate jumped from 52.8% in 2008 to 87.6% in 2018.
- The town of **Seveso** (IT) moved from PAYT to KAYT (Know-as-you-throw) to provide users with individual, detailed and frequent feedback (both positive and negative) on their habits. This use of big data may be a key motivator for achieving better results with or as an alternative to PAYT.
- EMULSA, waste operator of the city of **Gijón** (ES), presented a way of collecting data by installing electronic locks on over 1,300 waste containers (mainly for residual waste). Even though some aspects such as littering and vandalism might still need to be improved, the use of this technology helps understanding waste deposit patterns and contributes to boost proper source separate collection and to reduce recyclables percentage in the residual waste stream.

Further information about the online thematic seminar and all presentation are available here.
For more PAYT and KAYT examples and inspiration check out the catalogue on www.rethinkwaste.eu.
Image Source: WINPOL

[5] Pay-As-You-Throw schemes in the Benelux countries, Daniel Card (Eunomia) and Jean-Pierre Schweitzer (IEEP), Dec 2016

Awareness and information campaigns

Citizens play a key role for reuse and waste prevention as well as for ensuring separate collection of waste at the targeted quantity and quality levels. To achieve high participation levels, regions and municipalities have to inform, educate and motivate citizens on regular basis. To this end, communication strategies tailored to the general public and specific target groups should be developed and implemented. Communication campaigns can use a wide range of channels comprising TV, radio, print and social media, advertising (also on the waste trucks and bins), education and training programmes, awards and school competitions.

Well-designed communication and awareness-raising campaigns can have a substantial impact on separate collection as the LIFE KNOW WASTE project demonstrated in Cyprus. Following the awareness-raising project, an increased percentage of the population indicated to have changed behaviour towards more reuse and recycling. Indeed, the recycling rate in Cyprus had increased from 44% (2013) to 59% in 2017. Another study in Catalonia also attributed a probable uplift (17.9%) in separate collection to awareness campaigns.[6]

Image Source: Katharina Krell

'Not separating kills' – Cigarette pack style warning on waste collection containers in Southern France

Data collection

As the City of Antwerp has pointed out for the WINPOL good practice 'Waste management data warehouse' (see next page), separate waste collection services generate large volumes of data. In many municipalities, these data are often still collected in a fragmented, non-standardised way that does not allow linking, sharing, comparing and cross-referencing. As a result, policy-decisions cannot be driven, supported or facilitated by data.

Today, Antwerp's data warehouse allows the City to be more efficient by optimising waste collection routes, improving the planning of resources (people, vehicles), reducing service costs and minimising fuel consumption and incidents. Moreover, as the City gets more insight into the operations of its data suppliers, it can allocate costs more accurately and create more transparency towards its stakeholders.

For Antwerp, the key success factors that can be used as an inspirational benchmark for other regions are:

- Improved data quality;
- Data supply to improve operations;
- Better insight into costs;
- Increased financial control;
- No more stand-alone systems;
- Dynamic dashboards.

[6] The role of awareness campaigns in the improvement of separate collection rates of municipal waste among university students: A Causal Chain Approach, Òscar Saladié and Raquel Santos-Lacueva, 2016

Waste management data warehouse (Belgium)

The City of Antwerp has implemented a data warehouse to address the lack of guidelines and overall policy to collect waste data in a standardised way. The trigger for introducing a data warehouse was the fragmented internal data landscape, the limited access to waste data and the limited data sharing between systems. Antwerp also aimed to make better use of the enormous amount of waste data available to increase insights in waste management processes and improve the waste policy of the municipality. At the same time, waste management data can now be shared with relevant stakeholders and thus the transparency of waste management has increased substantially. The main stakeholders involved are local policy makers, local administration, waste processing companies, citizens and researchers.

For the new waste data warehouse, all types of data are collected and stored in a standardised way including historical, geographical and real-time data such as sensor data. Moreover, a Geographical Information System (GIS) allows the analysis in visual dashboards.

Further information about the practice is available here.
Image Source: Photo by **Markus Spiske** from **Pexels**

Operating Aid System (SAE) and waste collection weighing (Spain)

EMULSA, the Municipal Company of Urban Environment Services of Gijon developed an information system that allows the company to obtain and evaluate data about its waste collection system and to take control over the weight of waste collected.

