

ZERO WASTE ALLIANCE IRELAND

Towards Sustainable Resource Management



Feedback to the European Commission on the Waste-related Environmental Performance of Ireland and certain other EU Member States, and the Probability of their Achieving the 2025 Recycling Targets and the 2035 Landfill Target, with Observations on the Early Warning Report System

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1. INTRODUCTION

On 04 July 2022, the European Commission issued a call for submissions and evidence on the status of waste management in European Union Member States.¹

The overall purposes of this important public consultation are:

- i) to gather information on current waste management practices in Member States;
- ii) to identify the potential barriers to effective source segregation;
- iii) to obtain relevant information on waste collection, sorting and recycling, and on participation by Member States in the circular economy;
- iv) to provide an assessment of how the circular economy is being implemented in the areas of waste and discarded materials and objects; and,

¹ Call for evidence on the status of waste management systems in Member States, 04 July 2022, Ares (2022) 4876041.

- v) to assist the European Commission in the key task of identifying at an early stage those Member States which may be at risk of not reaching the targets set out in the relevant waste-related Directives.

The consultation referred to the importance of the Waste Framework Directive (**2008/98/EC**), as it provides the over-arching policy which addresses (or should address) all relevant waste management issues. Other directives of similar importance include the Packaging and Packaging Waste Directive (**94/62/EC** of 20 December 1994) and the Landfill Directive (**1999/31/EC** of 26 April 1999), all of which are becoming out-dated, and in urgent need of major review.

A further review is now needed, despite the fact that in 2018, four important amending directives were added to the EU legislation on waste:

- i) Directive (EU) **2018/849** of 30 May 2018 amending Directive 2000/53/EC on end-of-life vehicles, Directive 2006/66/EC on batteries, accumulators and waste batteries and accumulators, and Directive 2012/19/EU on waste electrical and electronic equipment;
- ii) Directive (EU) **2018/850** of 30 May 2018 amending Directive 1999/31/EC on the landfill of waste;
- iii) Directive (EU) **2018/851** of 30 May 2018 amending Directive 2008/98/EC on waste (see section 5.1 below); and,
- iv) Directive (EU) **2018/852** of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste.

These Directives amended and updated the previous waste legislation and set more ambitious recycling targets for the period up to 2035, and these targets must be taken into consideration when assessing the progress of Member States.

Directives which should also be considered include Directive (EU) **2019/904** of 5 June 2019 on the reduction of the impact of certain plastic products on the environment (the single-use plastics directive), and other directives addressing issues in the areas of wastewater, sewage sludge (86/278/EEC), agricultural by-products and organic fertilisers derived from agriculture. We will mention these where relevant in our submission.

In order to monitor the environmental performance of Member States, the European Commission undertakes a biennial **Environmental Implementation Review (EIR)**² of all environmental directives, including the waste-related directives listed above.

² Environmental Implementation Review 2019 – A Europe that protects its citizens and enhances their quality of life, Communication from the Commission, Brussels, 04-04-2019 COM(2019) 149 final.

This **Environmental Implementation Review** (EIR) is a tool to improve the implementation of EU environmental law and policy, and it aims to address the causes of implementation gaps and try to find solutions before problems become urgent. The EIR is a two-yearly cycle of analysis, dialogue and collaboration, with publication of country reports and discussions between the European Commission, Member States and stakeholders. Country reports are drafted every two years, focusing on environmental policy and law in each Member State, and these are published with a summary that sets out common trends, recommendations and political conclusions.

EIRs are undertaken by the Commission, with the assistance of the European Environment Agency (EEA), and by national agencies; for example, in 2019, the Irish Environmental Protection Agency (EPA) commissioned a review of best practices in 28 Member States, extracted from the Environmental Implementation Review for the year 2019.³

In 2018 the European Commission introduced the concept of an **'Early Warning Report'** (EWR)⁴ to be produced by the Commission three years before the deadlines of the target dates in each directive. The principal objective of the EWR is to assess Member States' progress towards reaching the recycling targets for municipal waste and packaging waste, and the 2035 landfill target.

The EWR also includes a list of those Member States considered to be at risk of not reaching the targets within the respective deadlines, and makes recommendations for concerned Member States to help put them back on track. The EWR and the recommendations given to Member States are intended to guide them in the implementation of measures to improve the performance of Member States on waste management, and specifically on how to improve recycling rates and reduce disposal across the EU.

The early warning mechanism also legally obliges the Commission to report on Member States' performance and their probability of meeting the targets set in the "2018 waste package" (the four amending Directives listed above).

The EEA, supported by its **European Topic Centre on Waste and Materials in a Green Economy** (ETC/WMGE)⁵, has developed a methodology to assess

³ Best Practices from the Environmental Implementation Review 2019 across the EU 28 Countries. A report commissioned by the Environmental Protection Agency; prepared by the Clean Technology Centre, Cork Institute of Technology, 2019.

⁴ Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Implementation of EU Waste Legislation, including the Early Warning Report for Member States at risk of missing the 2020 preparation for re-use/recycling target on municipal waste. COM(2018) 656 final; Brussels, 24.9.2018.

⁵ The European Topic Centre on Waste and Materials in a Green Economy (ETC/WMGE) is a consortium of European organisations working in partnership with the European Environment Agency under a framework partnership agreement for the period 2019-2021. The purpose of the ETC/WMGE is to inform decision-makers and the public by presenting reliable and

Member States' prospects of reaching the targets set in the '2018 waste package'. This consists of a list of quantitative and qualitative success and risk criteria (based on 2019 data) used to assess the likelihood that each Member State will achieve the 2025 targets.

The EWR is intended to be an early warning mechanism to alert Member States as well as the Commission, and it should provide a more detailed assessment of waste policy in Member States than the chapter on waste in the Environmental Implementation Report. It should identify Member States which are at risk of not meeting the 2025 recycling targets, provide general recommendations, and suggest best practices to improve performance and achieve the targets. In addition, the EWR will be complemented with Annexes to provide country-specific recommendations to countries considered at risk.

To obtain information on the status of waste management systems in Member States, the Commission is reaching out to Member States and other stakeholders which may have specific expertise and experience in waste management, e.g., businesses and trade associations, state and local authorities active in waste management, environmental NGOs and members of the public.

The current invitation to provide feedback on the proposed updating of the waste legislation and on Member States' progress towards compliance with the targets set in the existing directives on waste gives a further opportunity to European citizens and stakeholders to give their views on the Commission's understanding of the problem of waste and mismanagement of valuable resources, and invites submissions on possible solutions and improvements, including how a very necessary high level of monitoring of waste generation and waste movements can be achieved, together with more accurate and reliable data on waste. Citizens and other stakeholders are also asked to share any relevant information that they may have, including information on possible options available to the Commission in support of an approach and actions that will transform the "waste system" and will support the movement to a circular economy.

Zero Waste Alliance Ireland (ZWAi) is very pleased to have the opportunity to provide feedback to the European Commission on this important topic, and we have undertaken some research to provide the Commission with reasonably detailed and evidence-based comments. We trust that the observations in this submission will be considered as a relevant and a positive contribution to EU strategies and measures which would aim to achieve a "zero waste society".

comparable data and information on waste management and prevention, green economy, material resource efficiency and the transition to a circular economy in Europe.

2. STRUCTURE OF OUR SUBMISSION

The structure of our submission is as follows:

- i) Some relevant background information about Zero Waste Alliance Ireland (section 3);
- ii) Preliminary general observations – waste as a resource, and waste in perspective with other planetary resources (section 4)
- iii) An abbreviated listing of the principal waste-related EU Directives (section 5);
- iv) Summaries of the targets in each Directive (section 5);
- iv) Our assessment of whether these targets been transposed correctly into Irish legislation (section 6);
- v) Data on the quantities of different types of waste produced in Ireland, e.g., municipal waste, packaging waste, end-of-life vehicles, end-of-life tyres, hazardous waste, sludge and other organic wastes, etc.; while some or even most of the data will necessarily be obtained from ‘official’ sources, for example, the Environmental Protection Agency (EPA), government departments, the National Competent Authority for the export, import and transit of waste shipments, and industry sources such as Repak, we will attempt to supplement this data by obtaining information from other sources, so as develop a more comprehensive view (section 6);
- vi) Our assessment of the extent to which Ireland is making progress towards complying with the targets in the Directives, e.g., is Ireland on the right trajectory, is the country leading, or falling back; and can our submission provide some assistance to the European Commission in identifying at an early stage whether or not Ireland may be at risk of not reaching the targets set out in the relevant waste-related Directives;
- vii) We will then provide some comparison with the situation in a small number of other Member States, e.g., Austria, Germany, Denmark;
- viii) And finally some conclusions.

3. ZERO WASTE ALLIANCE IRELAND (ZWAI)

At this point we consider that it is appropriate to mention the background to our submission, especially the policy and strategy of ZWAI.

3.1 Origin and Activities of ZWAI

Zero Waste Alliance Ireland, established in May 1999, and registered as a company limited by guarantee in 2004, is a Non-Government Environmental Organisation (eNGO) and a registered charity. During the past two decades ZWAI has submitted to the Government and to State Agencies many policy documents on waste management, on using resources sustainably, on promoting re-use, repair and recycling, and on development and implementation of the Circular Economy. During more recent years (2021 and 2022), ZWAI has responded to the European Commission's call for submissions on a variety of topics on wastewater and solid wastes.

One of our basic guiding principles is that human societies must behave like natural ecosystems, living within the sustainable flow of energy from the sun and plants, producing no materials or objects which cannot be recycled back into the earth's systems, or reused or recycled into our technical systems, and should be guided by economic systems and practices which are in harmony with personal and ecological values.

Our principal objectives are:

- i) sharing information, ideas and contacts,
- ii) finding and recommending environmentally sustainable and practical solutions for domestic, municipal, industrial and agricultural waste management, and for more efficient and ecologically appropriate uses of natural resources such as water and soil;
- iii) lobbying Government and local authorities to implement environmentally sustainable waste management practices, including clean production, elimination of toxic substances from products, re-use, recycling, segregation of discarded materials at source, and other beneficial practices;
- iv) lobbying Government to follow the best international practice and EU recommendations by introducing fiscal and economic measures designed to penalise the manufacturers of products which cannot be re-used, recycled or composted at the end of their useful lives, and to financially support companies making products which can be re-used, recycled or are made from recycled materials;

- v) raising public awareness about the long-term damaging human and animal health and economic consequences of landfilling and of the destruction of potentially recyclable or re-usable materials by incineration;
- vi) investigating, raising public awareness and lobbying Irish Government departments and agencies about our country's failure to take adequate care of vulnerable and essential natural resources, including clean water and air, biodiversity, and soil;
- vii) advocating changes in domestic and EU legislation to provide for more ecologically appropriate, environmentally sustainable and efficient uses of natural resources; and,
- viii) maintaining contact and exchanging information with similar national networks in other countries, and with international zero waste organisations.

3.2 Our Basic Principles

In nature, the waste products of every living organism serve as raw materials to be transformed by other living creatures, or benefit the planet in other ways. Instead of organising systems that efficiently dispose of or recycle our waste, we need to design systems of production that have little or no waste to begin with.

There are no technical barriers to achieving a “zero waste society”, only our habits, our greed as a society, and the current economic structures and policies which have led to the present environmental, social and economic difficulties.

“Zero Waste” is a realistic whole-system approach to addressing the problem of society's unsustainable resource flows – it encompasses waste elimination at source through product design and producer responsibility, together with waste reduction strategies further down the supply chain, such as cleaner production, product repairing, dismantling, recycling, re-use and composting.

ZWAI strongly believes that Ireland and other Member States, and the EU as a whole, should have a policy of not sending to other countries our discarded materials for further treatment or recycling, particularly to developing countries where local populations are being exposed to dioxins and other very toxic POPs. Relying on other countries' infrastructure to achieve our “recycling” targets is not acceptable from a global ecological and societal perspective.

