



Rialtas Áitiúil Éireann
Local Government Ireland

NATIONAL WASTE MANAGEMENT PLAN

FOR A CIRCULAR ECONOMY 2024-2030



VOLUME I
CURRENT SITUATION AND CHALLENGES

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Note that a Glossary and a full list of Abbreviations for terms used in this Plan are included in Appendix 1 of Volume IV Supporting Documentation.

PREAMBLE

The Regional Waste Management Planning Offices (RWMPO) have prepared the National Waste Management Plan for a Circular Economy 2024-2030 (hereafter 'the Plan') which is the first national waste plan and sets out a framework for the prevention and management of waste in Ireland for the period 2024 to 2030. This Plan replaces the three existing Regional Waste Management Plans (RWMP) which were prepared in 2015. Section 22 of the Waste Management Act 1996, (WMA) requires local authorities (as the competent authorities) to individually, or jointly, make a waste management plan for non-hazardous waste (while also taking account of the provisions of the National Hazardous Waste Management Plan) in relation to each functional area. Under the WMA, these plans must:

- (i) Lay down measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use;
- (ii) Be in accordance with the waste hierarchy set out in Section 21A;
- (iii) Meet the protection of human health and the environment obligations set out in Section 32(1); and
- (iv) Meet the principles of self-sufficiency and proximity set out in Section 37A.

This Plan is prepared in accordance with Section 22 of the WMA (as amended by the Circular Economy Act 2022¹) and is published as a draft for consultation in accordance with Section 23 of the WMA.

Background

The first generation of waste management plans prepared in Ireland covered the period 1998 to 2004 and were based on ten waste management regions. These plans introduced a new approach to local waste management in Ireland following the policy objectives of the State's first national waste policy statement, 'Changing Our Ways'². The first generation

of waste management plans were reviewed and replaced over the period 2005 to 2006 to cover the period up to 2010 and 2011.

In July 2012, the new government waste policy, 'A Resource Opportunity'³, recommended the consolidation of the previous ten waste regions in the State to a maximum of three waste regions as follows:

- The Connacht-Ulster Region;
- The Eastern-Midlands Region; and
- The Southern Region.

In May 2015 the three regions, on behalf of the local government sector (LGS), published Regional Waste Management Plans, RWMP's, to cover the period 2015 to 2021. These plans considered waste as a resource and included policies and objectives to set the framework for the prevention and management of wastes in a safe and sustainable manner in each of the three regions. These plans are administered by the three Regional Waste Management Planning Offices, RWMPO's, who coordinated implementation on behalf of the LGS.

Ireland's National Waste Policy 2020-2025 'A Waste Action Plan for a Circular Economy'⁴ (WAPCE) calls for the replacement of the existing three RWMP with a single National Waste Management Plan containing targets for reuse, repair, resource consumption and a reduction in contamination. The Circular Economy Act 2022 also requires this Plan to include appropriate qualitative or quantitative indicators and targets for materials re-used and repaired or remanufactured.

This Plan is the national plan and will cover the full geographic scope of the State for the period 2024 to 2030. This Plan continues the evolution from local to regional to national waste planning and is Ireland's first National Waste Management Plan for a Circular Economy.

¹ Circular Economy and Miscellaneous Provisions Act 2022, Link: <https://www.irishstatutebook.ie/eli/2022/act/26/section/26/enacted/en/html>

² Link: https://www.epa.ie/publications/licensing--permitting/waste/EPA_changing_our_ways_1998.pdf

³ Link: <https://www.gov.ie/en/publication/agd98-a-resource-opportunity-waste-management-policy-in-ireland/>

⁴ Link: <https://www.gov.ie/en/publication/4221c-waste-action-plan-for-a-circular-economy/>

The Circular Economy

Historically, the global economic model involved extracting materials from the natural environment, processing these materials to make products, using these products, and then discarding as waste. This linear ('take-make-waste') model of production and consumption is unsustainable environmentally and economically.

The circular economy offers an alternative to this linear model, one in which resources are kept in use for as long as possible, the maximum value of the resources is extracted whilst in use, then products and materials are recovered and regenerated at the end of life. A circular economy can have positive environmental, economic and social impacts, such as reduced plastic pollution, new jobs and better quality, longer lasting, consumer products. The circular economy is simply illustrated in the figure over which is derived from the EPA Circular Economy Programme.

The Ellen MacArthur Foundation⁵ has provided a definition of the circular economy as follows:

'A systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution. It is based on three principles, driven by design: eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature.'

It is underpinned by a transition to renewable energy and materials. Transitioning to a circular economy entails decoupling economic activity from the consumption of finite resources. This represents a systemic shift that builds long-term resilience, generates business and economic opportunities, and provides environmental and societal benefits.'

The Circular Economy Act 2022 contains a more legal definition and defines the 'circular economy' as follows:

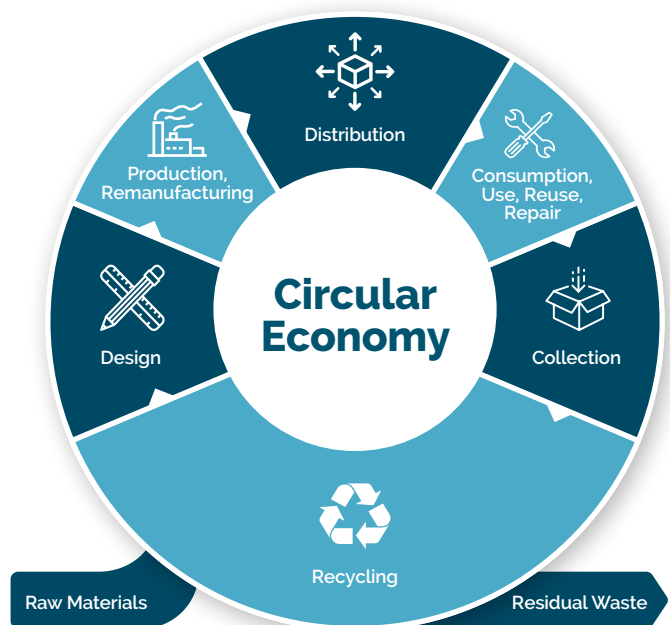
'an economic model and the policies and practices which give effect to that model in which—
(a) production and distribution processes in respect of goods, products and materials are designed so as to minimise the consumption of raw materials associated with the production and use of those goods, products and materials,

(b) the delivery of services is designed so as to reduce the consumption of raw materials,

(c) goods, products and materials are kept in use for as long as possible thereby further reducing the consumption of raw materials and impacts harmful to the environment,

(d) the maximum economic value is extracted from goods, products, and materials by the persons using them, and

(e) goods, products and materials are recovered and regenerated at the end of their useful life.'



The Circular Economy (source: EPA)

⁵ Link: <https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>

³ Link: <https://www.gov.ie/en/publication/agd98-a-resource-opportunity-waste-management-policy-in-ireland/>

⁴ Link: <https://www.gov.ie/en/publication/4221c-waste-action-plan-for-a-circular-economy/>

Plan Structure

Section 22 of the WMA sets out the legislative requirements for the preparation of waste management plans. While the requirements of Section 22 are addressed within this Plan, the structure has been modified from the previous RWMP to allow for a more thematic and adaptive model. Section 22 of the WMA is included in **Appendix 2 of Volume IV (Supporting Documentation)** of this Plan for reference.

This Plan has been prepared in four volumes as follows:

- **Volume I: Current Situation and Challenges** describes the waste and materials sector in Ireland and identifies generation trends for each material stream with capacities for collection, treatment and export. Key waste generation drivers (population, economy, policy, legislation, etc.) and next generation targets are identified. This volume informs the ambition, targets, core policies and targeted policies and priority actions in Volume II.
- **Volume II: Policy Responses and Actions** sets out the Ambition, Policies and Priority Actions that have been designed to deliver the Plan targets. This volume identifies sixteen focus areas which include individual material streams, collection systems and treatment infrastructure. Specific policies and actions for each of the focus areas are presented.
- **Volume III: Delivery Roadmap** sets out how policies and actions will be delivered and how the LGS plans to achieve the ambition and targets through annual implementation plans.
- **Volume IV: Supporting Documentation** includes all supporting information, datasets, reports and legislation referenced as essential to the preparation of this Plan.