The project was implemented in two phases starting with an operating aid system to monitor the position of the waste vehicles and to locate all containers in real time. With the technology installed on board of the collection vehicles, the company now receives data about the routes that trucks have completed including kilometres, working hours, speed or irregular manoeuvres as well as the containers that have been collected or washed. In a second phase, weighing systems have been added in three trucks to understand the weight that trucks are collecting in real time. The information obtained through the new systems allows the company to better plan its services and to optimise the collection of waste whilst at the same time substantially reducing the risks of overweight or underuse of the trucks.

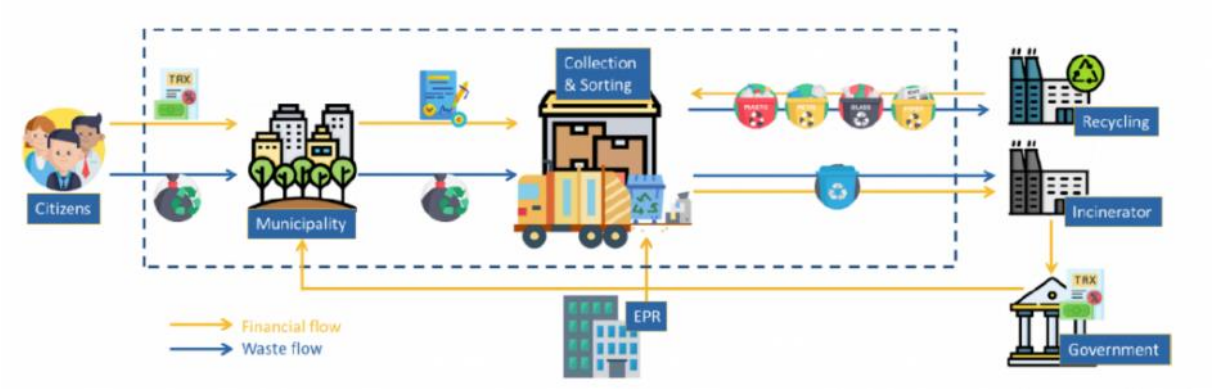
Further information about the practice is available here.
Image Source: www.gijon.es/es/directorio/empresa-municipal-de-servicios-de-medio-ambiente-urbano-de-gijon-sa-emulsa

Paper and packaging waste

Measured by weight, paper and packaging account for over 3% of all waste generated in the EU. Packaging is made up of paper and cardboard (41%), plastic (19%), glass (19%), wood (16%) and metal (5%). In 2016, 67% of packaging was recycled in the EU-28, although there are wide variations in recycling rates across Member States and for specific materials e.g. 85% for paper and cardboard packaging, 74% for glass packaging and 42% for plastic packaging.

Glass

Unlike most other food and beverage packaging options, glass is 100% recyclable and can be recycled endlessly without loss in quality or purity.[7] Glass should be collected as mono-stream material[8], preferentially with colour differentiation as it tends to retain its colour after recycling. The most common types used for consumer containers are clear glass, green glass, and brown (amber) glass. Whilst mono-stream collection is more demanding for consumers, it provides at the same time a better image to the public than the collection of glass together with mixed waste which is perceived as glass not being recycled. In addition, mono-stream collection achieves higher overall recycling rates as the amount of non-glass is significantly lower, making it thus easier to process and remove the lids, labels, foils, ceramics and any other impurities.



Source: www.collectors.eu

Paper and cardboard

The life cycle of wastepaper and cardboard is not eternal as the quality of the material diminishes with each treatment. After five to seven reuses the material has reached its useful end, and so for this reason new paper fibres are added each time. To maximise the recycling rate, the Confederation of the European Paper Industries (CEPI) recommends that paper and board should be collected at source separately from residual waste and from other “dry” recyclables such as plastic and glass. The separate collection increases the homogeneity of the streams, and thus secures the good quality of the material as well as a high economic and environmental value for those trading it.[9]

There are still quality issues to be addressed while maintaining the high levels achieved in the best-in-class collection systems. In 2018, the Horizon 2020 IMPACTPAPEREC project developed a ‘Good and Best Practice Handbook for the Collection of Paper and Board for Recycling’[10] which contains a wide range of case studies on paper and cardboard collection.