ZWAI also strongly believes that soil and its associated biodiversity (surface and sub-surface living organisms) are vitally important components of the Earth's global ecosystem, and that the destruction or unnecessary wasting of these natural resources must not be allowed to continue.

3.3 What We are Doing

One of our principal objectives is to encourage the European Union (including Commission and Parliament), Irish government agencies, Irish local authorities and other organisations to develop and implement environmentally sustainable resources and waste management policies, especially resource efficiency, waste reduction and elimination, the promotion of re-use, repair and recycling, and the development and implementation of the Circular Economy.

As an environmental NGO, and a not-for-profit company with charitable status since 2005, ZWAI also campaigns for the implementation of the UN Sustainable Development Goals, including (but not limited to) Goal 12, Responsible Consumption and Production; Goal 6, Clean Water and Sanitation (having particular regard to the need to avoid wasting water); and Goal 15, to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, to halt and reverse land degradation and halt biodiversity loss.

In responding to many Irish and European public consultations, ZWAI in its role as an environmental NGO has given presentations and made submissions on:

1. How the European Union has addressed the problem of plastic waste (March 2019);
2. On Single-Use Plastic Packaging by the food industry (November 2019);
3. On the proposed revision of the EU Regulation on Shipments of Waste (January 2022);
4. On protecting, sustainably managing and restoring EU soils, including comments on the proposed updating of the 2006 EU Thematic Strategy on Soil (February 2022);
5. On revision of the EU Plant and Forest Reproductive Material legislation (March 2022);
6. On transforming the construction industry so that it could become climate neutral (instead of its present position as a major emitter of greenhouse gases and toxicants); and,
7. Several submissions on the separation, recovery and reuse of the phosphorus and nitrogen content of wastewater (2019 to 2022).

ZWAI is primarily concerned with the very serious issue of the misuse of key natural resources, and the problems of discarded substances, materials and goods, whether from domestic, commercial or industrial sources, how these become “waste”, and how such “waste” may be prevented by re-design along ecological principles. These same ecological principles can be applied to the

many ways in which we abstract and use water as a resource, to the equivalent volumes of wastewater produced as a consequence of these uses.

We believe that at a time of increasing scarcity of certain resources, including, for example contaminant-free phosphate rock as a raw material for fertiliser production, and the shortage of other resources, for example natural gas for the production of synthetic nitrogenous fertilisers, it is more essential than ever to ensure that materials are not wasted, but are used widely and efficiently

ZWAI is represented on the Irish Government's Waste Forum and Water Forum (An Fóram Uisce) by one of our Directors, ZWAI is also a member of the Irish Environmental Network and the Environmental Pillar, and is funded by the Department of Communications, Climate Action and the Environment through the **Irish Environmental Network**.

In 2019 ZWAI became a full member of the **European Environment Bureau** (EEB); and we participate in the **Waste Working Group** of the EEB. Through the EEB, we contribute to the development of European Union policy on waste and the Circular Economy. In November 2021, the EEB established a **Task Force on the Built Environment**; and ZWAI was accepted as a member of this new group.

4. OUR PRELIMINARY GENERAL OBSERVATIONS

Zero Waste Alliance Ireland (ZWA) fully supports the EU approach to waste, and welcomes the Commission's intention to seek stakeholders' views on this topic.

In approaching the task of providing feedback as requested in the Commission's invitation⁶, we have been guided not only by our own ZWA principles as described in section 3 above, but we would also submit that waste should be considered primarily as a form of natural resource. Secondly, human societies do not produce "waste", we generate discarded or unwanted material and objects which become "waste" only when they are mixed, or subjected to further destructive operations or activities, so that recovery of materials becomes technically very difficult or impossible.

In approaching the question of "waste" from an overall systems perspective, we would also advocate that the European Commission should consider and analyse the principal direct and indirect interconnections between how "waste" is generated from different natural resources, how these resources are managed, together with their use and governance, as well as the synergies and trade-offs which can be achieved through appropriate policy interventions.

Managing natural resources has historically focused on individual resources and on the creation of added economic value through extraction, trading, transporting and processing. The inclusion of ecological and societal impacts, together with an increasing urgency of the necessity to achieve sustainability, have resulted in a broader approach, but still confined within narrow parameters.

While this extended approach has provided some valuable insights, much wider systems thinking is needed to address the complex interactions between different natural resources; e.g., the links between food, energy and water resources point to the need for such a systems approach.

4.1 Including 'Waste' in the 'Nexus' Approach to policy areas under the European Green Deal

The Food and Agriculture Organization of the United Nations (FAO) recognised these complex interactions, together with the inclusion of food security and sustainable agriculture, described in the "*Water-Energy-Food Nexus*", published in 2014.⁷ This report states that:

⁶ Call for evidence on the status of waste management systems in Member States, 04 July 2022, Ares (2022) 4876041.

⁷ The Water-Energy-Food Nexus – A new approach in support of food security and sustainable agriculture. Food and Agriculture Organization of the United Nations Rome, 2014.

“Water, energy and food are essential for human well-being, poverty reduction and sustainable development. Global projections indicate that demand for freshwater, energy and food will increase significantly over the next decades under the pressure of population growth and mobility, economic development, international trade, urbanisation, diversifying diets, cultural and technological changes, and climate change. Agriculture accounts for 70 percent of total global freshwater withdrawals, making it the largest user of water. Water is used for agricultural production, forestry and fishery, along the entire agri-food supply chain, and it is used to produce or transport energy in different forms (FAO 2011a). At the same time, the food production and supply chain consume about 30 percent of total energy consumed globally (FAO 2011b). Energy is required to produce, transport and distribute food as well as to extract, pump, lift, collect, transport and treat water. Cities, industry and other users, too, claim increasingly more water, energy and land resources, and at the same time, face problems of environmental degradation and in some cases, resources scarcity”.

“As demand grows, there is increasing competition for resources between water, energy, agriculture, fisheries, livestock, forestry, mining, transport and other sectors with unpredictable impacts for livelihoods and the environment (FAO 2011c). Large-scale water infrastructure projects, for instance, may have synergetic impacts, producing hydropower and providing water storage for irrigation and urban uses. However, this might happen at the expense of downstream agroecological systems and with social implications, such as resettlements. Similarly, growing bioenergy crops in an irrigated agriculture scheme may help improve energy supply and generate employment opportunities, but it may also result in increased competition for land and water resources with impacts on local food security.

This report fails to mention the role of waste, and particularly the avoidance of waste, and the more efficient use of scarce resources, despite the obvious link between preventing waste and using scarce resources more efficiently.

However, the more recent publication by the European Environmental Agency, *“Resource nexus and the European Green Deal”*⁸, closes this gap, and includes waste, together with food, energy, water, ecosystems, climate and health:

“While early applications focused on exploring the interlinkages between water, energy and food, further developments embraced other natural resources, including land, materials, waste and ecosystems, and other dimensions such as climate and health. Collating these applications results in a complex web of direct and indirect interactions, which define

⁸ Resource nexus and the European Green Deal; European Environmental Agency, Briefing no. 24/2021, 17 March 2022.

the ‘nexus’ among the resources. Understanding this network of interactions provides important information, as a given intervention might have different effects across resources – positive or negative – depending on the way they interact. For example, demand for food can be met through various agricultural practices that may require different levels of land, energy, water and other inputs. The same is true for demands on other resources”.

The need to reduce food waste, an issue of particular interest to ZWAI and to the Commission⁹, is mentioned briefly on the 5th and 11th pages, pointing out that an increasingly high demand for land and/or the displacement of natural ecosystems by farmland, could be reduced or mitigated if dietary change and food waste were effectively addressed.

Similarly, the connections between food waste, diet change, human health and planetary health, have been researched and widely publicised by the EAT–Lancet Commission on healthy diets from sustainable food systems.¹⁰

In our recent submission on 16 March this year to the European Commission on the topic of soil health¹¹, we pointed out that:

*“The global meat and dairy food system converts 8.2 billion tonnes of feed and fodder to 0.46 billion tonnes of animal products. This wastes six times the FAO’s current global **food waste estimate of 1.3 billion tonnes**”* [our emphasis]; and,

*“ ... staying within the environmental safe operating space for food systems requires a combination of substantial shifts toward mostly plant-based dietary patterns, dramatic reductions in **food losses and waste** [our emphasis], and major improvements in food production practices.”*

Our conclusion is therefore that ‘waste’ must be considered within the complex web of direct and indirect interactions with other resources, and that decisions on waste policy and legislation must be made within the nexus of energy, climate, water (including oceans and fisheries), land use, soil health, biodiversity, ecosystems, food, human health, sustainability and planetary health.

⁹ https://food.ec.europa.eu/safety/food-waste/eu-actions-against-food-waste/eu-platform-food-losses-and-food-waste_en

¹⁰ Willett, W., et al., 2019. Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems; The Lancet 393(10170), pp. 447-492.

¹¹ https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13350-Soil-health-protecting-sustainably-managing-and-restoring-EU-soils/F2928631_en. Submission by Zero Waste Alliance Ireland, Appendix 1, Transition to an Irish Vegan Agricultural System, James O’Donovan, Oct-2019; pages 6 and 14; 16 March 2022.

5. THE PRINCIPAL WASTE-RELATED DIRECTIVES, THE KEY TARGETS AND OBJECTIVES, AND SOME PROBLEM AREAS

Identifying all the relevant or key targets is not a simple task, and the Commission will be aware that a report published in 2019 on EU environmental targets and objectives identified a total of 159 legally binding targets and 87 non-binding objectives across eleven environmental themes for the 2015–2050 period.¹²

The environmental theme with the highest number of targets was found to be climate change (51 targets), followed by chemical pollution (27 targets) and **waste and resources (23 targets)**. Compared to previous analyses, many new, revised or amended targets were established in the combined area of waste & resources. In particular, new targets have been set for climate change by the Energy Efficiency Directive and the revised Renewable Energy Directive; and, for waste & resources, by the amendments to several waste directives, based on the 2015 Circular Economy Package.

In our listing of the waste-related targets, we will take account as far as possible of the relevant revisions, and we have included wastes from wastewater treatment plants (sludges) and the export of wastes, which we consider should be eliminated or prevented as far as possible.

Table 5 below contains a list of the relevant waste-related Directives, Proposals, Regulations, Roadmaps and other EU and Commission documents addressing waste issues, together with targets and objectives, adapted from the Eionet 2019 Report on EU Environmental Targets and Objectives 2015 – 2050 (see footnote below). However, we have added a third column, giving the references to the Irish legislation which transposes the EU Directives and Regulations into Irish law.

International obligations on the export and trans-frontier movement of waste are outside the scope of this submission, but we would point out that some multilateral (or international) environmental agreements to which the EU and/or Member States are parties, as well as the related protocols, are relevant to EU waste policies and objectives. These include, for example, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which has been ratified by the EU.

The UN Sustainable Development Goals (SDGs) address waste and resources,

¹² Susanna Paleari (IRCrES-CNR) and Almut Reichel (EEA), 2019. EU Environmental Targets and Objectives 2015 – 2050; Eionet Report - ETC/WMGE 2019/2.