This document is **Volume I Current Situation and Challenges** and identifies the current policy, regulatory and organisational framework for the waste and circular sectors in Ireland.

Environmental Assessment

In accordance with EU Directive 2001/42/EC and the European Communities (Environmental Assessment of Certain Plans and Programme) Regulations 2004 (S.I. No. 435 of 2004), as amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I. No. 200 of 2011), a Strategic Environmental Assessment (SEA) was carried out on this Plan and the findings are presented in an SEA Statement.

An Appropriate Assessment (AA) was also carried out and a Natura Impact Statement (NIS) prepared pursuant to Article 6 of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora as transposed into Irish law by S.I. the European Communities (Birds and Natural Habitats) Regulations 2011 (477/2011) as amended.

Both the SEA Statement and the NIS have been issued for consultation with this draft Plan in accordance with Section 23 of the WMA and are included as **Volume V** of the Plan.

Evaluation and Consultation

Article 28 of the EU Waste Framework Directive (2008/98/EC) requires Member States to include 'an evaluation of how the plan will support the implementation of the objectives and provisions of this Directive' as part of the waste management plan process. The Directive has been transposed into Irish law in the European Communities (Waste Directive) Regulations 2011-2020⁶ and the WMA. Section 22(2)(d) of the WMA requires waste management plans to be evaluated at least once in each period of six years after the date of making of the plan. An evaluation of the implementation of the three previous RWMP was undertaken in 2021 to inform the development of this Plan and this report was prepared in August 2021. A copy of this evaluation report is included in **Appendix 3 of Volume IV (Supporting Documentation)**.

The RWMPO also undertook a pre-draft consultation process on the new Plan both with the public and with key stakeholders which commenced in March 2021. A total of 19 written submissions were received during this consultation including eight from representative organisations, four from waste operators, two from State organisations, two from action groups, two from individuals and one from business. In addition, 2,005 submissions were received through an online questionnaire on www.mywaste.ie.

⁶ The European Communities (Waste Directive) Regulations 2011-2020 include both S.I. No. 126 of 2011 and S.I. No. 323 of 2020.

In general, the submissions acknowledged Ireland's successes to date and the need for further ongoing progress in working towards circularity through waste prevention and optimisation of material usage, making more with less. A copy of the Pre-Draft Submissions Report showing the details of this consultation is available in **Appendix 4 of Volume IV (Supporting Documentation)**.

A draft of this Plan was published for consultation in accordance with Section 23 of the WMA from May to July 2023. All submissions received were compiled and evaluated and a summary report of the consultation responses received and the associated updates in this Plan is included in **Appendix 13 of Volume IV (Supporting Documentation)**. All issues raised in the submissions have been considered in the process of the completion of this final Plan.

Co-ownership/Industry Integration

The waste management sector in Ireland is an open market predominantly operated by the private sector and the proportion of waste collection and treatment infrastructure in direct ownership of local authorities is relatively small. This Plan covers a diverse sector and its policies cannot be achieved by the local government sector alone as local authorities do not control all the levers and tools required to deliver on the Plan targets.

A key learning from the evaluation of the existing RWMP is that the role of the local government sector is to provide the framework for the achievement of Ireland's waste and circular ambition. The proactive collaboration of all stakeholders is key to the success of this Plan.

Chapter 7 of this volume details the organisational arrangements of the waste sector in Ireland and identifies the key stakeholders with associated responsibilities. This Plan has been prepared using a collaborative co-ownership approach between all stakeholders to ensure that the Plan can be implemented efficiently and effectively on an agreed basis, where the targets and policies are clear and where all parties have ownership.

Structure of this Volume

This volume is presented in three parts setting out the existing policy and legislative framework, current and projected waste generation and treatment capacities and an outline of existing organisational and financial resources in place to operate and regulate the market in Ireland. The three parts are presented as follows:

- **Part A – The Rules**

Part A establishes the regulatory and policy regime that frames the Plan and highlights the national context and drivers for the Plan under the following chapters:

- **Chapter 1** – Regulatory Environment;
- **Chapter 2** – Planning and Circular Economy Framework; and
- **Chapter 3** – National Setting.

- **Part B – The Landscape**

Part B provides details of trends in waste generation and associated treatment capacities and trends are used to predict future waste generation. Part B is presented in three chapters:

- **Chapter 4** – Material Streams;
- **Chapter 5** – Infrastructure; and
- **Chapter 6** – Projected Waste Generation.

- **Part C – The Resources**

Part C establishes the existing organisational structures of the waste sector within Ireland and provides details of the current resources required to deliver waste functions within the State. Part C is presented in two chapters:

- **Chapter 7** – Organisational Aspects; and
- **Chapter 8** – Finance.

A summary of the key challenges identified in the Volume is presented at the end of this document.

Where relevant, more detailed information to support the data supplied in this volume is included in **Volume IV (Supporting Documentation)**.



PART A:
THE RULES



1 REGULATORY ENVIRONMENT

The recognition of climate change as a global and local threat is driving EU Member States to a new economic model focused on two principal pillars - low carbon growth and resource efficiency. Ireland is moving beyond target compliance and carbon mitigation to integrating sustainable solutions into economic models as the economy transitions to a low carbon circular economy.

1.1 OVERVIEW OF THE REGULATORY ENVIRONMENT

The UN 2030 Agenda for Sustainable Development⁷ is a plan of action for people, planet and prosperity. It sets out 17 Sustainable Development Goals (SDG), of which Goal 12, 'Responsible consumption and Production' and its associated 11 targets are particularly relevant to this Plan. Target 17.14 is also relevant to support circular economy policy. The relevant SDG targets are listed as follows:

- **12.1** – Implement sustainable consumption and production framework;
- **12.2** – Sustainable management and use of natural resources;
- **12.3** – Halve global per capita food waste;
- **12.4** – Responsible management of chemicals and waste;
- **12.5** – Substantially reduce waste generation;
- **12.8** – Promote understanding of sustainable lifestyles;
- **12.C** – Remove distortions encouraging wasteful consumption; and
- **17.14** – Enhance policy coherence for sustainable development.

As an EU Member State, Ireland is a signatory to the UN SDG and these goals are reflected throughout the European and Irish planning and Circular Economy framework, including this Plan. In October 2022, the Department of the Environment, Climate and Communications (DECC) published the Second 'SDG National Implementation Plan 2022-2024'⁸

which sets out the objectives, actions and measures required to increase Ireland's ambition and strengthen implementation structures to achieve the Sustainable Development Goals (SDGs).

SDG12
RESPONSIBLE
CONSUMPTION AND
PRODUCTION



SDG17
PARTNERSHIPS
FOR THE GOALS



⁷ Link: <https://sdgs.un.org/2030agenda>

⁸ Link: <https://www.gov.ie/en/publication/eg50f-national-implementation-plan-for-the-sustainable-development-goals-2022-2024/#:~:text=The%20National%20Implementation%20Plan%20for,from%20two%20public%20consultation%20processes.>

1.2 EUROPEAN DIRECTION

A circular economy is a development priority of the Commission and is part of the EU industrial strategy. The transition to a more circular economy is an essential contribution to EU efforts to develop a sustainable, low carbon, resource-efficient and competitive economy.

1.2.1 Policy

The European Commission first developed a Circular Economy Package⁹ in 2015 which set out a strategic framework of measures to help stimulate Europe's transition towards a circular economy, boost global competitiveness, foster sustainable economic growth, and generate new jobs. The Circular Economy Package involved four adopted directives on waste, landfill, end-of-life vehicles/batteries, and packaging waste.