[7] Glass Packaging Institute - http://www.gpi.org/recycling/glass-recycling-facts
[8] Please note that this Policy Brief is not discussing deposit return system for refillable glass bottles or one-way beverage containers.
[9] CEPI, European paper industry position on separate collection, 9 October 2018
[10] Good and Best Practice Handbook for the Collection of Paper and Board for Recycling, IMPACTPAPEREC, Version 4.0, January 2018

Beverage cartons

Multi-layered paper packaging products such as beverage cartons should be collected separately from paper and board with other recyclables such as the lightweight packaging stream (plastic packaging). In this way, they can be sorted and recycled in dedicated mills.

The Alliance for Beverage Cartons and the Environment (ACE)[11] explicitly welcomed the revision of the Packaging and Package Waste Directive and the introduction of separate collection of packaging waste with a view to increase the recycling performance across Europe.

Plastic waste

As outlined in the European Commission's Strategy on Plastics in a Circular Economy[12], the implementation of the separate collection requirements as set by the EU legislation, is a pre-requisite to achieve a circular economy for the plastics industry. Regardless of the homogeneity of plastic waste, collection schemes have a particularly important influence on all the subsequent steps of the recycling chain. In certain cases, separate collection should be complemented or replaced by deposit schemes.

According to Deloitte Sustainability's 2019[13] report, when it comes to the collection rates for plastics waste the top performers are Slovenia (69%), Bulgaria (64%) and the Czech Republic (58%) in 2014. The five biggest generators (Germany, United Kingdom, Italy, France, Spain) of plastic waste are still far from reaching similar rates. However, even these high collection rates still need to improve substantially in order to achieve the 2025 recycling targets. Due to the legislation on landfilling which calls for less than 10% by 2030 and due to a significant reduction of extra-EU exports, the report estimates that a 88% collection rate needs to be applied to all resins and shapes to achieve the targets.

INTHERWASTE
Interreg Europe

Krakow (Poland) inspired by separate collection systems in Porto (Portugal)

The historic City of Porto has a very heterogeneous structure and the waste management services have developed an integrated system that responds to the particularities of different urban districts and users. Whilst specific door-to-door selective collection systems have been implemented for businesses, households and visitors have been served with various types of street bins. The predominant type of street bin are underground containers but also semi-underground containers and surface bins are being used. The city is now also studying the possibilities for adding a door-to-door selective collection system for household waste.

The City of Krakow, also partner of the INTHERWASTE project, was inspired by Porto's good practice of separate waste collection systems. At the end of 2018, the City Council changed the local law 'The regulations in maintaining cleanliness and order in the Municipality of Krakow', to include the possibility of collecting waste through underground containers equipped with a hydraulic platform or electric device and semi-underground containers that can be emptied vehicles with a hydraulic crane.

Further information about the practice is available here.
Image Source: https://www.interregeurope.eu/intherwaste

[11] Alliance for Beverage Cartons and the Environment (ACE), *www.ace.be/*
[12] European Commission, A European Stratgey for Plastics in a Circular Economy, COM (2018) 28 final, 16 January 2018
[13] Deloitte Sustainability-Plastics Recyclers Europe, Blueprint for plastics packaging waste: Quality sorting & recycling, Final Report, 2019

Waste electrical and electronic equipment (WEEE)

European experts are estimating that the fast-growing stream of **waste electrical and electronic equipment (WEEE)** will have climbed to 12 million tons in 2020[14]. The dominant product categories of electrical and electronic equipment put onto the European market in 2017 are large household appliances (over 50%), followed by IT and telecommunication equipment, small household appliances and consumer equipment, each hovering around the 10% mark.

A valuable waste stream

This waste stream contains a complex mixture of materials. It often includes some hazardous content that needs to be managed properly in order to avoid major environmental and health problems. WEEE also contains many high value and critical raw materials. e.g. around 10% of total gold worldwide is used for the production of modern electronics. Discarding WEEE materials thus also represents significant financial losses for the European economy. It is estimated that the overall potential revenues from WEEE recycling in the EU could amount to € 2.15-3.67 billion by 2020.