Table 5: Waste and Resources Targets – Objectives to be reached by 2050		
Directive, Regulation, Decision, Roadmap or other Commission document	Target or objective, with deadline	Implementation
Roadmap to a Resource Efficient Europe (COM(2011) 571)	Waste to be managed as a resource (2020 target)	
	Achieve an absolute and per capita decline of waste generated (2020 target)	
	Ensure high quality recycling (2020 target)	
	Limit energy recovery to non-recyclable materials (2020 target)	
	Virtually eliminate landfilling (2020 target)	
	Eradicate illegal shipments of waste (2020 target)	
Decision 1386/2013/EU (7th EAP)	Landfilling to be limited to non-recyclable and non-recoverable waste (2020 target)	
Directive 2000/53/EC, End-of-Life Vehicles Directive	Targets for end-of-life vehicles (by average weight per vehicle per year): - reuse and recovery: 95% - reuse and recycling: 85% (2015 target)	See section 5.3 below.
Directive 2012/19/EU, WEEE Directive	WEEE, with reference to Annex I categories: - cat. 1 or 10: 85% recovery and 80% recycling - cat. 3 or 4: 80% recovery and 70% recycling - cat. 2, 5, 6, 7, 8 or 9: 75% recovery and 55% recycling Gas discharge lamps: 80% recycling	See section 5.4 below.

Table 5: Waste and Resources Targets – Objectives to be reached by 2050		
Directive, Regulation, Decision, Roadmap or other Commission document	Target or objective, with deadline	Implementation
	<p>WEEE, with reference to Annex III categories:</p> <ul style="list-style-type: none"> - cat. 1 or 4: 85% recovery and 80% reuse and recycling - cat. 2: 80% recovery and 70% reuse and recycling - cat. 5 or 6: 75% recovery and 55% reuse and recycling - cat. 3: 80% recycling (2018) 	See section 5.4 below.
Directive 2008/98/EC, Waste Framework Directive	Recycling and reuse of 70% by weight of non-hazardous construction and demolition waste (2020 target)	
	Recycling and reuse of 50% by weight of paper, plastic, glass and metal from households (2020 target)	
Directive 2008/98/EC, Waste Framework Directive, as amended by Directive 2018/851/EU	Increase the reuse and recycling of municipal waste to a minimum of 55% (2025 target)	
Packaging Waste Directive 94/62/EC as amended by Directive 2018/852/EU	Increase the recycling rate of packaging waste to 65% (2025 target)	
	Achieve minimum targets by weight for recycling regarding specific materials contained in packaging waste: (i) 50 % of plastic; (ii) 25% of wood; (iii) 70% of ferrous metal; (iv) 50% of aluminium; (v) 70% of glass; (vi) 75% of paper and cardboard (2025 target)	
COM(2018)28, EU Strategy for plastics in a circular economy	All plastics packaging is either reusable or can be recycled in a cost-effective manner and more than half of plastics waste generated in Europe is recycled (2030 target)	

Table 5: Waste and Resources Targets – Objectives to be reached by 2050		
Directive, Regulation, Decision, Roadmap or other Commission document	Target or objective, with deadline	Implementation
Directive 2008/98/EC, Waste Framework Directive, as amended by Directive 2018/851/EU	Increase the reuse and recycling of municipal waste to a minimum of 60%	
Directive 2008/98/EC, Waste Framework Directive, as amended by Directive 2018/851/EU	Increase the reuse and recycling of municipal waste to a minimum of 60% (2030 target)	
Directive 2008/98/EC, Waste Framework Directive, as amended by Directive 2018/851/EU	Increase the reuse and recycling of municipal waste to a minimum of 65% (2035 target)	
Packaging Waste Directive 94/62/EC as amended by Directive 2018/852/EU	Increase the recycling rate of packaging waste to 70% (2030 target)	
Packaging Waste Directive 94/62/EC as amended by Directive 2018/852/EU	Achieve minimum targets by weight for recycling regarding specific materials contained in packaging waste: (i) 55 % of plastic; (ii) 30% of wood; (iii) 80% of ferrous metal; (iv) 60% of aluminium; (v) 75% of glass; (vi) 85% of paper and cardboard (2030 target)	
Directive 2008/98/EC, Waste Framework Directive	Separate collection for glass, plastic, metal, paper (2015)	
Directive 2006/66/EC on waste batteries and accumulators	Collection target for batteries: 45% (2016 target)	
Directive 1999/31/EC on landfill	Disposal of biodegradable municipal waste: reduction to 35% of total 1995 biodegradable municipal waste (2016 target)	
Directive 2012/19/EU, WEEE Directive	Collection target for WEEE: 45% of the average weight of EEE placed on the market in the three preceding years in the Member State concerned (2016)	

Table 5: Waste and Resources Targets – Objectives to be reached by 2050		
Directive, Regulation, Decision, Roadmap or other Commission document	Target or objective, with deadline	Implementation
Directive 2012/19/EU, WEEE Directive	Collection target for WEEE: 65% of the average weight of EEE placed on the market in the Member State in the three preceding years or 85% of WEEE generated in the Member State. (2019)	
Directive 2008/98/EC, Waste Framework Directive, as amended by Directive 2018/851/EU	Bio-waste shall be either separated and recycled at source, or is collected separately and is not mixed with other types of waste (2023 – end)	
Landfill Directive 1999/31/EC, as amended by Directive 2018/850/EU	Member States shall endeavour to ensure that as of 2030, all waste suitable for recycling or other recovery, in particular in municipal waste, shall not be accepted in a landfill, with the exception of waste for which landfilling delivers the best environmental outcome.	
Landfill Directive 1999/31/EC, as amended by Directive 2018/850/EU	Ensure that the amount of municipal waste landfilled is reduced to 10% of the total amount of municipal waste generated (2035)	
Directive 2011/65/EU on the restriction of the use of certain hazardous substances in EEE	No heavy metals (Pb, Hg, Cd, hexavalent Cr, PBB and PBDE) in vitro medical devices (2016)	
Directive 2011/65/EU on the restriction of the use of certain hazardous substances in EEE	No heavy metals (Pb, Hg, Cd, hexavalent Cr, PBB and PBDE) in industrial monitoring and control instruments (2017)	
Directive 2011/65/EU on the restriction of the use of certain hazardous substances in EEE	No heavy metals (Pb, Hg, Cd, hexavalent Cr, PBB and PBDE) in all electrical and electronic equipment not covered by the previous Directive 2002/95/EC (2019)	
Directive 94/62/EC on packaging and packaging waste (as amended by Directive 2015/720/EU)	Reduction in the consumption of lightweight plastic carrier bags (2018 – 2025) ²	

Table 5: Waste and Resources Targets – Objectives to be reached by 2050		
Directive, Regulation, Decision, Roadmap or other Commission document	Target or objective, with deadline	Implementation
COM(2011)571, Roadmap to a Resource Efficient Europe	Disposal of edible food waste should be halved (2020)	
Proposal for a Directive on the reduction of the impact of certain plastic products on the environment, COM(2018)3402	Member States shall take the necessary measures to collect separately, by 2025, an amount of waste single-use plastic products listed in Part F of the Annex equal to 90% of such single-use plastic products placed on the market in a given year by weight.	
Proposal for a Directive on the reduction of the impact of certain plastic products on the environment, COM(2018)340	Member States shall take the necessary measures to achieve a significant reduction in the consumption of the single-use plastic products listed in Part A of the Annex on their territory by ... [six years after the end-date for transposition of this Directive].	
Directive 2000/53/EC, ELV Directive	MS shall ensure that materials and components of vehicles put on the market after 1 July 2003 do not contain lead, mercury, cadmium or hexavalent chromium other than in specified cases (2003)	
Directive 94/62/EC on packaging and packaging waste	At least 60% by weight of packaging waste to be recovered or incinerated at waste incineration plants with energy recovery (2008)	
Directive 94/62/EC on packaging and packaging waste	Between 55% and 80% by weight of packaging waste to be recycled (2008)	
Directive 94/62/EC on packaging and packaging waste	Recycling targets for materials contained in packaging waste must be attained: - 60% for glass, paper and board; - 50% for metals; - 22.5% for plastics and; - 15% for wood (2008)	
Directive 2006/66/EC on waste batteries and accumulators	Producers provide for the treatment and recycling of waste batteries and accumulators, based on BAT (2009)	

Table 5: Waste and Resources Targets – Objectives to be reached by 2050		
Directive, Regulation, Decision, Roadmap or other Commission document	Target or objective, with deadline	Implementation
Directive 96/59/EC on PCB & PCT	Decontamination or disposal of equipment with PCB volumes > 5 dm ³ (2010)	
Directive 2006/66/EC on waste batteries and accumulators	Recycling targets for batteries by average weight: 65% of lead acid batteries, 75% of nickel cadmium batteries, 50% of other batteries (2011)	
Directive 2011/65/EU on the restriction of the use of certain hazardous substances in EEE	No heavy metals (Pb, Hg, Cd, hexavalent Cr, PBB and PBDE) in monitoring and control devices and medical devices (2014)	
Directive 91/271/EEC on Urban Waste Water Treatment	The disposal of sludge from urban wastewater treatment plants is subject to general rules or registration or authorization (1998)	
Directive 91/271/EEC on Urban Waste Water Treatment	Phase out of the disposal of sludge to surface waters by dumping from ships, by discharge from pipelines or by other means (1998)	
Directive 2000/53/EC, ELV Directive	Targets for end-of-life vehicles (by average weight per vehicle per year): - reuse and recovery: 95% - reuse and recycling: 85% (2015)	

In addition to the information in Table 5 above, we include below some additional information on some of the key Directives and their targets, together with our observations on the extent to which Ireland is making progress towards compliance with these Directives. In some cases, Ireland is already on target, or has even exceeded the target; while in other cases, Ireland is lagging behind.

5.1 Waste Framework Directive (2008/98, amended by Directive 2018/851)

Legal obligations on the management of municipal waste were initially set out in the Waste Framework Directive. These included a 50 % municipal waste preparing for re-use/recycling target¹³ to be achieved by 2020.

In 2018, the Directive was revised¹⁴ to include new and more ambitious targets: 55 % to be achieved by 2025, 60 % by 2030 and 65 % by 2035¹⁵ – and these are the targets which must be achieved by Member States within the years specified.

The revised Directive also introduced a system of early warning reports to assess Member States' progress towards these targets three years ahead of the respective deadlines.

5.2 The Landfill Directive (1999/31/EC, amended by Directive (EU) 2018/850) and Municipal Waste

The original Landfill Directive **1999/31/EC** of 26 April 1999, now nearly a quarter of a century old, was originally intended as a measure to reduce the quantities of municipal waste being landfill, and especially to prevent biodegradable waste being sent to landfill, where its biodegradation under anaerobic conditions was causing (and still causes at the present time) emissions of very significant quantities of methane, a strong greenhouse gas. The Directive contained, in Article 5 (2), legally enforceable targets for the reduction of biodegradable municipal waste going to landfill:

- (a) within five years, biodegradable municipal waste must be reduced to 75 % of the total amount (by weight) of biodegradable municipal waste produced in 1995;
- (b) within eight years, biodegradable municipal must be reduced to 50 % of the total amount (by weight) of biodegradable municipal waste produced in 1995; and,
- (c) within 15 years, biodegradable municipal waste going to landfills must be reduced to 35 % of the total amount (by weight) of biodegradable municipal waste produced in 1995.

¹³ Article 11(2)(a) of the Waste Framework Directive.

¹⁴ Directive (EU) 2018/851, the revised Waste Framework Directive.

¹⁵ Article 11(2)(c) to (e) of Directive (EU) 2018/851.

Member States were also required by Article 5 (1) to establish a national strategy for the implementation of the reduction of biodegradable waste going to landfills, not later than two years after the

Member States were also required by Article 5 (3) to ensure that certain specified wastes would not be accepted in a landfill; these included liquid waste, explosive, corrosive, oxidising, highly flammable or flammable waste, hospital and other infectious clinical waste, whole used tyres (within 2 years), and shredded used tyres within five years.

5.2.1 Landfilling of Municipal Waste in Ireland

Over the past decade in Ireland there have been dramatic changes in waste management. Only 15 per cent of municipal waste was landfilled in 2019 compared with 61 per cent a decade earlier, and the number of landfills has decreased to three large landfills. Additionally, the old landfills are generally not managed for methane capture, and are therefore releasing methane unchecked into the atmosphere.