In 2019, the European Green Deal¹⁰ (EGD) became a core part of the Commission's growth strategy and includes ambitious measures to tackle climate and environment-related challenges. It is an EU-wide plan that sets out a roadmap for a transition to a new economy, with a central role for circularity, and aims to achieve a net-zero greenhouse gas (GHG) emissions economy by 2050. The EGD sets out actions and initiatives covering the entire life cycle of products and introduces both legislative and non-legislative measures.

The 2nd EU Circular Economy Action Plan¹¹ (CEAP) 2020 is a building block of the EGD and recognises the need to accelerate the circularity transition in the mainstream economy. The CEAP identifies seven key product value chains and proposes six key actions on waste including waste reduction targets; harmonising collections; measures around substances of concern; scoping more EU-wide end-of-waste criteria; and revising shipment rules.

1.2.2 Legislation

Waste management at EU level is regulated by the Waste Framework Directive (WFD, 2008/98/EC). The WFD lays down measures to protect the environment and human health by preventing or reducing the adverse impacts due to the generation and management of waste. As part of the CEAP, the WFD was amended in 2018 by Directive (EU)

2018/851 and transposed into Irish legislation under S.I. No. 323 of 2020 European Union (Waste Directive) Regulations, 2020. The amendments require Member States to improve waste management systems, efficiency of resource use and to ensure waste is valued as a resource. The key points include:

- Minimum operating requirements for Extended Producer Responsibility (EPR) schemes including fee modulation. These can also include organisational responsibility and a responsibility to contribute to waste prevention and to the reusability and recyclability of products.
- Strengthened rules on waste prevention with EU Members to take measures to:
 - Support sustainable production and consumption models;
 - Encourage the design, manufacturing and use of products that are resource efficient, durable, repairable, reusable and capable of being upgraded;
 - Target products containing critical raw materials to prevent those materials becoming waste;
 - Encourage the availability of spare parts, instruction manuals, technical information or other means to enable the reuse, preparation for reuse and repair of products without compromising quality or safety;
 - Promote the reduction of hazardous substances in materials and products; and
 - Stop the generation of marine litter.
- Setting of new municipal waste recycling targets. By 2025, at least 55% of municipal waste by weight will have to be recycled. This target will rise to 60% by 2030 and 65% by 2035.
- EU countries must establish by 1 January 2025, separate collection of textiles and hazardous waste generated by households; and ensure that from 31 December 2023, biowaste is collected separately or recycled at source (for example, by composting).
- Highlighted examples of incentives to apply the waste hierarchy, such as landfill and incineration charges and pay-as-you-throw schemes.

⁹ Link: <https://www.europarl.europa.eu/EPRS/EPRS-Briefing-573936-Circular-economy-package-FINAL.pdf>

¹⁰ Link: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

¹¹ Link: https://ec.europa.eu/environment/pdf/circular-economy/new_circular_economy_action_plan.pdf

¹² Link: <https://eur-lex.europa.eu/eli/dir/2019/904/oj>

Other EU Directives relevant to the circular economy include the Single Use Plastic (SUP) Directive 2019¹² which aims to reduce the impact of certain plastic products on the environment. The SUP outlines measures to reduce consumption of plastic food and beverage containers, specific marking and labelling of certain products, EPR schemes to cover the cost to clean-up litter (tobacco filters, food and beverage cups/containers, etc.), requirements to tether caps to bottles, targets for plastic bottles and targets for minimum recycled plastics in plastic bottles. In addition to the WFD, amendments to the Directives on Packaging, Landfill, ELVs, Batteries, and WEEE were made in response to the Circular Economy Package (refer **Figure 1.1**). Directive (EU) 2018/849 amended Directives 2000/53/EC on ELVs, 2006/66/EC on batteries and accumulators, and 2012/19/EU on WEEE.

1.3 NATIONAL POLICY PROGRESSION

1.3.1 Programme for Government

The 2020 Programme for Government¹³ (PfG) commits Ireland to work to promote a more sustainable and responsible system and culture for consumption, use and reuse of materials and end of use recycling and disposal. The PfG requires the State to work with the EU to implement the agreed circular economy approach and to support the CEAP.

The PfG also plans to implement new national waste and circular economy action plans and to create a Circular Economy Unit in government to ensure a whole of government approach to the circular economy. The PfG committed to changes to the EPR model for packaging, greener public procurement, prevention of plastic packaging, resource efficient changes to the tax system, action on single use plastics, product labelling, the Clean Oceans Initiative, biodegradable packaging composting and a Deposit Return Scheme (DRS) for plastic bottles and aluminium cans.

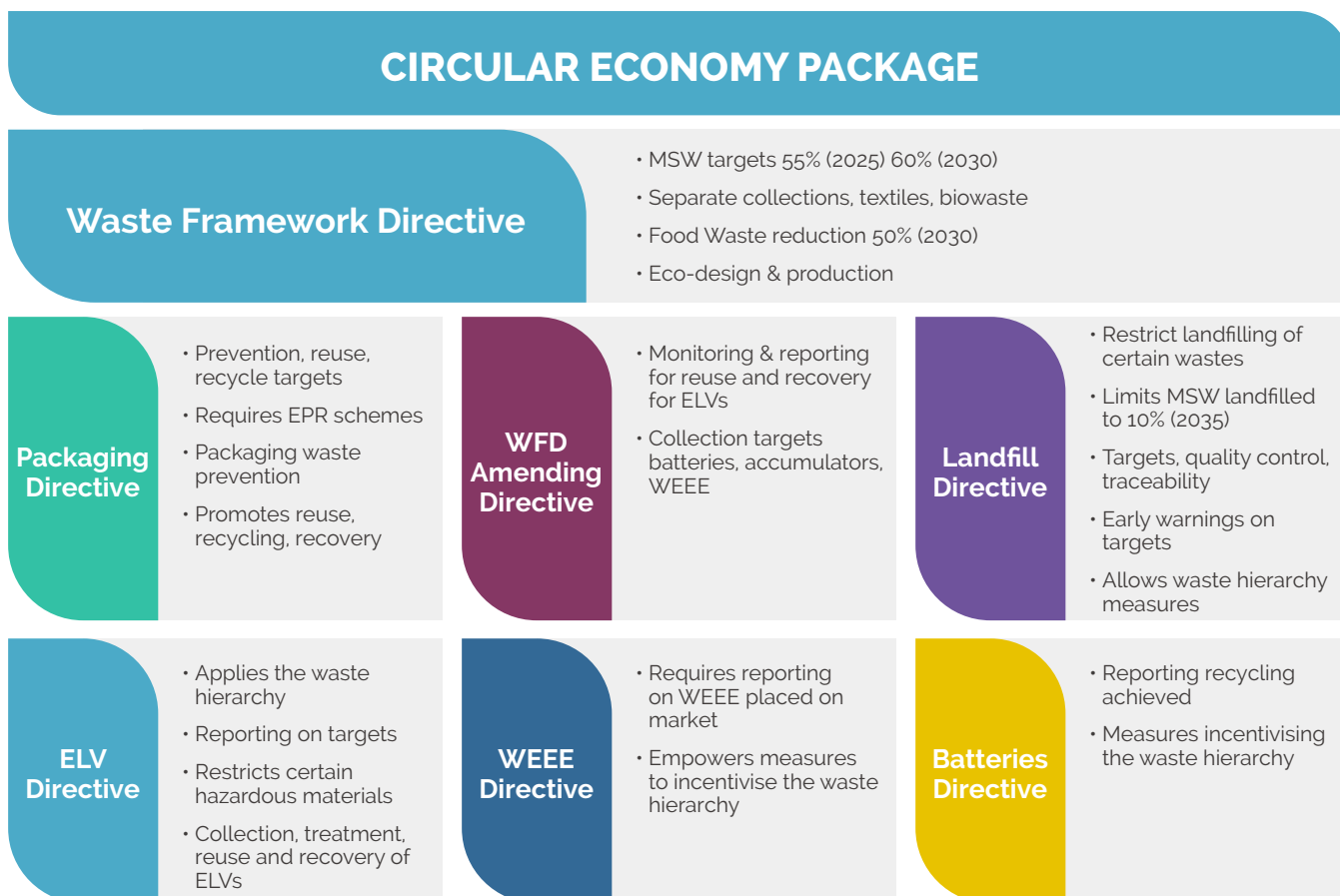


Figure 1.1: Amendments to Directives to support the Circular Economy Package

¹² Link: <https://eur-lex.europa.eu/eli/dir/2019/904/oj>

¹³ Link: <https://www.gov.ie/en/publication/7e05d-programme-for-government-our-shared-future/>

1.3.2 Climate Action Plan

The Climate Action Plan 2023¹⁴ (CAP) implements the national carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking decisive action to halve national emissions by 2030 and reach net zero no later than 2050, as committed to in the Programme for Government. The CAP is supported by measures including the Whole of Government Circular Economy Strategy¹⁵, the Circular Economy and Miscellaneous Provisions Act 2022¹⁶ and the development of the bioeconomy.