These are good reasons for diverting WEEE from landfill, illegal export or simply from the household waste bin. The WEEE Directive[15] sets clear objectives to boost the rates of separate collection and recycling of WEEE and requires each Member State to meet a collection target of 65 % of equipment sold or 85 % of electronic waste generated from 2019.

CircE
Interreg Europe

Extension of WEEE collection (Italy)

Cem Ambiente is a waste management company, owned by 49 municipalities in Lombardy, with 40 collection facilities. With the WEEE extension project, the municipalities aspired to enable the collection of WEEE from private households. The project allowed to analyse and overcome the bureaucratic and operational hurdles related to the authorisation of household WEEE collection. To this end, meetings with local authorities and municipalities were organised to review the required documentation, explain the subject and the new types of collection. As a result, the collection facilities managed by CEM Ambiente are now collecting WEEE from private households. The project aim has thus been reached and the collection facilities offer a more complete service to citizens and distributors.

Further information about the practice is available here.
Image credit: Sistema Nazionale per la Protezione dell'Ambiente

[14] Report on the implementation of EU waste legislation, inlcuding the early warning report for Member States at risk of missing the 2020 preparation of reuse/recycling target on municipal waste, COM(2018) 656 final
[15] Directive 2012/19/EU on waste electrical and electronic equipment (WEEE)

WEEE door-to-door collection (Bulgaria)

Sofia Municipality has contracted specialist recovery organisations to organise the separate collection of WEEE. The agreements do not require a financial commitment from the Municipality as the recovery organisations receive funds based on the EU's core principles "polluter pays" and "extended producer responsibility". The organisations perform their work in agreement with the members of the collective system, against payment of a fee for electrical and electronic equipment manufactured or imported into the territory of Bulgaria. Businesses and citizens can benefit from a free visit of a mobile unit at their residence that will collect old and non-working electrical appliances and provide all necessary documents attesting their legitimate recycling. The collection is organised by two private companies (Eltechresource and Ecobultex). The collected WEEE are then further processed for preliminary treatment, second use, recycling and/or recovery. The approach has been showing very promising results and in 2018, the collection companies managed to organise the preliminary treatment of 23,400 t.

Further information about the practice is available here.
Image credits: R4R Regions for Recycling

Today, Europe is not yet able to tap into the full potential of using these valuable resources as the implementation of separate collection and recycling achieving these is still lagging behind in many regions and countries. In its recent Circular Economy Action Plan[16], the European Commission outlines that **only 40% of electronic waste is recycled in the EU** and calls for improving the collection and recycling of waste electrical & electronic equipment as a crucial element for establishing a circular economy.

Nevertheless, the Commission also recognizes that Europe has already come a long way when it comes to WEEE and concludes: *"Overall, EU Member States have made altogether a remarkable progress in WEEE collection since the adoption of the WEEE Directive. … To reach the ambitious target, it is more valid than ever that "each WEEE matters" and hence there is a strong need to intensify collection networks, awareness raising programs and to address leakage from monitored WEEE flows."* [17] Already in 2017, Austria (62.4 %) and Hungary (60.6 %) came close the 2019 target of 65 % collection rate for WEEE, and three Member States had even surpassed it: Estonia (81.9 %), Croatia (81.6 %) and Bulgaria (79.4 %).

Image Source: www.biancoebruno.it

[16] A new Circular Economy Action Plan for a cleaner and more competitive Europe, COM/2020/98 final
[17] WEEE compliance promotion exercise, BiPRO in cooperation with Deloitte (21 December 2017)

Successful approaches for WEEE collection schemes

Several Member States are thus leading the way and can feature successful approaches for WEEE collection schemes that can inspire others. Bulgaria's high performance for example can be attributed to a mix of different measures that have led to the success of the Bulgarian scheme including collection of historic WEEE, a mandatory budget to be spent on awareness-raising campaigns and door-to-door collection offered free of charge (see good practice of Interreg Europe project CIRCE).