Unfortunately, there has been a significant increase in the share of municipal waste sent for incineration with energy recovery over the same period, from 4 per cent in 2009 to 46 per cent in 2019.

The country's recycling rates for municipal and packaging waste have been in gradual decline for several years, as efforts to improve recycling have been outstripped by the growth in waste being generated and the amount being sent for energy recovery in incinerators and cement production plants.

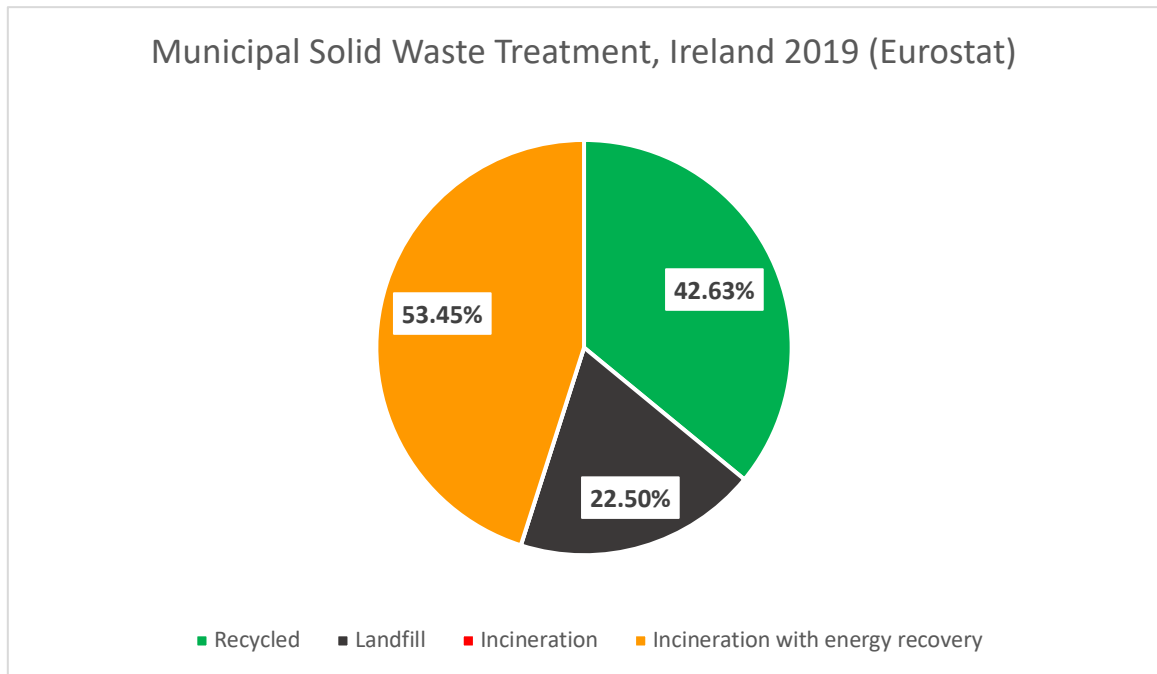
Based on Eurostat data, in 2019, Ireland's municipal waste was treated as follows:

- 42.63% recycled
- 22.5% Landfilled
- <1% Incinerated
- 53.45% Incinerated with energy recovery

These figures are becoming outdated, therefore data from 2021 and 2022 would be highly valuable to determine how close Ireland is to the 2025 goals.

- In terms of municipal waste, Ireland was **below** the target of 55% recycled, at just 42.63%.
- In terms of packaging, Ireland was **below** the target of 65% recycled, at 62%, a decrease of two percentage points since 2018. This is consistent with the gradual fall in packaging recycling rates in recent years, the

recycling rate for glass packaging was 84% while the recycling rate for plastic packaging was just 28% ¹⁶. See also section 5.6 below.



Ireland has the potential to meet the 2025 recycling targets **if recyclable waste is diverted away from incineration energy recovery and into recycling**, but there is a danger that Ireland is following the path of Austria (see section 7.2 below). Two incinerators are operating, while two more have been seeking planning permission for several years – one near the Port of Cork, on the south coast, the other in the North of Ireland, near Belfast. Both have been refused planning permission by the relevant authorities, and the companies promoting them have launched legal challenges against the decisions to refuse permission.

In Ireland, plastic packaging in particular is under-used for recycling and over-used in incineration with some energy recovery (see section 5.6 below). Ireland's recycling rate is also problematical. It is our submission that incineration with energy recovery should be abandoned in favour of recycling, as it is lower on the Waste Hierarchy Index ¹⁷. This is in line with the goals of the Circular Economy Action Plan ¹⁸.

¹⁶ <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/packaging/>

¹⁷ Pires, A. and Martinho, G., 2019. Waste hierarchy index for circular economy in waste management. *Waste Management*, 95, pp.298-305.

¹⁸ <https://ellenmacarthurfoundation.org/circular-examples/the-eus-circular-economy-action-plan>

5.3 Directive on End-of-Life Vehicles (Directive 2000/53 amended by Directive 2018/849)

The aim of this Directive is to prevent and limit waste from end-of-life vehicles (ELVs) and their components by ensuring their reuse, recycling and recovery. Vehicle and equipment manufacturers must factor in dismantling, reuse and recovery of the vehicles when designing and producing their products by ensuring that the new vehicles are:

- reusable and/or recyclable to a minimum of 85% by weight per vehicle.
- reusable and/or recoverable to a minimum of 95% by weight per vehicle.
- hazardous substances such as lead, mercury, cadmium and hexavalent chromium are not permitted in new vehicles.

Manufacturers, importers and distributors must also provide systems to collect ELVs and, where technically feasible, used parts from repaired passenger cars. Owners of ELVs delivered for waste treatment must receive a certificate of destruction. This is necessary to deregister the vehicle.

Manufacturers must meet all, or a significant part, of the costs involved in the delivery of an ELV to a waste treatment facility. For a vehicle owner, they should incur no expenses when delivering an ELV to an authorised waste treatment facility, except in the rare cases where the engine is missing or the ELV is full of waste.

Waste treatment facilities must apply for a permit or register with the competent authorities of the EU country where they are located.

ELVs are first stripped before further treatment takes place. Hazardous substances and components are removed and separated. Attention is given to the potential reuse, recovery or recycling of the waste.

Clear quantified targets for annual reporting to the European Commission exist for the reuse, recycling and recovery of ELVs and their respective parts. These have become increasingly more demanding.

This legislation applies to passenger vehicles and small trucks but not to big trucks, vintage vehicles, special-use vehicles and motorcycles.

The Amending Directive (EU) 2018/849 gives the Commission the power to adopt:

- implementing acts concerning the detailed rules necessary to control EU countries' compliance with the ELV targets and the exports and imports of ELVs; and,

delegated acts to supplement the directive by:

- exempting certain materials and components containing lead, mercury, cadmium or hexavalent chromium (other than in cases listed in Annex II), if their use is unavoidable and establishing maximum concentration levels allowed as well as deleting materials and components of vehicles from Annex II, if their use is avoidable,
- introducing coding standards to facilitate the components suitable for reuse and recovery,
- establishing the minimum requirements for the certificates of destruction,
- establishing minimum requirements for the treatment of ELVs (Annex I).

5.4 Waste Electrical and Electronic Equipment (Directive 2012/19; amended by Directive 2018/849)

According to directive 2012/19/EU (WEEE directive), Member States must fulfil 65 percent of collected waste from Electrical and Electronic Equipment in 2019. Data from EUROSTAT published on 2nd of March shows that only 24 Member States reached this target for 2019 (Source: EUROSTAT, 2022).

Data from Eurostat for the year 2019 show that 24 out of 27 member states failed to collect sufficient WEEE separately and therefore do not reach the EU target of 65 percent collection. Consequently, up to 4.8 million tonnes of WEEE are still improperly disposed of every year (e.g., into nature, residual waste streams or illegal exports) and are lost for reuse and recycling.¹⁹

Electronic devices have high environmental impacts throughout their entire life-cycle. Increasing consumption exhausts valuable resources, causes high energy demand and environmental damage during raw material extraction. At the end of life, improper disposal may lead to a release of harmful substances into the environment.

WEEE Ireland is one of the best performing recycling schemes in Europe, with a record 18.7 million waste electrical items collected in 2021, as revealed in the organisation's annual report. 127,000 fridges and 205,000 TVs and monitors were recovered, as well as over 2.3 million lightbulbs in a total takeback of 38,464 tonnes – 57% of the average goods sold over a three-year period.

¹⁹ <https://eeb.org/eu-miss-collection-target-for-electronic-waste/>

However, the changing nature of electrical and electronic products means that the recycling versus sales targets that benchmark the European WEEE system are no longer fit for purpose.

Therefore, Ireland (and other EU Member States) needs appropriate targets in order to benchmark the existing systems and to drive improvement. The legacy and linear WEEE targets are not measuring true progress across the European e-waste system, and one must ask if they are fit for purpose. Hence, Ireland needs to rapidly incentivise the transformation across the industry to deliver a more circular and resource efficient economy. An all-actors approach is needed through documentation of the flows of all appliances and their materials by everyone involved in the value chain.

5.5 Directive 2006/66/EC on Batteries, Accumulators and Waste Batteries and Accumulators, Amended by Directive 2018/849 of 30 May 2018

Ireland is currently required to meet EU targets for battery recovery and recycling as outlined in the Batteries Directive. The main objective of the Directive is to ensure the safe collection and disposal of waste batteries, preventing the disposal of spent batteries as mixed municipal waste. The EU Commission recently carried out an evaluation of the Directive and a new draft Batteries Regulation was proposed in December 2020. This proposal aims to update the EU's legislative framework for batteries and it is an integral part of the EU Green Deal.

Member states are currently engaged in discussions with the EU Commission to assess this proposal and it is intended to have the new Batteries Regulation come into force in January 2022.

The Irish compliance schemes for batteries are WEEE Ireland and ERP Ireland. The equivalent of over 54 million used AA portable batteries were also prevented from ending up in landfill.

5.6 Directive 94/62/EC on packaging and packaging waste, amended by Directive (EU) 2018/852 of 30 May 2018 .

Each EU member state is obliged to meet targets, set out in the EU Packaging and Waste Packaging Directive, for the recycling and recovery of waste packaging made from glass, plastic, paper and board, metals and wood. Recycling includes reprocessing materials so they can be used again. Recovery refers to the treatment of packaging material by incineration with energy recovery.

In Ireland, the share of plastic packaging waste sent for incineration with energy recovery increased from 64 per cent in 2018 to 69 per cent in 2019; 2½ times more plastic packaging waste was disposed of in this way than was recycled (221,000 tonnes versus 89,000 tonnes).

The latest data show that 2019 is the third year in a row that Ireland generated over one million tonnes of packaging waste. While Ireland met all current targets for recycling and recovery of packaging waste in 2019, future recycling targets will be challenging for Ireland. Ireland's overall packaging recycling rate in 2019 was 62%, down from 64% in 2018, and the percentage of packaging waste incinerated for energy recovery was 33% in 2019, up from 28% in 2018.

Many of the actions listed in the Circular Economy Action Plan were progressed in 2021 and will hopefully lead to further improvements in Circular Economy practices by businesses in the coming years. Actions included the revision of the EU Packaging and Packaging Waste Directive, the establishment of rules for the safe recycling of plastic into food contact materials, a feasibility study on an EU wide Circular Economy Labelling and Information System (CELIS), and the development of a policy framework for the use of biodegradable or compostable plastics.

Member States will be required to ensure that **65% overall** of product packaging is recycled by **2025**.

5.7 Directive (EU) 2019/904 of 5 June 2019 on Single Use Plastics

The EU Action Plan for a circular economy identified plastics as a key priority and committed to 'prepare a strategy addressing the challenges posed by plastics throughout the value chain and taking into account their entire life-cycle'.