Chapter 19 of the CAP on the circular economy states that the circular economy and climate action are inherently interlinked whereby a functioning circular economy has clear co-benefits for climate and waste. The CAP measures to deliver the circular economy emissions ceiling are summarised below but excluding measures such as F (fluorine) gases and petroleum refining which are outside the scope of this Plan.

Climate Action Plan measures for the Circular Economy

Landfill Reliance

- Limit diversion of biodegradable municipal waste to landfill to maximum limit of 427,000 tonnes.
- Reduce the amount of municipal waste landfilled to 10% by 2035.

Recycling

- Recycle 65% of municipal waste by 2035.
- Recycle 70% of packaging waste by 2030.
- Recycle 55% of plastic packaging waste by 2030.
- Separate collection obligations extended to include hazardous household waste (by end 2024), bio-waste (by end 2023), and textiles (by end 2024).

Food

- Reduce food waste by 50% by 2030.

Single-use Plastics

- Provide for 90% collection of plastic drinks containers by 2029.
- Achieve the waste reduction targets through prescribed measures no later than 2026.
- Ensure all plastic packaging is reusable or recyclable by 2030.

1.3.3 Whole of Government Circular Economy Strategy

The Whole of Government Circular Economy Strategy (CES) was first published by DECC in 2021 as a strategic document intended to explain what the circular economy is, why Ireland needs to achieve a circular economy and how national policy will develop to support that goal. The strategy was further updated in 2021¹⁷ and is expected to be reviewed again in 2024.

The strategy sets out the national policy framework to support the transition to a circular economy and encourages investment in reuse, remanufacturing, preparation for reuse and repair and refurbishment and eco-design. The CES explains why Ireland needs to achieve a circular economy and how national policy will develop to support that goal. It has five key objectives:

- To provide a national policy framework for Ireland's transition to a circular economy and to promote public sector leadership in adopting circular policies and practices;
- To support and implement measures that significantly reduce Ireland's circularity gap, in both absolute terms and in comparison, with other EU Member States, so that Ireland's rate is above the EU average by 2030; such measures to address facets of sustainable production and consumption most impactful in an Irish context;
- To raise awareness amongst households, business and individuals about the circular economy and how it can improve their lives;
- To support and promote increased investment in the circular economy in Ireland, with a view to delivering sustainable, regionally balanced economic growth and employment; and
- To identify and address the economic, regulatory and social barriers to Ireland's transition to a more circular economy.

Of particular relevance to this Plan is the CES objective to reduce Ireland's circularity gap in comparison with other EU Member States so that Ireland's rate is above the EU average by 2030. Further details on Ireland's circularity rate are presented in **Section 3.3.3** which also notes that Section 7(6) of the Circular Economy and Miscellaneous Provisions Act 2022 requires that the CES sets targets for reductions in material resource consumption and the use of non-recyclable materials.

¹⁴ Link: <https://www.gov.ie/en/publication/7bd8c-climate-action-plan-2023/>

¹⁵ Link: <https://www.gov.ie/en/publication/b542d-whole-of-government-circular-economy-strategy-2022-2023-living-more-using-less/>

¹⁶ Link: <https://www.oireachtas.ie/en/bills/bill/2022/35/>

¹⁷ Link: <https://www.gov.ie/en/publication/b542d-whole-of-government-circular-economy-strategy-2022-2023-living-more-using-less/>

This Plan will support the aims of the CES including any targets for increasing the national circularity rate and this commitment is established in **Volume III**.

1.3.4 Waste Action Plan for a Circular Economy

The Waste Action Plan for a Circular Economy (WAPCE) sets out the Government policy commitment to meeting targets and provides a roadmap for the circular economy in Ireland. Developed to implement the European Circular Economy Package, the WAPCE will inform future versions of this Plan, the Circular Economy Programme (CEP, refer Section 1.4.3) and the National Hazardous Waste Management Plan (NHWMP, refer Section 1.4.6).

Overarching objectives of the WAPCE include ensuring materials and products remain in use longer by rewarding circularity and discouraging waste. The creation of a cross-Government Circular Economy Unit within the DECC and the establishment of an interdepartmental Circular Economy Working Group are among some of the measures in the WAPCE.

The WAPCE commits to replacing the existing RWMP with a single national waste management plan for a circular economy with targets and notes that 'RWMPs will be the primary decision makers for all waste management planning operational issues' in the context of supporting indigenous treatment capacity (waste management infrastructure). WAPCE also foresees the implementation of Deposit Return Schemes (DRS) for aluminium cans and plastic bottles which was implemented in February 2024.

1.3.5 National Food Waste Prevention Roadmap

The National Food Waste Prevention Roadmap 2023-2025 (NFWPR) was published on 30 November 2022¹⁸. This roadmap documents how Ireland will achieve a 50% reduction in food waste generation by 2030 in line with the UN SDG Target 12.3 (refer Section 1.1). In addition, the roadmap sets out the approach to ensure a robust national system for food waste measurement and reporting is established in order to meet Ireland's reporting obligations and to monitor Ireland's progress in meeting its UN and EU commitments over the next decade. The food waste policies presented in this Plan have been informed by the strategy presented in the Roadmap.

1.3.6 National Policy Statement on the Bioeconomy

The National Policy Statement on the Bioeconomy¹⁹ (NPSB) presents a joint vision for the development of the bioeconomy by Department of Agriculture, Food, and the Marine (DAFM) and DECC. It highlights that the bioeconomy has a close relationship with the circular economy and represents an area where Ireland has some crucial advantages. It notes that the bioeconomy should promote circularity through solutions and innovations that reuse and recycle materials, maximising resource efficiency and environmental sustainability by using unavoidable wastes. The contribution of a circular bioeconomy to reducing greenhouse gas (GHG) emissions is recognised.

1.4 KEY STATUTORY PLANS, PROGRAMMES, AND INSTRUMENTS

Extensive waste legislation governs the waste sector in Ireland and this section provides a summary of key instruments. A comprehensive list of waste legislation is included in **Appendix 5 of Volume IV (Supporting Documentation)**.

1.4.1 Waste Management Act 1996

The Waste Management Act 1996, as amended (WMA), forms Ireland's primary legislative framework for waste. The main objectives of the WMA are to deliver a more effective organisation of public authority functions in relation to waste management, enable measures designed to improve performance in relation to the prevention and recovery of waste and provide a comprehensive regulatory framework for the application of higher environmental standards in response to EU and national requirements. This Plan has been prepared in accordance with the requirements of Section 22 of the WMA.

1.4.2 Circular Economy and Miscellaneous Provisions Act 2022

The Circular Economy and Miscellaneous Provisions Act 2022²⁰ (Circular Economy Act 2022) is central to the effective and coherent statutory implementation of a fully circular economy in Ireland. This Act amends the WMA, the Litter Pollution Act 1997 and the Minerals Development Acts 1940 and 2017.