Inspiration comes also from the WEEE compliance promotion exercise that the European Commission conducted in 2017. The compliance report produced recommendations applicable to all Member States, and country-specific advice for certain Member States. It also highlights a number of good practices that are addressing issues with regard to WEEE collection:

- **To address reporting issues** e.g. by inspecting and teaching waste metal handlers in Estonia, or by making reporting an obligation in the agreements with French producer responsibility organisations (PRO)
- **To boost the collection networks** e.g. a high number of free municipality collection points in Germany, or the 'zero for one take back' offered by many Irish electrical retailers
- **To increase consumer awareness** e.g. through TV promotion in Lithuania; collection days in remote Irish communities; the obligation for Portuguese PROs to invest 3% of annual revenue in awareness raising; through competitions for consumers and schools (see box E-Waste race in the Netherlands).

Another inspiring example is coming from Lombardy region in Italy where they are still struggling to achieve the ambitious WEEE targets. In 2018, a new WEEE recovery facility has been added to the Bollate Prison in Milan as a result of the cooperation of the Lombardy region, the Regional Penitentiary Administration for Lombardy, and AMSA the company that manages the plant and trains the detained staff.

E-WASTE RACE

WEEE school competition in the Netherlands

In 2014, the Dutch entrepreneur Timmy de Vos initiated the E-Waste Race. School classes (10-12 years old children) compete against other schools to collect the most e-waste in their neighbourhoods. The school that collects the most e-waste wins a trip. The children engage in local awareness campaigns and are supported by an interactive website where neighbours can offer their e-waste to be collected by their local school.

In the pilot race, 7 schools managed to collect 14 tons of e-waste in only five weeks. Since then, 82 e-waste races with 823 teams from different schools took place and another 1.42 million devices have been collected. Each race collects about 14 tons of WEEE and saves a whooping 20 tons of CO2. Very impressive school kids!

For more information: https://www.ewasterace.nl/

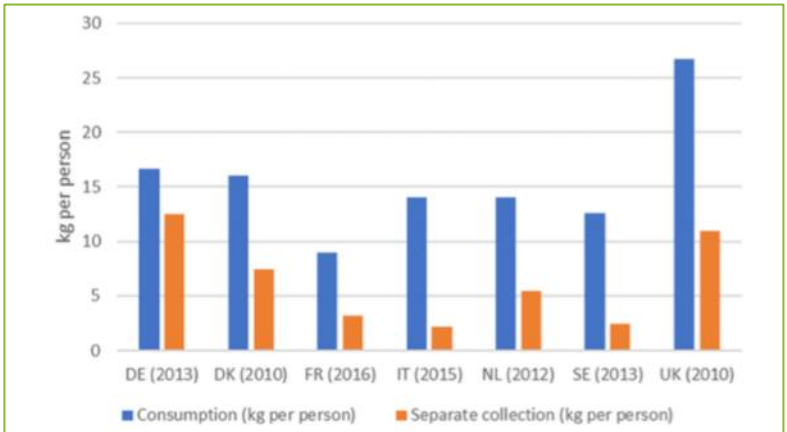
The WEEE recovery facility has the authorisation to treat 3,000 tons per year of electronic waste and currently employs 5 inmates, with the aim of increasing the number of people involved in the project in the near future. The project's objectives are twofold: to encourage the recovery of WEEE and to create job opportunities for disadvantaged people that facilitate their re-entry into legality and an active civil life.

Used textiles

Textiles are important for the functioning of our society. They provide us with clothing, shoes, carpets and curtains for homes, offices and public buildings. Worldwide, the textiles industry employs millions of people and it is also one of the largest industry sectors in Europe. In 2018, the EU textiles sector consisted of 171,000 companies, employing 1.7 million people and had a turnover of EUR 178 billion.[18]

However, textile production and consumption cause significant environmental, climate and social impacts by using resources, water, land and chemicals and emitting greenhouse gases and pollutants.

It is estimated that EU consumers discard about 5.8 million tons of textiles every year. The ratio between separate collection and consumption ranges from 11% in Italy to more than 70% in Germany.



Source: Watson et al. (2018)
Note: Figures for Denmark (DK), France (FR), Germany (DE) and the UK include footwear

The differences between countries can be partly explained by differences in infrastructure, such as the density of collection points and the intensity of collection activities by charity organisations and private actors. Traditionally, the collection of used textiles was dominated by charities along with some private actors. More recently however, voluntary take-back campaigns have been set up by larger retailers, and municipalities are also increasingly getting involved.