It is the first Europe-wide strategy on plastics and is part of the transition towards a more circular economy. The strategy sets out a strong case for transforming the way products are designed, produced, used, and recycled in the EU while creating new investment opportunities and jobs.

The goal is to protect the environment from plastic pollution whilst fostering growth and innovation. Under the new plans, all plastic packaging on the EU market must be recyclable by 2030, the consumption of single-use plastics will be reduced and the use of microplastics will be restricted.

The Single Use Plastic (SUP) Directive 2019 also forms part of the EU's Plastic Strategy, and includes the SUP Directive Targets for Plastic Bottles:

Separate collection of beverage bottles for recycling

- 77% by 31 December 2025
- 90% by 31 December 2029

Recycled plastic content in PET beverage bottles

- 25% by 31 December 2025
- 30% by 31 December 2030

The Single Use Plastic (SUP) Directive 2019 has been transposed into Irish Law on 3 July 2021.

5.8 Preparation for re-use and recycling

With the introduction of the European waste hierarchy, one form of re-use was separated from waste prevention, the activity described as “preparing for re-use”. “Preparing for re-use is the checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing (Art.3 EU Waste Framework Directive)”

In short it simply refers to re-using things which legally have become waste. According to recent estimates 1/3 of all material arriving at recycling centres and civic amenity sites can still be re-used and at least 25% of electronic waste still has significant re-use value. Unfortunately, however, current legislation is geared towards automatically recycling, landfilling or incinerating all products as soon as they become waste, irrespective of whether you can still re-use them. For example an estimated 12.2 million tonnes of textile waste is generated annually in the EU with over half of this amount either landfilled or incinerated.

5.9 Recycling

The EU Circular Economy Action Plan aims to double the use of recycled material between 2020 and 2030, in terms of the total material used by the economy. This can be expressed as the Circular Material Use Rate - CMUR. This is expressed as a percentage of the total material used, as shown in Figure 5.10 below, showing the circular material use rate (CMUR) in EU Member States. Figure 5.9 shows that Ireland recycles relatively little (the data includes agricultural waste, sludges and construction waste).

Recycling targets include:

Re-use and the recycling of municipal waste shall be increased to a minimum of **55 % by 2025**. This must increase to **60% and 65% by 2030 and 2035 respectively**.

Member States will be required to ensure that **65% overall** of product packaging is recycled **by 2025**.

There is potential to meet the 2025 recycling targets **if recyclable waste is diverted away from incineration energy recovery and into recycling**. Plastic packaging in particular is under-used for recycling and over-used in incineration energy recovery. Incineration with energy recovery should be abandoned in favour of recycling, as it is lower on the Waste Hierarchy Index ²⁰. This is in line with the goals of the Circular Economy Action Plan ²¹.

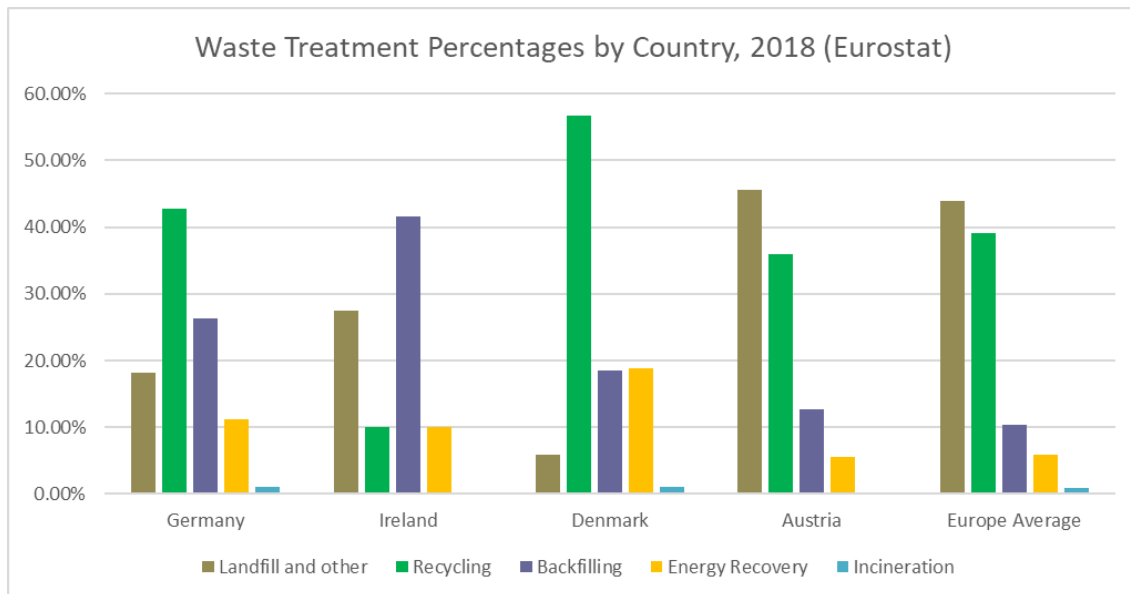


Figure 5.9 Waste Treatment in EU Member States, 2018.

Figure 5.9 shows that Ireland’s rates of recycling and waste-to-energy are almost equal, which is unusual for a European country. Landfilling percentage is much higher than the recycling percentage. Lastly, the backfilling percentage is very high, suggesting a potential to divert some of this waste to recycling.

In terms of packaging, Ireland was **below** the target of 65% recycled, at 62%, a decrease of two percentage points since 2018. This is consistent with the gradual fall in packaging recycling rates in recent years, the recycling rate for glass packaging was 84% while the recycling rate for plastic packaging was just 28%.

²⁰ Pires, A. and Martinho, G., 2019. Waste hierarchy index for circular economy in waste management. *Waste Management*, 95, pp.298-305.

²¹ <https://ellenmacarthurfoundation.org/circular-examples/the-eus-circular-economy-action-plan>

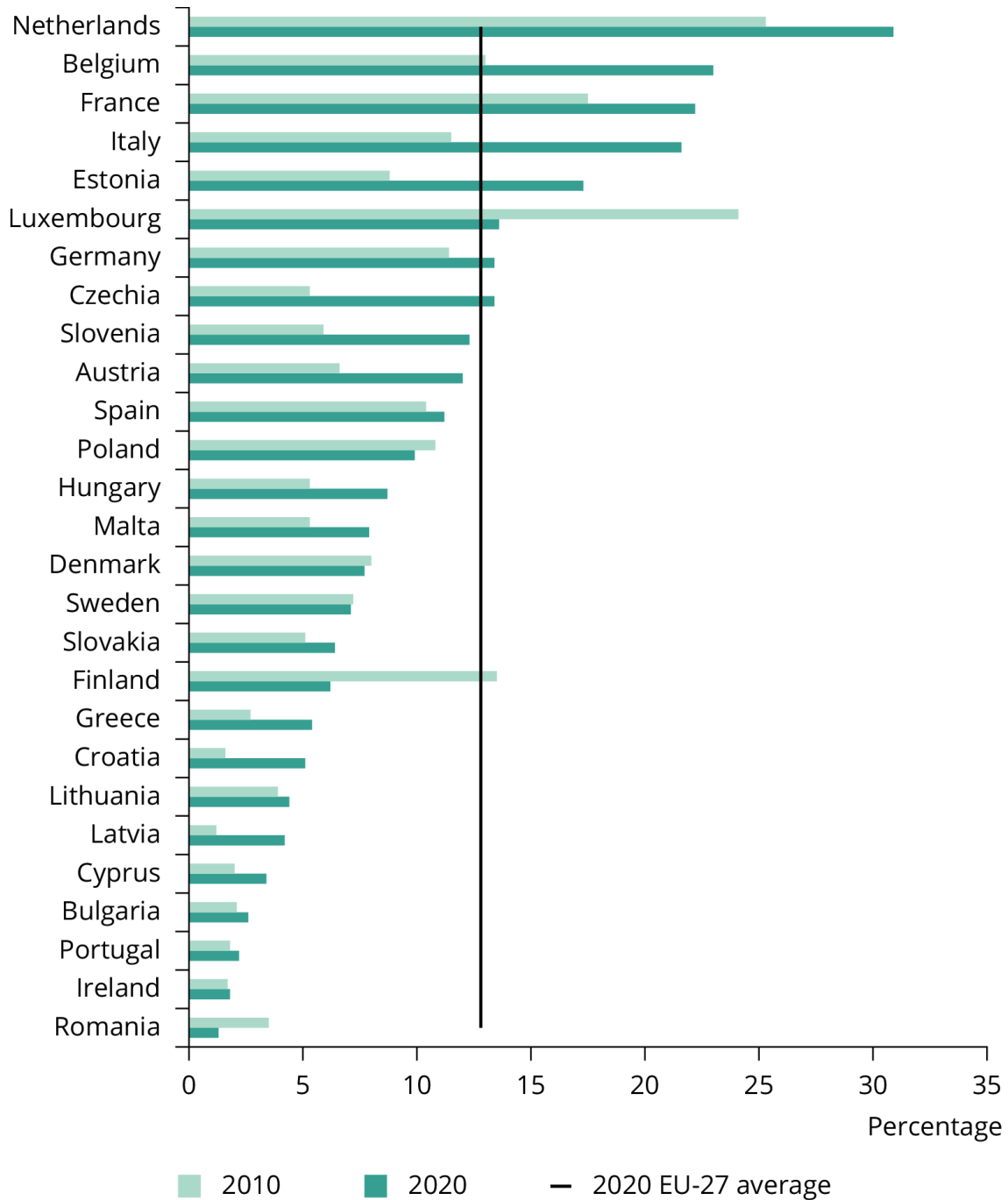


Figure 5.10 Circular Material Use Rate (CMUR) in EU Member States.

As can be clearly seen from Figure 5.10, Ireland’s CMUR in 2020 is lagging severely behind the other EU member states.

5.10 Circular Economy Strategy and Waste Action Plan for a Circular Economy

The Waste Action Plan for a Circular Economy lays out Ireland's plan to meet the EU targets in the European Green Deal. This plan was written up in 2020 after public consultation with almost 300 responses. A Waste Plan Advisory Group was formed including relevant stakeholders from economic, environmental, and social sectors. It will:

1. Reduce waste disposal and treatment to ensure that materials and products remain in productive use for longer thereby preventing waste and supporting reuse through a policy framework;
2. Make producers who manufacture and sell disposable goods for profit environmentally accountable for the products they place on the market (producer pays);
3. Ensure that measures support sustainable economic models (for example by supporting the use of recycled over virgin materials);
4. Harness the reach and influence of all sectors including the voluntary sector, R&D, producers /manufacturers, regulatory bodies, civic society; and;
5. Support clear and robust institutional arrangements for the waste sector, including through a strengthened role for Local Authorities (LAs).

In addition, the Whole of Government Circular Economy Strategy 2022 – 2023 will:

1. Provide the framework to enable the realisation of The Waste Action Plan for a Circular Economy and to promote public sector leadership in adopting circular policies and practices.
2. Aim to go beyond EU targets and significantly improve Ireland's circular material use rate so that the national rate is above the EU average by 2030.
3. Raise awareness amongst households, businesses, communities and individuals about the Circular Economy and how it can improve their lives.
4. Support and promote increased investment in the Circular Economy in Ireland, with a view to delivering sustainable, regionally balanced economic growth and employment.
5. Identify the economic, regulatory and social barriers to the development of the circular economy in Ireland, and the development of solutions.

Ireland's Circular Economy Bill of 2022 is intended by the Government to underpin Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption. This should help to minimise waste and allow Ireland to remain on the trajectory of meeting the country's greenhouse gas emissions.