The Act provides for preparation of a Circular Economy Strategy (CES), the establishment of a Circular Economy Fund and a Circular Economy Programme (CEP) run by the EPA. The Act also

²⁰ Link: <https://www.oireachtas.ie/en/bills/bill/2022/35/>

provides for new environmental levies, the preparation of a national food waste prevention roadmap and provides powers to prohibit the placing on the market of certain products.

Designated roles for the local government sector (LGS) under this Act include powers for the LGS (and ultimately the NWCPO) to set targets for the achievement of recycling performance rates, requirements for maintaining records by permit holders, and requirements in relation to service provision and implementation of a recovery levy (payable to the LGS) and of a single use products levy. This Act supports a reconfiguration of the Environment Fund to become Ireland's Circular Economy Fund, ringfenced to support environment and circular economy projects and initiatives.

This Act includes measures to introduce a fee payable to the EPA for Regulation 27 (by-products, refer **Section 1.4.4**) and Regulation 28 (end-of-waste, refer **Section 1.4.5**) processes. In addition, this Act provides that these applications may be processed by the LGS or other public authorities and allows the EPA to place restrictions on particular materials being considered through these processes.

1.4.3 Circular Economy Programme

The National Waste Prevention Programme (NWPP) has been subsumed into the Circular Economy Programme (CEP) which provides national-level direction, data and materials for use by the LGS in undertaking community and regional scale activities, as well as funding for collaborative projects. A partnership agreement will provide clarity on the roles of the CEP and the LGS.

The CEP will support the Whole of Government Circular Economy Strategy (CES, as detailed in **Section 1.3.3**) through the Circular Economy Fund and will be a driving force for Ireland's move to a circular economy by businesses, householders and the public sector. The programme will provide insights and data to support national circular economy policy and behavioural change campaigns. It will have a coordinating role to support the DECC's cross-governmental Circular Economy Unit in overseeing national, regional, and local activities to improve coherence and alignment of national and local activities.

The stated seven key priority areas for EPA action on the circular economy are:

- Packaging;
- Plastics;
- Textiles;
- Food, water and nutrients;
- Construction and buildings;
- Electronics and information and communications technology; and
- Batteries and vehicles.

The CEP will be delivered through partnerships, including with the LGS, on behavioural change and improvement, interventions and awareness campaigns delivered annually focusing on key materials, behaviours, or businesses. Through the CEP, the EPA will also support Dublin's Rediscovery Centre as the National Centre for the Circular Economy and CIRCULÉIRE – the National Circular Manufacturing Platform.

A Circular Economy Steering Committee will be tasked with advising on how best the programme can drive the transition to a circular economy. It is proposed that action-focused sub-groups for priority areas will be formed as required to supplement the direction and assessment work of this committee.

1.4.4 By-Products (Regulation 27)

Article 5 of the WFD states that a substance or object resulting from a production process (where the primary aim of the process is not the production of that item) may be regarded as not being waste and may be classed as a 'by-product' under certain conditions.

The WAPCE seeks to reduce the environmental and health impacts of waste and improve resource efficiency. The goal is to achieve a circular economy that avoids unnecessary waste generation and allows for the use of materials as a resource. This, in turn, minimises the requirement for the extraction of additional natural resources. By-products can play a key role in achieving this, as established by the WFD and transposed into Irish law²¹.

²¹ Through Regulation 27 of the European Communities (Waste Directive) Regulations 2011, as amended.

The Circular Economy Act 2022 introduces amendments to the WMA by way of the introduction of Section 75A which will help streamline the process for decisions made by the EPA on By-Product applications. This will support the avoidance of delays in decision making and support the supply of recycled secondary raw materials in the Irish market.

The EPA has produced Regulation 27 guidance to assist with the completion of by-product notifications and the EPA maintains an online register of all notifications²². The EPA has developed national Regulation 27 criteria for two waste streams (greenfield soil/stone and site won asphalt (road planings)) and these decisions have been implemented from late 2023 (for site won asphalt) and early 2024 (for greenfield soil and stone).

As part of the Circular Economy Package, the Commission will clarify rules on by-products and end-of-waste status. This will help support the development of industrial symbiosis – a process by which the waste of one organisation can become resources for another organisation.

1.4.5 End-of-Waste (Regulation 28)

Article 6 of the WFD states that certain specified wastes shall cease to be waste when the waste has undergone a recovery (including recycling) operation and complies with specific criteria in relation to use, market need, technical value and environmental impact.

Achieving end-of-waste status for recovered waste materials can support the recycling of waste and the beneficial use of the waste without damaging human health and the environment. This in turn diverts waste from thermal treatment and landfill disposal, keeping resources in the economy which can reduce the environmental impacts arising from waste management. These benefits are consistent with the WAPCE commitment to move from over-dependence on landfill and become a recycling society. This will in turn help Ireland to move towards a circular economy, by maintaining the value of materials for as long as possible and minimising waste. The concept of end-of-waste was established in the WFD and transposed²³ into Irish law in 2011.

End-of-waste gives waste holders the opportunity to demonstrate, with an appropriate level of rigour, that a waste material can be 'fully recovered' and no longer be defined as waste where the material can be used as a 'secondary' resource in place of and fulfilling the same role as a non-waste derived or virgin 'primary' resource.

The EPA has produced guidance to assist with the completion of end-of-waste applications and maintains an online register of all Regulation 28 decisions²⁴. End-of-waste criteria have been set at EU level for glass cullet, copper, iron, steel and aluminium scrap with two further criteria under development for recycled plastics and textiles. To achieve end-of-waste for one of these materials, the European Union level end-of-waste criteria must be achieved and material producers must also meet the quality output requirements and quality management assessment in order for waste to be classed as a secondary raw material.

As for Regulation 27, the Circular Economy Act 2022 introduces amendments to the WMA by way of the introduction of Section 75A which will help streamline the process for decisions made by the EPA on End-of-Waste applications. This will support the avoidance of delays in decision making and support the supply of recycled secondary raw materials in the Irish market.

The EPA has developed national Regulation 28 criteria for recycled aggregates²⁵. In order to produce recycled aggregates in accordance with the National End-of-Waste Criteria-Recycled Aggregates (EoW-N001/2023) a registration must be made by the producer in advance of production.

1.4.6 National Hazardous Waste Management Plan, 2021-2027

The National Hazardous Waste Management Plan (NHWMP²⁵) is a cyclical plan published by the EPA. An objective of the fourth NHWMP 2021-2027 includes to: 'Promote safe reuse and recycling pathways in support of the circular economy'. Prevention forms an important part of waste management plans and the NHWMP recommends that these provisions be implemented in full, especially in relation to hazardous waste. The NHWMP recommends that prevention initiatives be incorporated into this Plan. A NHWMP implementation group has been established and the LGS is represented.

²² <https://www.epa.ie/byproduct/#/>

²³ Through Regulation 28 of the European Communities (Waste Directive) Regulations 2011, as amended.

²⁴ Link: www.epa.ie/our-services/licensing/waste/end-of-waste-art-28

²⁵ Link: <https://www.epa.ie/publications/licensing--permitting/waste/-national-end-of-waste-criteria-recycled-aggregates.php>

²⁶ Link: <https://www.epa.ie/publications/circular-economy/resources/national-hazardous-waste-management-plan-2021---2027.php>

1.4.7 National Wastewater Sludge Management Plan, 2016-2021

The first National Wastewater Sludge Management Plan 2016-2021 (NWSMP²⁷) is a 25-year strategy published by Irish Water. Sludge is managed by intermediate treatments including alkaline stabilisation, composting and anaerobic digestion (AD) with the outputs applied to land. Over 98% of Irish sludges are applied to agricultural land after treatment. The NWSMP reports pressure to diversify away from application of sludge outputs to agricultural land. Options that would reduce reliance on agricultural land include treatment in waste management infrastructure such as waste to energy (WTE) plants. The NWSMP reviewed and incorporated recommendations of the 2015-2021 RWMP and the earlier sludge management plans, where appropriate.