INTHERWASTE
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Separate collection of used clothing in Tallinn (Estonia)

Tallinn is the only municipality in Estonia with a network of containers to collect used clothing, shoes and also toys. 18 special containers have been installed by the non-profit organization MTÜ Riidepunkt. Another 23 containers were installed by Tallinn Waste Center, organised by Humana Estonia.

The clothing and shoes are sold in second-hand shops or donated to local charity organisations (homeless shelters, animal shelters, etc.). The 200l-containers are weatherproof, safe and very easy for everyone to use. The locations for the containers are chosen according to where they are presumed to be used most actively, e.g. next to the large supermarkets/shopping malls. Today, the collection containers have become very popular among citizens and the quantities collected with this system have increased almost three times in two years.

Further information about the case study is available here.
Image Source: www.interregeurope.eu/intherwaste/

[18] Source: Euratex

HUMANITA – Innovative textile recycling for Eastern Europe

Bulgaria has successfully implemented the HUMANITA textile collection system in the 10 biggest cities of the country. Today, the culture for donating and separately collecting textile is widely spread. As a result, the amount of the collected textiles is higher than in most other EU countries. Thus far, comparable schemes using containers for textile collection have failed in Eastern Europe. Now, the innovative Bulgarian model is ready to be transferred and practitioners in waste textile collection & recycling or secondhand usage & exchange can directly benefit from the approach and lessons learned in Bulgaria.

The key elements of success of HUMANITA are:

1. Collection containers are only placed at premium urban locations such as big supermarkets, shopping malls, schools, hospitals, residential and business complexes
2. The protection of the selected areas by video cameras, fences or live guards
3. An appealing local design of the containers in line with the premium locations.
4. An awareness-raising campaign promoting the environmental, social and economic benefits of separate textile collection in the media and at public and school events
5. Donation of funds to the Bulgarian Red Cross and constitution of a crisis reserve of clothes. This is a huge additional motivational factor for the people to participate in the scheme and provide their textiles to the containers.

For a period of 3 years, the scheme cost a total of €0.8 million covering 1000 textile collecting containers, the leasing fee for 30 collecting vehicles and 10 forklifts and the working capital for storing textiles.

Further information about the practice is available here.
Image Source: CESME

The 2018 revision of the Waste Framework Directive includes an obligation on Member States to collect textiles separately by 1 January 2025. Since global markets for used clothing are becoming saturated, however, finding suitable outlets for increasing volumes of collected textiles will be a challenge.[19]

Therefore, it will be important to make progress in textile-to-textile recycling. Currently, the non-reusable fraction of collected textiles is mostly down-cycled into industrial rags, upholstery filling and insulation, or is incinerated or landfilled.

Less than 1 per cent of textile waste is recycled into new fibres for clothing as technologies for processing textiles to recycled fibres are only starting to emerge.[20]

Image Source: Venelina Varbova

[19] Developments in global markets for used textiles and implications for reuse and recycling, Ljungkvist, H., Watson, D. and Elander, M., 2018
[20] A new textiles economy: Redesigning fashion's future, Ellen MacArthur Foundation, 2017

European support for separate collection

With regard to financing, the European Union provides funding via the European Structural and Investment Funds (ESIFs). Under the current ESIFs, the relevant investment priorities are IP2 'Enhancing access to, and use and quality of, information and communication technologies' and IP6 'Preserving and protecting the environment and promoting resource efficiency'. The ESIFs can be used for co-funding investment in collection infrastructure, awareness raising and education campaigns, as determined by national and regional priorities in their Operational Programmes.

The new Regional Development and Cohesion Policy in 2021-2027 will focus on five priorities, with opportunities for projects that support the shift towards a low-carbon, circular economy and the fight against climate change, delivering on the Paris Agreement under the priority 'A greener, carbon free Europe'.

The LIFE Programme is the most important Community financial instrument for the environment and climate action, with a budget of €3.4 billion for the 2014-2020 period. Today, it supports small-scale projects aiming to share best practices, to test technologies, and to speed up the implementation of relevant EU legislation and policy. LIFE also acts as a catalyst for investment, notably trough integrated projects, and facilitates the implementation of large-scale actions. For the new LIFE Programme (2021-2027), the Commission proposes to increase funding by almost 60%, exceeding €5.4 billion to be earmarked for two main portfolios, Environment and Climate Action, and covering four sub-programmes: Nature and Biodiversity, Circular Economy and Quality of Life, Climate Change Mitigation and Adaptation and Clean Energy Transition.