With this Bill, over time, a range of single-use disposable products will be phased out in the country. It will also allow Ireland to become the first country in the world to eliminate the use of disposable coffee cups, nearly half a million of which are currently sent to landfill or incineration every day, amounting to 200 million cups a year.

Minister of State with responsibility for Communications and Circular Economy, Ossian Smyth, said:

"This bill aims to stop the wasteful pattern of using valuable resources once and then just binning them. From discouraging the use of single-use items, to improving the process for allowing recycled materials onto the market, this legislation will support the development of sustainable products and business models across the economy."

The 2022 Whole of Government Circular Economy Strategy provides the policy framework for the circular economy in Ireland, and the Circular Economy Bill is expected to strengthen waste and circular economy legislation. Nevertheless, with a circularity material use rate of 2% in 2020, Ireland shows significant scope for progress.

5.11 Incineration of Waste and the "Taxonomy Directive"

In addition to the observations on incineration of waste in sections 5.2.1 and 5.6 above, and in sections 7.2 and 7.3 below, the question of incineration is also relevant to whether or not this activity is 'green' in the context of climate change.

On 22 April 2021, the European Commission published its long-awaited 'climate taxonomy' or a list of 'green' economic activities, which aims to channel investments into activities supporting a change towards a truly sustainable world. For the EU to be carbon-neutral by 2050, projections show that all electricity should be generated with emissions below 100g CO₂eq/kWh by 2028. Investments contributing to producing electricity with impacts below this level will be considered as 'green' – a threshold said to be in line with science.

To produce energy, waste incinerators generate a high amount of direct CO₂ emissions (around 600g CO₂eq per kWh) in the EU – this is twice as much as the current average levels of CO₂ emissions in the EU to generate electricity. Avoiding incentives to build incinerators is of great importance as they usually

operate for 20-30 years – every single new incinerator built delays the transition to less carbon-intensive energy sources such as wind or solar.

It is therefore our submission that it would be irresponsible to label incineration as a 'climate friendly' investment in electricity generation infrastructures that are already largely outperformed by the EU average and, even worse, by fossil fuels such as gas (corresponding to some 340gCO₂eq per kWh). In fact, incineration is extremely ineffective and an un-ecological way of producing energy.

As such, the European financial institutions are now choosing to support alternatives that are less carbon-intensive and are higher in the waste hierarchy, excluding Waste-To-Energy incineration from their sustainability agenda. It is argued that it hampers alternatives that have higher environmental performance, such as reuse and recycling as well as it undermines the achievement of recycling targets, since significant amounts of both recyclable and non-recyclable waste are usually used as feedstock. The EU is gradually turning away from Waste-To-Energy (WTE) incineration with major European financial institutions excluding it from financial support.

Having established ambitious targets such as achieving carbon neutrality by 2050 and halving total residual waste by 2030, it is clear that fast and robust changes are needed. Waste incineration is a carbon-intensive process undermining the efforts to decrease carbon emissions and, thus, to reach carbon neutrality on time. Additionally, it harms rather than supports the transition to a circular economy. Since both non-recyclable and recyclable waste can be used as a feedstock to a waste incinerator, waste prevention and recycling are discouraged, while tending to lock-in an increasing generation of waste over time.

A similar argument may be made against the use of potentially recyclable materials in the form of Refuse Derived Fuel (RDF) and Solid Recovered Fuel (Solid Recovered Fuel) in cement production plants, a practice common throughout Europe.

6. OBSERVATIONS ON WASTE STATISTICS, CONFLICTING DATA, AND THE DIFFICULTY OF OBTAINING ACCURATE STATISTICS ON WASTE (IRELAND).

Recognised by the European Commission, Ireland's National Waste Prevention Programme (NWPP) is an exceptional example of best practice in the European Union. With the goal to adhere to the circular economy vision of the EU, Ireland's Environment Protection Agency (EPA) is working towards national-level, strategic programme that can help Ireland meet its waste targets as well as the country's pathway to net-zero carbon emissions by 2050. Using the Extended Producer Responsibility (EPR) model for dealing with a number of waste streams based on the 'polluter pays' principle, Irish producers now have a responsibility to finance the collection and environmental sound waste management of end-of-life products. The Waste Action Plan for a Circular Economy is Ireland's new roadmap for waste planning and management. We need to embed climate action in all strands of public policy. This Plan shifts focus away from waste disposal and looks instead to how we can preserve resources by creating a circular economy.

The Waste Action Plan outlines the contribution of the sector to the achievement of a number of other national plans and policies including Ireland's Climate Action Plan while matching the level of ambition shown across the European Union through the European Green Deal. To support the policy, regulation is already being used (Circular Economy Legislative Package), or is in the pipeline (Single Use Plastics Directive).

The Waste Action Plan for a Circular Economy sets out a range of aims and targets for the State and the measures by which these will be achieved, including increased regulation and measures across various waste areas such as Circular Economy, Municipal Waste, Consumer Protection and Citizen Engagement, Plastics and Packaging, Construction and Demolition, Textiles, Green Public Procurement and Waste Enforcement.

However, the EPA also highlights worrying trends on Irish waste with volumes increasing at the same time as a marked decline in recycling in the country. The heavy reliance on incineration in the country confirms that key waste streams in Ireland are trending in the wrong direction. This will make it difficult for Ireland to adhere to the demanding EU requirements over the coming decade. The Irish Times notes how systemic change is needed across all economic sectors "to shift the focus to designing out waste and promoting reuse and recycling".

7. COMPARISON WITH THREE OTHER EU MEMBER STATES

7.1 Germany

7.1.1 Introduction

Germany is often regarded as a leader in recycling and waste management and credit goes to the country's strong government policies and high public awareness in recycling. In recent years, Germany has designed systems and adopted approaches that have facilitated the collection, sorting, and recycling of waste. The country's extremely efficient deposit refund scheme has contributed significantly to the improvement of its recycling rates. The 'Energiewende' roadmap to a low-carbon future had also played an instrumental role in shaping public opinion about the benefits of recycling and sound management of waste.

7.1.2 Germany's best waste management practices

Firstly, we need to look in greater depth at some of Germany's best waste management practices and why their adoption needs to be considered by other European Union (EU) Member States to meet their recycling targets under the 2008 EU Waste Framework Directive.

7.1.2.1 *The Deposit Refund Scheme*

Under the Deposit Refund Scheme, bottles that can be recycled are labelled accordingly, allowing consumers at the time of purchase to pay a deposit – which in Germany ranges between €0.08 and €0.25. This deposit is reimbursed once the same empty bottle is returned to a retail store. "One-way" plastic bottles are in the higher price range, while the deposit for reusable glass and plastic bottles usually do not exceed €0.15 (Snell et al., 2017). The difference in price has been applied strategically to encourage consumers to return the environmentally-damaging plastic. The higher price also acts as a nudge that prevents consumers from purchasing the plastic product altogether.

7.1.2.2 *Packaging Ordinance (1991)*

The 1991 Packing Ordinance made Germany the first country to adopt binding requirements for manufacturers for the recycling and recovery of sales packaging. Replaced in 2019 by the Packaging Act, more ambitious recycling rates and targets were set. Mandatory recycling fees for packaging producers was also instilled through the Act. It is further strengthened by including provisions aimed at reducing packaging waste altogether – the foremost goal in the waste management hierarchy of reduce, reuse, and recycle adopted under the EU Waste Framework Directive (Kumar, 2020). German companies also now need to be listed in the Central Agency Packaging Register, to which they regularly report their products' masses and materials.

7.1.2.3 Mandatory Waste Sorting Policies

Based on the ‘polluter pays’ principle – the waste sorting policies in Germany make it mandatory for manufacturers and private industries to be responsible for eliminating waste and recovering the costs. The Waste Management Act further incentivises manufacturers to produce long lasting products that generate a minimum amount of waste. The polluter pays principle also ensures the environmentally sound recovery and disposal of end-of-life goals.

7.1.2.4 Ban on Single-Use Plastics and Plastic Bags

An amendment to Article 5 of the Packaging Act of 2019 introduced a ban on plastic to help allow Germany to deliver under the EU’s new Circular Economy Action Plan. The German Ordinance on Single-Use Plastics (Einwegkunststoffverbotsverordnung) was adopted and entered into force on 3 July 2021. The production and import of plastics is now strictly prohibited by law in Germany. This ban came at a significant time as Germany was exporting around one million tons of plastic every year, worth around €254 million (approximately USD\$275 million).

Before China imposed an import ban on waste in 2018, the country was one of its biggest customers. Since then, Germany has diverted waste to Malaysia as well as the neighbouring Netherlands, where 15% of German plastic waste ends up. The ban covers products including disposable cutlery, straws, cotton buds and swabs, and balloon wands made of plastic. All products that break down into micro-plastics which are particularly difficult to dispose of, are also completely banned. The ban affects products such as cotton swabs, disposable cutlery and plates, drinking straws, stirrers, cotton buds and balloon wands made of plastic. To-go food containers and beverage cups such as containers made of foamed expanded polystyrene (also known as Styrofoam) are also banned from the market.

7.1.3 What can Ireland learn from Germany about improving its recycling?

What is of major concern is that recycling in Ireland has largely plateaued since 2010 with falling rates, after achieving significant strides in the early 2000s. Data from Eurostat reveals that Ireland has the highest plastic waste generation, far higher than the EU average. However, Ireland is the fourth lowest in the EU when it comes to recycling. Ireland’s 2018 municipal waste recycling rate of 28% was in fact down from 40% the previous year, as per EPA’s preferred calculation approach based on the OECD-Eurostat sustainable development indicator on municipal waste. This puts Ireland’s recycling rate below the European average of 47% and significantly behind the leading EU country, Germany, where 67% of municipal waste was recycled in 2018 (Environmental Protection Agency, 2020). Ireland’s new Waste Action Plan for a Circular Economy 2020-2025 builds on the concept of a ‘zero-waste future’. However, this Plan could be further strengthened

to encourage the reduction of waste while enforcing a more robust recycling plan, like the one adopted in Germany, for better waste management practices.

7.1.4 References

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Kumar, P. (2020). Moving towards stronger packaging waste legislation in Germany. An analysis of the German Packaging Act.

Snell, H., Nassour, A. and Nelles, M. (2017). Qualitative comparison of polyethylene terephthalate flakes from various collection systems in Germany. *Waste Management & Research*, 35, 163-171.

7.2 Austria and Our Observations on Incineration of Waste

7.2.1 Introduction

Austria is often regarded as an advanced country when it comes to waste management practices, with its long tradition for diverting waste from landfill and long-established good recycling system and performance. Most of the Municipal Solid Waste (MSW) generated in the country is either recycled or incinerated. Evidently, few would argue against recycling, but a strong debate continues regarding incineration. Vienna is considered as having one of the most innovative waste management systems globally and unlike other major cities, residual waste is managed entirely within the city limits. The system aims to push the idea that waste is a key resource which is used to keep its citizens warm in winter. Nevertheless, how much of this concept of incineration disguised as “energy recovery” can actually be considered an environmental advancement, and what can Ireland and other EU Member States learn from a country such as Austria about the management of waste?

The technologies behind incineration are pushed as environmentally beneficial by various industries, but waste incineration, even if it is depicted as “energy recovery” or “waste to energy”, is an inappropriate solution harmful to the environment and to human health, and should therefore be rejected as a solution by the EU in the Waste Framework Directive, the Packaging and Packaging Waste Directive, and it should be highlighted in the Early Warning Report.

The misleading language used in terms such “energy recovery” (frequently abbreviated to “recovery”) is a form of greenwashing by industry lobbyists and government, and is harmful on both a national and EU level scale and does not

align with the 2015 Circular Economy Action Plan. EU Member States, including Austria and Ireland, need to dramatically reduce municipal waste generation, and considerably increase recycling. The concept of waste incineration contradicts this as it provides a need for waste generation as fuel, which should be avoided to begin with. Ireland and other EU Member States which have not adopted incineration, must ensure that waste reduction targets are met and should move away from the perception of incineration as a solution to waste management.