1.4.8 OECD Study: The Circular Economy in Ireland (2022)

The Organisation for Economic Cooperation and Development (OECD) published a report in April 2022 summarising Ireland's progress towards a circular economy²⁸. The study reported that as the European country with the second-lowest circularity material use rate (1.8% compared to the

EU average of 12.8% in 2020 as reported by the OECD but 2021 data is available in **Section 3.3.3**). Ireland has significant scope for progress. Bridging this gap holds great promise for the Irish economy, job creation, GHG emissions reductions and the environment. The report concluded with grouped recommendations on how government could encourage the circular economy under the following headings: circular economy promotion; facilitation of stakeholder collaboration to realise the circular economy, enable the necessary regulatory and financing conditions, develop training programmes, support business innovation, and build a national circular economy information system to inform, assess and adjust circular economy policies.

1.5 PROGRESS TO EU TARGETS

Figure 1.2 and Figure 1.3 illustrate Ireland's progress towards meeting the current generation of waste targets that are included in EU Directives. The figures show that all targets have been met or are on track. However, Ireland faces more arduous challenges in meeting the next generation of waste targets for key material streams as outlined in **Chapter 4**.

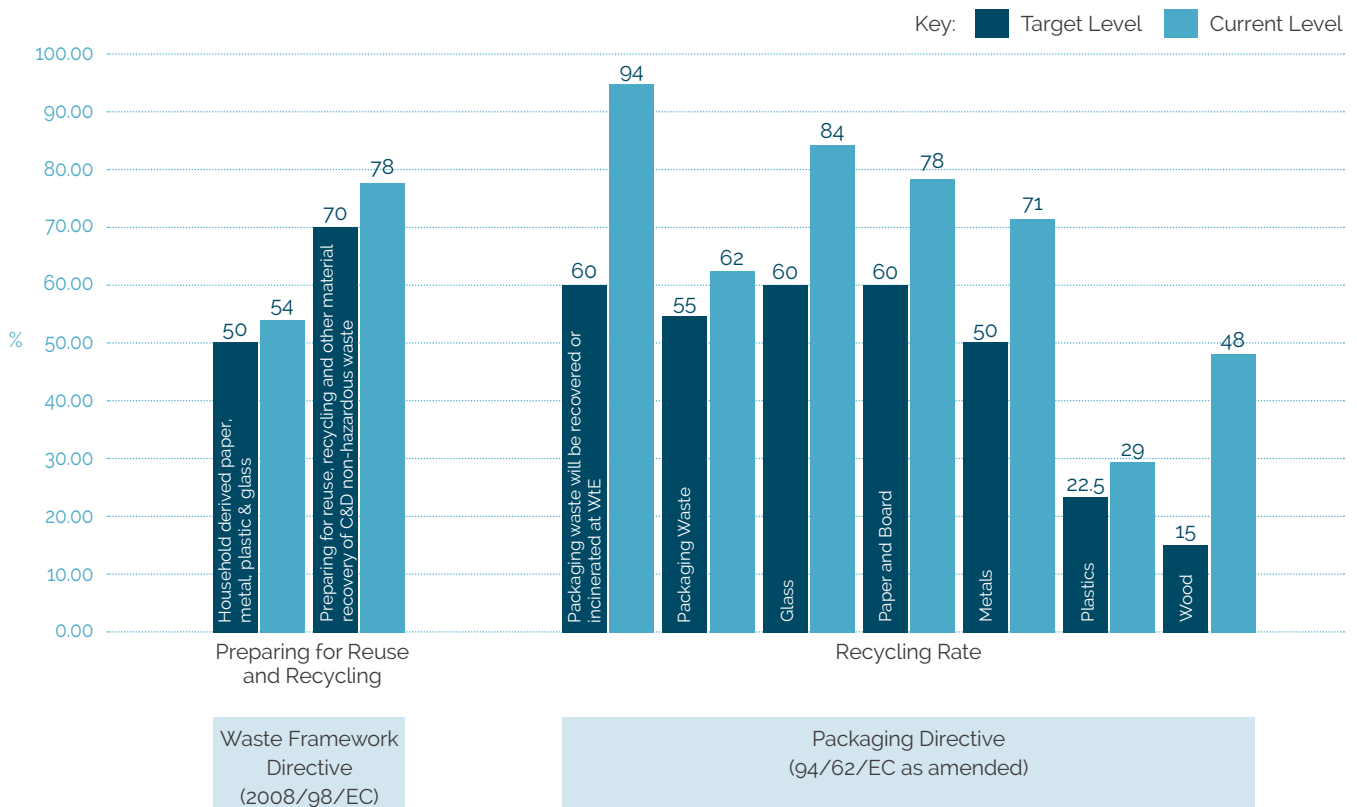


Figure 1.2: Progress to Targets under the WFD, Packaging Directive and the Landfill Directive (source: EPA)

²⁷ Link: <https://www.water.ie/projects/strategic-plans/national-wastewater-sludge/>

²⁸ Link: <https://www.oecd.org/publications/the-circular-economy-in-ireland-7d25e0bb-en.htm>

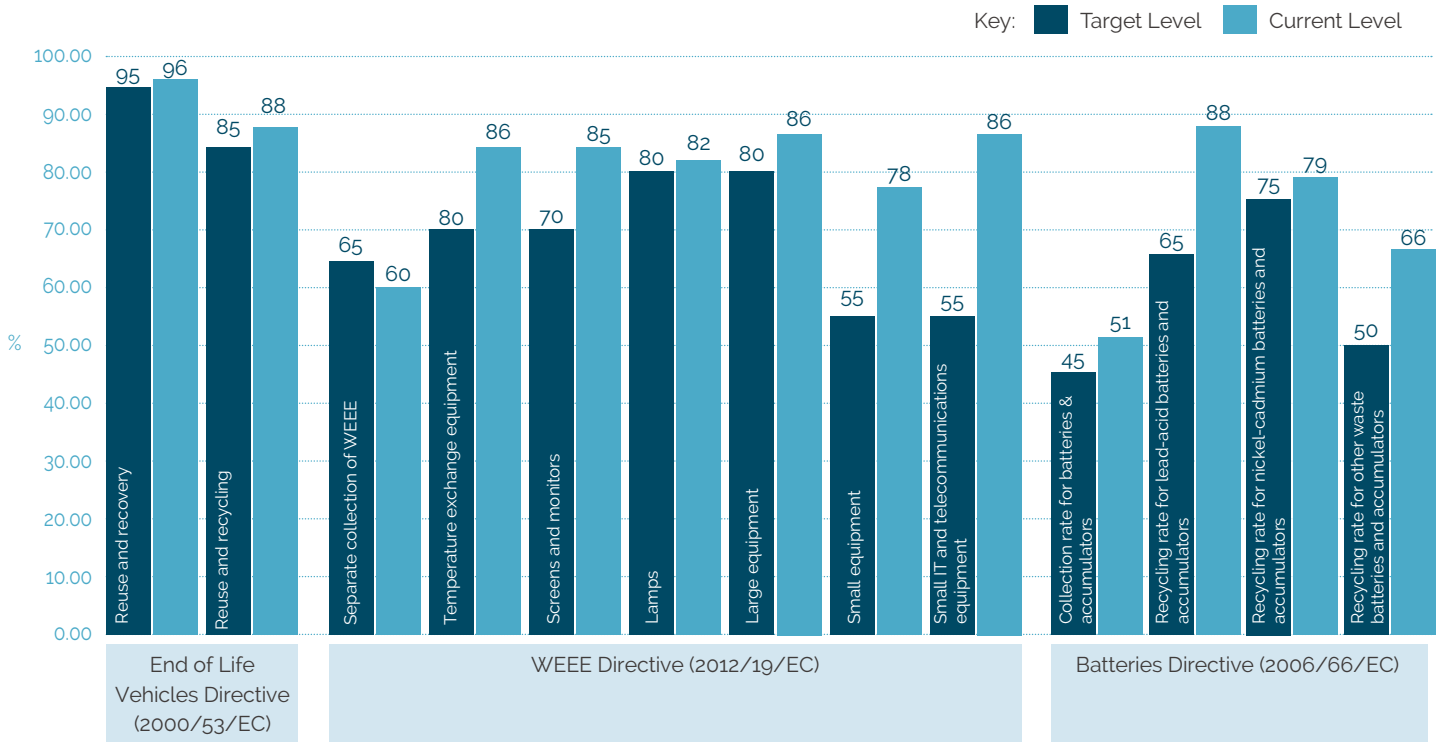
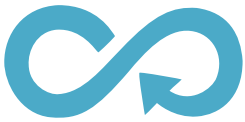


Figure 1.3: Progress to Targets on ELVs, WEEE and Batteries Directives (source: EPA)





2 PLANNING AND CIRCULAR ECONOMY FRAMEWORK

The policy, legislative and planning landscape within which this Plan operates incorporates the Climate and Circular Economy frameworks. This chapter reviews this wider framework and the position of the Plan within the existing policy hierarchy. Note that **Chapter 1** of this volume provides for a more detailed overview of the regulatory environment including the relevant policy and legislation driving the policies in this Plan.