Interreg Europe

Interreg Europe projects entail the sharing of experience and development of regional action plans to improve policy frameworks. Each project gathers and studies policy examples, hundreds of which are available through the Policy Learning Platform's Good Practice Database, some of which have been featured in this brief.

The Interreg Europe Policy Learning Platform is pro-actively supporting learning and exchange of experience and a number of on-demand services which can support regions in their transition towards a circular economy, including an online helpdesk, matchmakings and a peer review service. The Peer Reviews are an easy and constructive way for managing authorities and regions to obtain input and feedback on the challenges that policy makers are facing. Carefully selected European peers are invited to the host region for a structured exchange of experiences and to provide input and recommendations addressing the specific local challenge.

Recommendations and key learnings

Separate collection is a pre-requisite for reuse and recycling. The higher the quantities and quality of separately collected waste streams, the better they can be recycled, repaired and reused. Here below the authors list the key learnings derived from the analysis of scientific and EU literature, as well as of many successful practices and policy improvements adopted by local and regional authorities across Europe. The recommendations to policy makers are supported by the information available in the text of this brief.

- Consider all benefits of separate waste collection. Efficient waste collection schemes reduce greenhouse gas emissions and litter, offer economic and environmental benefits as well as new opportunities for social enterprises and vulnerable groups.

- Make sure your collection infrastructure is convenient and easy to use. This requires an **intelligent combination of different collection methods** combining door-to-door collection, bring centres and collection containers available at short distances and prominent places such as supermarkets.
- Know your data! Data sets about wastes collection are often fragmented and cannot be cross-referenced. **Intelligent data centres** support decision-making process with the necessary data for better planning and cost calculation and for greater transparency towards all stakeholders involved as demonstrated by the experience in Antwerp and Gijon.
- Create a participatory environment on your territory. To **raise the acceptance of separate collection measures** and ensure that the provided infrastructure is adequate for the local conditions, the local stakeholders such as businesses, citizens, shop owners, and different city departments should be closely involved in the development of an integrated waste collection strategy.
- Inform, educate, motivate. The evaluation of campaigns in Cyprus and Spain have confirmed that **awareness-raising and information campaigns have a substantial impact** on waste separation behaviour and can help to raise the reuse and recycling rates substantially. For best results, communication should be targeted at specific audiences and needs to be repeated at regular intervals. **Competitions and awards schemes for schools and universities** help to educate and motivate pupils and their entire neighbourhoods. Schemes such as the Dutch e-waste race have shown impressive results in the area of WEEE.
- Assess the true cost of separate collection. WEEE recycling is potentially a good business case and public authorities could **incentivise the establishment of recycling schemes** under the condition that the operator includes collection in the business model.
- Make room for used textile. The schemes in Bulgaria and Tallinn have shown that **the collection of used textiles can become very popular** when the right collection infrastructure is put in place and close collaboration is established with charities and second-hand shops.
- Investigate possible incentive schemes. The WINPOL project has illustrated that **incentive schemes such Pay-As-You-Throw (PAYT) have been successfully applied** in many places already and have helped to increase recycling and to reduce the generation of residual waste. The implementation of these schemes needs to be carefully adapted to the local circumstances and checked against the national legislation.

Sources for further information

Policy Learning Platform information:

- Interreg Europe Policy Learning Platform, Policy Brief on 'Sustainable Waste Management in a circular economy'
- Interreg Europe Policy Learning Platform, Stories on 'A new life for prisoners and valuable resources: the WEEE recovery facility in Milan Bollate prison' and on 'COVID-19: The impact of the pandemic on the waste sector'
- Interreg Europe Policy Learning Platform, Webinar on 'Landfill rehabilitation'
- WINPOL webinar on 'Innovative tariffication'
- INTHERWASTE 'Database of case studies'

Other sources:

- The European Green Deal
- The new Circular Economy Action Plan
- The revised EU waste legislation
- Collectors project 'Guidelines for implementation'
- Life Rethink Waste Catalogue PAYT and KAYT

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