7.2.2 What can Ireland and other EU Member States learn from Austria about Waste Management, Repair and Reuse?

Ireland's recycling rates for municipal waste and packaging waste have declined in recent years, with more waste being sent for incineration than recycling and the need to address this is crucial. Ireland faces a widening gap to meet ambitious new EU recycling targets from 2025 onwards. To address Ireland's rising waste volumes and falling recycling rates, we need to transform existing business models into circular ones that promote waste reduction, reuse and recycling. The trends in waste management, fuelled by a privatised and profit-making waste industry clearly show that Ireland is going in the wrong direction.

Ireland's recycling rates for municipal and packaging waste have been in gradual decline for a number of years, as efforts to improve recycling have been outstripped by the growth in waste being generated and the amount being sent for energy recovery, which is similar to the situation in Austria. Circularity roadmaps are needed for waste management, including the construction, manufacturing and food processing sectors, supported by clear policy, legislation, and national targets. The Waste Framework Directive, Packaging and Packaging Waste Directives should aim to clearly outline the need for this circular framework within the EU, with mandatory implementation within member states. The urgency of the climate crisis we are currently facing should be outlined in the Early Warning Report with a clear deadline established. Irish policymakers must be hastened in establishing and implementing change.

Austria has been one of the frontrunners with regard to the establishment of regional reuse and repair networks, and this is certainly something which Ireland should implement, given the lack of such organisations. The Austrian waste prevention programme includes a specific chapter on reuse as one of the priority actions, and various studies have highlighted reuse potentials for specific regions and waste streams.

There is a general lack of public information campaigns when it comes to waste management, repair and reuse, and educating the public should be the first step when considering a national implementation plan to meet 2025 targets. An example of such initiatives is the ReUse-ReVital network, which is a well-established project in Upper Austria that combats the throwaway mentality and promotes the circular economy. Its motto is 'repairing and reusing products instead of dumping them'.

Supported by the government of Upper Austria, ReVital has built up a large network of recycling centres, processing facilities and shops. The public can take their old products such as electrical appliances, furniture, household goods and sports equipment, to 108 local recycling centres in the region. Products in good condition are collected and 'revitalized' at eight processing facilities, where employees repair and refurbish the products as needed. ReVital also has 20 partner shops in all districts of Upper Austria, where the second-hand products are sold at lower prices than new goods. The ReVital logo on the revitalised goods means that they meet high standards in terms of proper functioning, completeness, cleanliness and hygiene safety. ReVital employs around 360 people, including 176 who had previously been long-term unemployed. Hence, the project not only conserves resources and reduces environmental impacts, but it also supports social integration and job creation by helping citizens re-enter the job market .

In Vienna, the 48er-Tandler reuse shop is a waste prevention and reuse initiative and Vienna's Municipal Department 48 (MD 48) is responsible for the city's waste management. It has been active in reuse since 1989, when the city's first reuse shop, named the 48er-Basar, was founded. Usable goods could be collected at the city's recycling centres and sold in the 48er-Basar in efforts to promote reuse and waste prevention. The 48er-Tandler was opened in 2015 as a further development of the 48er-Basar, with the MD 48 district having carried out an extensive campaign to inform citizens about the possibility of taking their reusable goods to one of the recycling centres instead of disposing of them. In addition to items from the recycling centres, unclaimed goods from the city's lost and found service and items from the city's administration that are no longer in use, are given a second chance in the reuse shop. The 48-er Tandler provides a combination of social and economic benefits, as all revenues are donated for charitable purposes and citizens have access to good-quality second-hand goods at affordable prices .

7.2.3 Some Interim Conclusions

Despite the clear environmental and health effects of burning waste, Austria is highly dependent on incineration, with an associated decline in recycling. This situation is very similar to that in Ireland, where almost half of all waste produced is incinerated. Incineration ultimately threatens recycling, the environment and human health. A paradigm shift is essential in order to achieve a circular economy where waste prevention at source should be prioritised. The shift away from the "out of sight, out of mind" attitude in Ireland is now more important than ever, and waste management should not be a profitable industry in which private companies can compete against one another. The shift away from incineration and a privatised waste industry should be implemented on an EU policy level and in the Waste Framework Directive. In addition, Ireland should learn from Austria about how repair and reuse networks and public information campaigns can play an essential role in achieving a circular economy.

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Environmental Protection Agency's Call for Urgent Action:

<https://www.epa.ie/news-releases/news-releases-2021/epa-calls-for-urgent-action-to-address-irelands-rising-waste-volumes-and-falling-recycling-rates.php>:<https://waste-management-world.com/artikel/italian-waste-exports-to-austria-in-sharp-decline/>

European Environmental Agency's country profile on Austria:

<file:///C:/Users/Orla%20Coutin/Downloads/Austria%20Waste%20Prevention%20Country%20Profile%202021.pdf>

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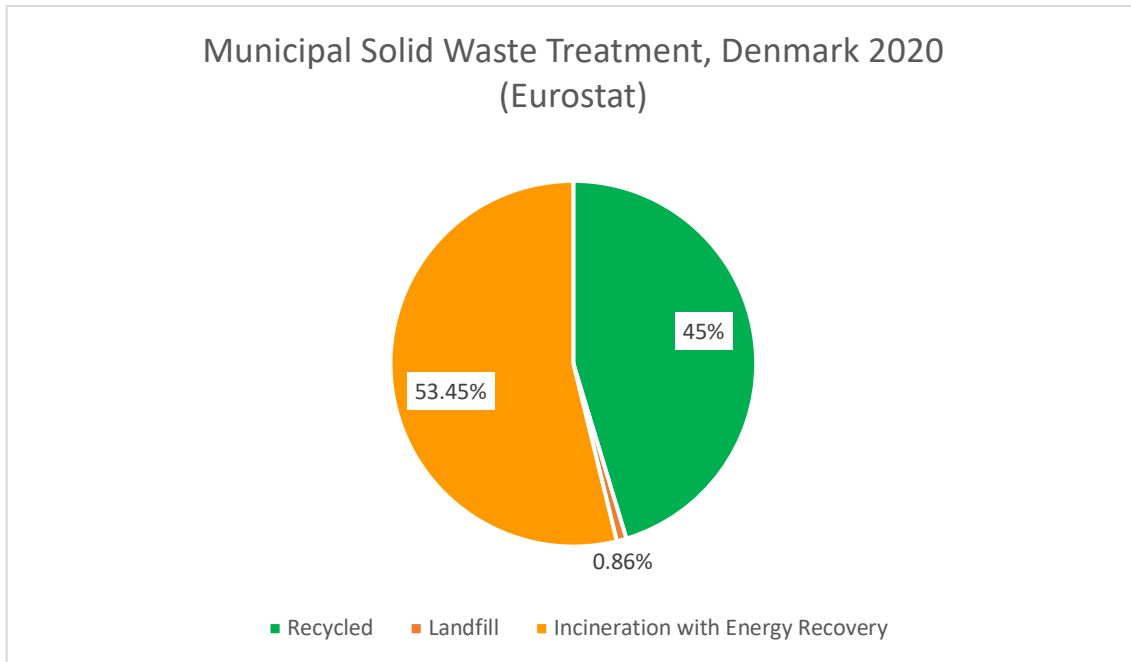
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7.3 Denmark

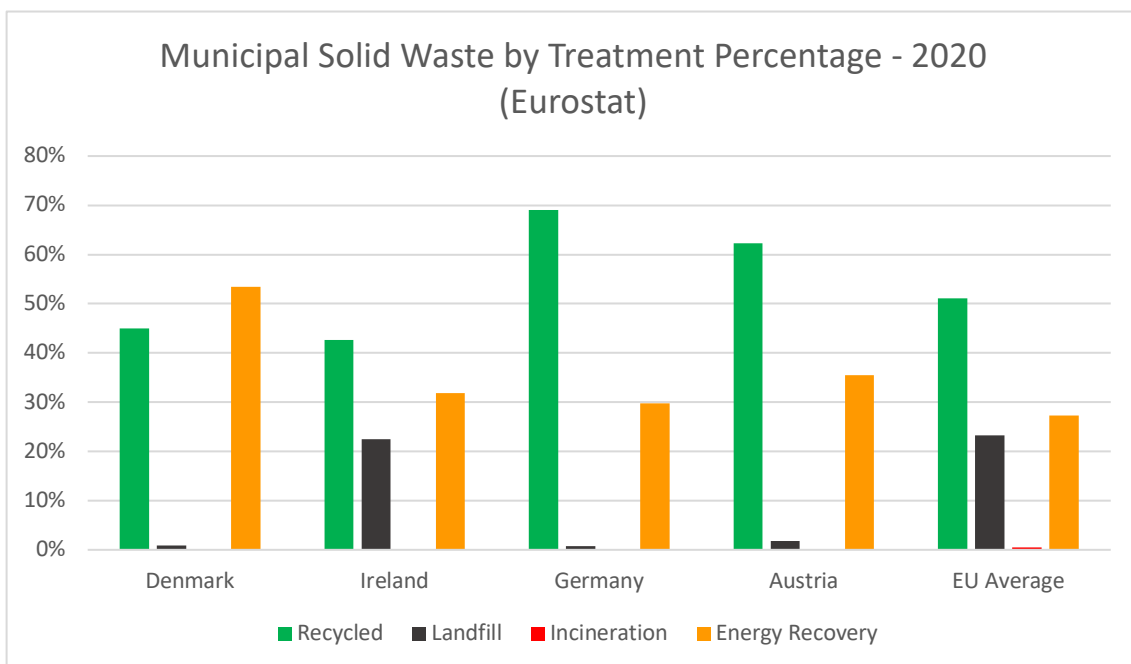
Denmark was selected as one of three Member States, to serve as examples for Ireland and as a source of information.

By 2020, Denmark was recycling 45% of its MSW. There are significant gains to be made to reach 55% by 2025. The country has done well to virtually eliminate landfill and incineration as a treatment for MSW, this is to be commended. If waste could be diverted from energy recovery to recycling, the country would be well on its way to a true circular economy. Note however that per capita, Denmark produces almost 850kg of waste, which is one of the **highest rates in Europe**. This total waste should be reduced as much as possible, in line with the European Green Deal. Let's take a look at Denmark's strategy in more detail.

Based on Eurostat data, in 2019, Denmark’s Municipal Waste was treated as follows:



In terms of municipal waste, Denmark was **below** the target of 55% recycled, at just 42.63%.



By 2020, Denmark was recycling 45% of its MSW. There are significant gains to be made to reach 55% by 2025. The country has done well to virtually eliminate landfill and incineration as a treatment for MSW, this is to be commended. If waste could be diverted from energy recovery to recycling, the country would be well on its way to a true circular economy. Note however that per capita, Denmark produces almost 850kg of waste, which is one of the **highest rates in Europe**. This total waste should be reduced as much as possible, in line with the European Green Deal. Let's take a look at Denmark's strategy in more detail.

7.3.1 Denmark's National Waste Targets

Targets are set in accordance with EU targets; and, in addition, Denmark has committed to increasing the separate collection of plastic bottles to 70 % by 2025.

7.3.2 Waste to Energy Plants

In 2018, the incinerator named Amager Bakke was completed in Copenhagen.

The structure has a ski-slope on the upper surface, a mesh of green plastic and grass allows skiing even without snow. The emissions are scrubbed to remove dioxins and other pollutants, but the facility fails to deal with the hazardous fly ash, or the most damaging pollutant: CO₂.