2.1 How this Plan interacts with other Policy

The wider legislative, policy and planning framework in Ireland for circular economy and waste is illustrated in **Figure 2.1**. The governing legislation and policy from Europe which is translated into Irish law is identified as well as the key actors. The figure shows the hierarchy of key national policy and statutory plans which interact with this Plan. These interactions are summarised as follows:

- The European Commission's 'European Green Deal'²⁹ (EGD) is the sustainable growth and recovery strategy for Europe with aims to be climate neutral by 2050. The actions to achieve this aim span a range of policy areas and a key objective is to decouple economic growth from resource use and boost the efficient use of resources by moving to a clean, circular economy.
- In March 2020, the Commission adopted the new 'Circular Economy Action Plan'³⁰ (CEAP), which focuses on a sustainable product policy framework, identification of key value chains, less waste and higher value waste materials.
- The 'Climate Action Plan 2023'³¹ (CAP) is the Government's plan to address climate change and achieve net zero greenhouse gas (GHG) emissions by 2050. CAP is at the top of Ireland's environmental policy actions. The CAP requires emissions savings by maximising material use efficiency – a focus on circularity that aligns with this Plan's vision for more circular material management. The CAP also recognises the contribution of a circular bioeconomy to reducing GHG emissions.
- The 'Circular Economy and Miscellaneous Provisions Act 2022'³² creates a statutory footing for the circular economy by establishing the legislative basis for key measures including the CES and the CEP. This Act introduces new obligations to set targets within the implementation of the CES, the implementation of incentivised charging for the commercial sector, the recovery levy and the circular economy fund.
- Ireland's 'Waste Action Plan for a Circular Economy 2020-2025'³³ (WAPCE), sets out the Government's policy commitment to meet EU targets and provides a roadmap for the circular economy in Ireland. Developed to implement the European Circular Economy Package, the WAPCE sits at the top level of the hierarchy of waste and circular economy policy and planning. It informs and guides the future development of this Plan, the Circular Economy Programme (CEP) and the National Hazardous Waste Management Plan (NHWMP). The WAPCE commits to replacing the existing three RWMP with a single National Waste Management Plan for a Circular Economy (this Plan) containing targets for reuse; preparation for reuse and repair; resource consumption; and reducing contamination levels (as contained in **Volume II**). The WAPCE also commits to ensuring that green public procurement actions feature prominently in this Plan.

²⁹ Link: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

³⁰ Link: https://ec.europa.eu/environment/pdf/circular-economy/new_circular_economy_action_plan.pdf

³¹ Link: <https://www.gov.ie/en/publication/6223e-climate-action-plan-2021/>

³² Link: <https://www.oireachtas.ie/en/bills/bill/2022/35/>

³³ Link: <https://www.gov.ie/en/publication/4221c-waste-action-plan-for-a-circular-economy/>

- The 'National Hazardous Waste Management Plan 2021-2027'³⁴ (NHWMP) is a statutory six-year document prepared by the EPA. Local authorities are required to consider the information provided in the NHWMP when preparing the policies and actions of this Plan and to take relevant recommendations in the NHWMP into account.
- The 'Circular Economy Programme 2021-2027'³⁵ (CEP) will support the Whole of Government Circular Economy Strategy and will be financed through the Circular Economy Fund. The CEP will interact with this Plan on activities at the upper tiers of the waste hierarchy – prevention, reuse, preparation for reuse and repair and recycling. The CEP will support the DECC cross-governmental Circular Economy Unit in overseeing national, regional, and local activities to improve coherence and alignment of national and local activities. In

that role, and under a partnership agreement, the CEP will provide national-level direction and engage with the RWMPO in undertaking community and regional scale activities and providing funding for collaborative projects.

The Plan interacts with other statutory plans, non-statutory plans and high-level strategies as follows:

- The 'Whole of Government Circular Economy Strategy'³⁶, (CES) sets out the national policy framework to support the transition to a circular economy and encourage investment. The Plan will support the aims of the CES, through the inclusion of targets for reuse, preparation for reuse and repair, resource consumption and reducing contamination levels, supporting the aim to increase Ireland's circularity rate above the EU average by 2030.

	LEGISLATIVE	POLICY, PLANS & PROGRAMMES			DEVELOPMENT
EUROPE	Directives on: Waste Framework; Hazardous Waste; Single-Use Plastics; Industrial Emissions; Packaging and Packaging Waste; End-of-Life Vehicles; Batteries; WEEE; Batteries and Accumulators • Regulations on Transfrontier Shipment of Waste; REACH, POPs • European Climate Law	Environment Action Programme (8th) EU Strategy for Sustainable & Circular Textiles (2022)	EU CE Package (2015) EU Green Deal (2019) Circular Economy Action Plan (2020)	Updated Bioeconomy Strategy (2018) & Action Plan (2018)	
	ACTORS: GOVERNMENT, LAS	ACTORS: DECC, EPA, LAS, RWMPOS, WERLAS, NTFSO, NWCPO, 6 PRIS, CIRCULEIRE			ACTORS: GOVERNMENT, LSG
IRELAND	Circular Economy Act (2022) Regulations and Acts • EC (Waste Directive) Regulation 2020 • Protection of Environment Act • Shipment of Waste Regulation • Industrial Emissions (2013) Regulation • TFS Regulation (2006) • Waste Management Act (1996)	Waste Management Acts (1996-2002) National Food Waste Prevention Roadmap (2022) Policy Statement on Bioeconomy (2018)	Climate Action Plan Waste Action Plan for a Circular Economy 2020-2025 (2020)	Programme for Government (2021) Whole-of Government CE Strategy 2022-2023 (2021)	National Planning Framework to 2040 NWMP for a CWE 2024-2030 (2024)
	Stream specific Regulations, incl EPR • Tyres; Packaging; Farm Plastics; ELVs; WEEE; Batteries; Hazardous; Persistent Organics; Restrictions on Hazardous Substances	NIP on POPs (2018)	NWMP for a CE 2024-2030 (2024)	CE Programme (NWPP) (2021)	National Hazardous Waste Management Plan (2021)
	Bye-laws • Waste Presentation; Litter etc..	National Wastewater Sludge Management Plan (2016)			Regional Spatial & Economic Strategy (RSES) City and County Development Plans
		Local Development Plans			

Figure 2.1: Climate and Circular Economy Framework for this Plan

³⁴ Link: <https://www.epa.ie/publications/circular-economy/resources/national-hazardous-waste-management-plan-2021---2027.php>

³⁵ Link: <https://www.epa.ie/publications/circular-economy/resources/the-circular-economy-programme-2021-2027.php>

³⁶ Link: <https://www.gov.ie/en/publication/b542d-whole-of-government-circular-economy-strategy-2022-2023-living-more-using-less/>