The plant imports waste from other countries, since Denmark does not produce enough to keep the furnaces going. About 20% of Denmark's district heating and about 5% of its electricity is supplied by waste incineration ²². The diversion of recyclable materials away from waste to energy and into recycling streams would be a major step in the right direction for the circular economy in Denmark. If this incinerator, and others like it in Denmark, could be fed with renewable, sustainable biomass, the net CO₂ emissions could be drastically reduced. Better yet, the district heating system could be powered by renewable solar and wind energy. Denmark is committed to decommissioning 7 waste to energy plants by 2030, or about 30% of the total capacity. Additionally, Denmark is planning to remove 80% of plastic from the remaining incineration plants by 2030 ²³.

7.3.3 Reduction of Waste to Landfills

The reduction of waste destined for landfill is a priority for the government in Denmark. A ban on landfilling of organic and compostable waste was introduced in 1997. Methane gas from landfills after this year have been reduced. Existing landfills in Denmark are managed to minimise the methane released.

Methane capture systems exist to utilise methane released from decomposing material in landfills. In some cases, the methane is combusted to prevent it

²² <https://www.politico.eu/article/denmark-devilish-waste-trash-energy-incineration-recycling-dilemma/>

²³ <https://stateofgreen.com/en/news/new-political-agreement-to-ensure-a-green-danish-waste-sector-by-2030/>

escaping into the atmosphere. Methane has a global warming potential (GWP) of 27.9 over 100 years. Carbon dioxide had a GWP of 1. Therefore, it's preferable to burn the methane produced by landfills, yielding carbon dioxide and water. The heat produced can also be utilised or converted to electricity.

7.3.4 District Heating in Denmark

Denmark has nationwide collective heat planning and mandatory connection, with one of the highest district heating penetration rates in the world. District heating results in lower greenhouse gas emissions than natural gas heating. Opportunities exist for decarbonisation of the district heating system and non-combustion sources of heat²⁴.



7.3.5 Public Procurement

In accordance with article 9 of the Waste Framework Directive, Denmark is promoting sustainable consumption and efficient design on products and packaging, including introducing the right to repair and eliminating planned obsolescence.

The transition of the European linear model to a circular one where the value of materials and resources are maintained in the supply chain is a major challenge. 300 billion DKK is spent every year on public procurement in Denmark. Private companies spend even more. **The Partnership for Green Public Procurement** encourages cost effective and environmentally sustainable procurement. In addition, the **Forum on Sustainable Procurement** allows members to

²⁴ Johansen, K. and Werner, S., 2022. Something is sustainable in the state of Denmark: A review of the Danish district heating sector. *Renewable and Sustainable Energy Reviews*, 158, p.112117.

collaborate in meetings and events to disseminate information and ideas related to sustainable procurement²⁵.

7.3.6 Deposit Return Scheme

The **Beverage Container Deposit Return Scheme** in Denmark allows customers to return covered refillable beverage containers, and disposable containers such as metal cans, glass water bottles, plastic energy drink bottles etc. A small refund is given for each bottle returned. Producers must register with Dansk Retursystem if they want to be included in the scheme.

7.3.7 Fund for Green Business Development

Over the period 2013–2015, the Fund invested over 54 million DKK in 33 projects including new green business models, product redesign, sustainable transition in the textile industry and reducing food waste.²⁶

7.3.8 Danish Packaging Tax

This is composed of a volume-based tax and a weight-based tax. Together these taxes make it more economically viable to collect and reuse/recycle packaging. Additionally, the tax encourages reducing packaging volumes and the use of more environmentally friendly packaging.

7.3.9 Bornholm Circular Economy Project

The Danish Island of Bornholm in the Baltic Sea, home to 40,000 people, is aiming to become a complete **circular economy** by 2032. An incinerator on the island deals with the waste produced locally. This plant will be decommissioned by 2032, in line with the circular economy plan. Currently, 75,000 metric tons of waste is treated annually on Bornholm: 7% is landfilled, 28% is incinerated, and 65% is sent for recycling.²⁷ The lessons learned in Bornholm could be transferred to other islands, including Ireland.

Since islands are microcosms where inflow and outflow can be tracked, they provide a useful opportunity to study systems in isolation, such as evolution (or

²⁵ Brears, R.C., 2018. Natural Resource Management and the Circular Economy in Denmark. In Natural Resource Management and the Circular Economy (pp. 183-218). Palgrave Macmillan, Cham.

²⁶ Brears, R.C., 2018. Natural Resource Management and the Circular Economy in Denmark. In Natural Resource Management and the Circular Economy (pp. 183-218). Palgrave Macmillan, Cham.

²⁷ Christensen, D., Hjul-Nielsen, J., Moalem, R.M. and Johansen, B., 2021. Circular Economy in Denmark: Bornholm's Vision to Achieve 100 Percent Reuse and Recycling. In Circular Economy: Recent Trends in Global Perspective (pp. 385-424). Springer, Singapore.

in this case, sustainable waste management).²⁸ This island context is therefore a good starting point to develop a functioning circular economy. However, developing infrastructure on islands comes with challenges. A circular economy approach is deemed to be the best strategy for achieving the Sustainable Development Goals of the UN.²⁹ If a successful circular economy can be established on an island, the model could be scaled up and used elsewhere.

7.3.10 Private waste companies and the Municipality

Municipalities and private companies are aiming to increase recycling capacity. Private recycling companies have access to commercial waste, while municipalities mainly handle household waste.

7.3.11 Household Bin Systems

The bin system in Denmark is quite organised. Households in Denmark have a collection system with containers supplied by the local “Kommune”. Those who live in apartments often have a chute for undifferentiated waste. In addition, a small “miljøstation” or “genbrugsstation” services 5 or 6 apartments. Here residents can sort and deposit waste into several categories. Larger recycling centres can handle bulkier and more specific types of waste.

1. Undifferentiated waste – This category includes everything that doesn't fit into the other categories. This fraction is incinerated in the waste-to-energy plants.
2. Glass – wine bottles, broken glass and other containers that are included in the deposit return scheme.
3. Paper – Newspapers, packaging and magazines.
4. Cardboard – Cardboard boxes, packaging. Processed separately to paper.
5. Hard Plastic – Containers and bottles, must be clean.
6. Electronic Waste – Wires, cables and electric devices. Larger components need to be delivered to the recycling centre.
7. Metal – Pots, cans, tools, aluminium foil.

²⁸ Deschenes, P.J. and Chertow, M., 2004. An island approach to industrial ecology: towards sustainability in the island context. *Journal of Environmental Planning and Management*, 47(2), pp.201-217.

²⁹ Fuldauer, L.I., Ives, M.C., Adshead, D., Thacker, S. and Hall, J.W., 2019. Participatory planning of the future of waste management in small island developing states to deliver on the Sustainable Development Goals. *Journal of cleaner production*, 223, pp.147-162.

8. Biodegradable Waste – Most organic waste. Containers and bags can be ordered from the municipality in Copenhagen.
9. Hazardous Waste – Medical waste, batteries, paint, thermometers. Usually must be delivered to the recycling centre, except for batteries, which can usually be deposited at the apartment block.
10. Deposit Return Scheme – Plastic and glass bottles can be returned at supermarkets and “pant” stations. A small refund is given for each bottle.
11. Clothes – Can be deposited at the recycling centre or clothes banks run by the Red Cross.

7.3.12 Denmark Comparison with Ireland

In conclusion, Denmark has several useful systems in place that are responsible for the high rate of recycling and very low landfill use. The deposit return scheme, packaging tax and public procurement systems are excellent ideas and are well executed. Household waste collection is publicly owned – it is mostly handled by the municipality. The efficient system of local collection sites for all neighbourhoods in Copenhagen, combined with larger recycling centres open to the public seems to be an effective strategy to maximise recycling rates. Ireland would do well to learn from and adopt these practices to help achieve the 2025 targets of the European Green Deal. Ireland’s recycling is handled by private companies, which are profit driven. The service is expensive for each household and does not perform as well as the Danish system.

Conversely, the high rate of incineration in waste-to-energy plants is a serious problem in Denmark’s strategy. Ireland can learn from this problem; steps should be taken by the government here to avoid becoming trapped in waste-to-energy. If Denmark could decrease the waste used in waste to energy schemes, while increasing recycling and increasing renewable energy for the district heating system, Denmark would be a world-class sustainable country and well on its way to a true circular economy.

8. SUMMARY AND OVERVIEW

Staying within the planetary boundaries set out by Rockström *et al.*, (2009)³⁰ is widely regarded as essential to avoid potentially disastrous consequences for humanity. The boundaries for biodiversity loss, climate change and the nitrogen cycle have unfortunately already been breached.

The current global industrial system generates excessive waste. This waste disaster is responsible for huge greenhouse gas emissions, contributing to climate change. Greenhouse gases are released in the production of paper, plastic and metal products and packaging. Further greenhouse gases are released into the atmosphere once this waste is collected, transported, landfilled and incinerated (including waste to energy). The planetary boundary for climate change has already been breached, therefore it is imperative that greenhouse gas emissions associated with waste are reduced dramatically.

In response to this crisis, the European Green Deal and the Circular economy Action Plan calls for the immediate reduction of waste generation in the EU. Simultaneously, rates of reuse and recycling must dramatically increase, while incineration, waste-to-energy and landfilling must decrease. This Early Warning Report has been issued three years ahead of the 2025 deadline for Member States to reach the targets for recycling of municipal waste.

In May 2018, the European Commission modified several EU Directives, listed in section 1 above (targets are summarised in section 4 above). These Directives are among the most important driving forces to support the new circular economy paradigm, as stated in the European Green Deal and the new European Action Plan for Circular Economy, and should have therefore been translated into national laws by EU Member States by July 2020.

Unfortunately, several Member States are still lagging behind and all national laws are not yet brought in line with the most recent modifications stated above. The set of infringement decisions released on 9 June 2021 gives a clear overview of the situation, since through the infringements procedure the European Commission takes legal action against those Member States who failed to comply with their obligations under EU law. It shows that:

- Seventeen Member States lack national laws in line with the amended Waste Framework Directive;
- Thirteen Member States lack national laws in line with the amended Packaging and Packaging Waste Directive;

³⁰ Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S., Lambin, E.F., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H.J. and Nykvist, B., 2009. A safe operating space for humanity. *nature*, 461(7263), pp.472-475.

- Thirteen Member States lack of national laws in line with the amended Directive on the Landfill of Waste, and;
- Seven Member States lack national laws in line with both the amended End-of-life Vehicles Directive and the amended Batteries and Accumulators Directive;
- In total, eighteen Member States are involved whereas most of them are addressed with infringement decisions related to two or more Directives.

As the national legal framework is of the utmost importance in the development of the Action Plans within the Interreg Europe SMART WASTE Project, it has been taken into account accordingly by the project Partnership.³¹

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Zero Waste Alliance Ireland

This submission was researched and written by three members of Zero Waste Alliance Ireland: Jack Coffey (member and researcher, who contributed the major areas of recycling, waste-to-energy and comparison with Denmark), Nazia N Husain (member, researcher and proofreader, who contributed the section comparing Ireland with Germany), and Jack O’Sullivan (founder member and Director). Additional research and assistance of Orla Coutin (researcher and membership secretary) is much appreciated; Dalia Smelstoriūtė prepared the contents pages; and we had encouragement given to the ZWAI team by Ollan Herr (Director and Chair of the Board of ZWAI).

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ZWAI-WMP-EWR-007 Feedback to the European Commission on Waste-related Environmental Performance.docx

³¹ [https://projects2014-2020.interregeurope.eu/smartwaste/news/news-article/12477/member-states-yet-to-align-with-eu-waste-directives/#:~:text=Directive%20\(EU\)%202018%2F849,waste%20electrical%20and%20electronic%20equipment](https://projects2014-2020.interregeurope.eu/smartwaste/news/news-article/12477/member-states-yet-to-align-with-eu-waste-directives/#:~:text=Directive%20(EU)%202018%2F849,waste%20electrical%20and%20electronic%20equipment)