- The 'National Food Waste Prevention Roadmap 2023-2025'³⁷ (NFWPR) was published on 30 November 2022 and documents how Ireland will establish the national baseline data on food waste and how the government proposes to achieve a 50% reduction in food waste generation by 2030. The food waste policies presented in this Plan are informed by the strategy presented within this Roadmap.
- The 'National Policy Statement on the Bioeconomy'³⁸ (NPSB) presents the DAFM and DECC joint vision for the development of the bioeconomy. The NPSB highlights that 'The bioeconomy has a close relationship with the circular economy. The bioeconomy should promote circularity through solutions and innovations that reuse and recycle materials, maximising resource efficiency through the use of unavoidable wastes and environmental sustainability'. This Plan will support the NPSB and the bioeconomy, for example, through use of food waste for bio-energy production. However, there is need for better integration and coordination between the two sides of the bio and circular economy to ensure resource flows and synergies are harnessed. The NPSB key action to 'Assess the current legislative definition of waste and recommend whether a redesignation is necessary for residual waste flows to be successfully managed for use in the bioeconomy' is noted.
- The 'National Marine Planning Framework'³⁹ (NMPF) includes for specific policy on marine litter and seeks to contribute to the Marine Strategy Framework Directive (2008/56/EC, MSFD) Good Environmental Status (GES) descriptor: Properties and quantities of marine litter do not cause harm to the coastal and marine environment. The NMPF includes a specific environmental target D10T1b which states: 'In accordance with the provisions of Article 5 of Directive (EU) 2019/904 by year-end 2023, eliminate beach litter caused by the items prohibited from the market under that Directive'. This refers to materials listed under Annex B of the Single Use Plastics (SUP) Directive (EU 2019/904) to be banned including cutlery, plates, food and beverage containers, etc. It is noted that microplastics do not fall directly within the scope of the SUP Directive nor any other current Directive or policy but remain a critical consideration for waste management and water quality.
- Directive (EU) 2019/883⁴⁰ specifically relates to port reception facilities for the delivery of waste from ships and has been transposed into Irish law through S.I. No. 296 of 2021⁴¹ in June 2021. This legislation covers all 'waste from ships' including cargo residues generated during the service of a ship or during loading, unloading and cleaning operations as well as passively fished waste. Port authorities (typically local authorities but for Cork and Dublin these are private companies) must develop and implement an appropriate waste reception and handling plan which must be approved by the Minister for Transport. The exception is the Fishery Harbour Centres which are regulated by the DAFM which is responsible for the preparation of the waste reception and handling plan.

2.2 PLANNING FOR WASTE AND CIRCULAR ECONOMY DEVELOPMENT

In Ireland, planning and development is governed by a hierarchy of national, regional and local strategic development plans. This Plan is part of this structure and its position in the context of national and regional plans is shown in **Figure 2.1**.

Project Ireland 2040⁴¹ is the government's overarching policy initiative to make Ireland a better country which seeks to achieve ten strategic outcomes, building around the central themes of wellbeing, equality and opportunity. These ten shared priorities will ensure a consistent approach between planning objectives under the National Planning Framework⁴³ (NPF) and investment commitments under the National Development Plan 2021-2030⁴⁴ (NDP). The NDP notes that 'Significant infrastructure capacity development will be required to separate and process various waste streams at municipal and national levels to achieve new EU legally-binding targets and the additional investment may include a potential role for public investment'

³⁷ Link: <https://www.gov.ie/en/publication/824c3-national-food-waste-prevention-roadmap-2023-2025/>

³⁸ Link: <https://assets.gov.ie/2244/241018115730-41d795e366bf4000a6bcob69a136bda4.pdf>

³⁹ Link: <https://www.gov.ie/en/publication/a4a9a-national-marine-planning-framework/>

⁴⁰ Link: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32019L0883>

⁴¹ Link: <https://www.irishstatutebook.ie/eli/2021/si/296/made/en/print>

⁴² Link: <https://www.gov.ie/en/campaigns/09022006-project-ireland-2040/>

⁴³ Link: <https://nfp.ie/>

⁴⁴ Link: <https://www.gov.ie/en/publication/774e2-national-development-plan-2021-2030/>

The planning context for this Plan has changed since the preparation of the RWMPs. In 2015, the organisation of regional planning authorities in Ireland was reduced from eight to three with the new assemblies mirroring the regional arrangements for waste management – Eastern and Midland, Northern and Western and Southern. These new authorities were tasked with preparing new Regional Spatial and Economic Strategies (RSES) replacing the previous eight regional planning guidelines. The RSES set high level waste and circular economy objectives which are to be implemented by County and City Development Plans. These objectives require local authorities to achieve:

- Waste reduction;
- Increases in material reuse and recycling; and
- Reductions in waste going for disposal.

These are to be achieved through compliance with the strategic objectives, targets and goals set out in the RWMP. The RSES present regionally specific guidance, e.g., the Eastern and Midland Regional Assembly RSES requires that local authorities 'liaise with the Regional Waste Management Office when considering proposals for the development of brownfield sites that require the offsite disposal of contaminated waste, so that a programme for site remediation can be identified early and considered by all stakeholders.'

This Plan is a statutory planning document setting out policies for the development of waste treatment infrastructure and sits on the same planning tier as the RSES and the city and county development plans. In Ireland, development plans are the blueprint for local planning and development. Each plan sets out the planning policies of a local authority over a six-year period. These local planning frameworks are deemed (under law⁴⁵) to contain the objectives of this Plan in force for that jurisdiction. In the event of a conflict arising between a policy in this Plan and that of a city or county development plan, this Plan policy takes precedence and permission may be granted⁴⁶.

In preparing this Plan, the local authorities have considered the relevant statutory obligations and the European Commission's guidance document⁴⁷ on waste plans.

2.3 SITING NEW WASTE AND CIRCULAR ECONOMY DEVELOPMENT

The 'Waste Management Infrastructure Guidance for Siting Waste Management Facilities' was prepared by the RWMPO to promote consistent siting of new waste infrastructure. The guidance is included in this Plan to provide a statutory context for the siting of future waste developments.

The guidance supports local planning authorities, An Bord Pleanála (ABP) and other relevant bodies when assessing and deciding on applications for planning approval or other consents. It also supports waste management organisations and project developers (including local authorities) when siting a new facility. The guidance includes broad siting criteria and facility specific guidance for consideration when siting new waste facilities.

For relevant facilities and applications, planning authorities and project developers (including local authorities) must consider the general siting criteria and facility specific guidance.

The guidance includes setback distances to neighbours (i.e., residential properties and businesses) and national roads which are intended to guide the siting of activities. The guidance balances economic and development considerations alongside planning, environmental and community concerns. There is scope to reduce the guidance distances through appropriate planning conditions and mitigation measures.

A copy of this guidance is appended to this Plan as **Appendix 9 of Volume IV (Supporting Documentation)**.

⁴⁵ Section 10A (a) Waste Management Act 1996.

⁴⁶ Section 10A (b)(i) Waste Management Act 1996.

⁴⁷ Link: <https://op.europa.eu/en/publication-detail/-/publication/39f97b22-394a-40ce-8c09-f80dcbcf76fc7>



3 NATIONAL SETTING

This chapter describes supporting regional structures and drivers for waste management planning such as population and economic activity.

3.1 BACKGROUND TO THIS NATIONAL PLAN

Waste management planning is the responsibility of the LGS under Part II of the WMA, and in June 2013 the three waste management regions of Connacht-Ulster, Eastern-Midlands and Southern were established. Each region established an RWMP to administer and lead the implementation of the waste management plans.

In May 2015, each of the three regions published an RWMP to cover the period 2015 to date. A series of objectives, policies, and actions in the RWMP set the framework for the prevention and management of wastes in a safe and sustainable manner in each region.

At the end of the RWMP period in 2021, an evaluation of the implementation of the plans was undertaken in accordance with Section 22(2)(d) of the WMA (included as **Appendix 3 of Volume IV**). The evaluation noted that the LGS sector achieved a high level of success in implementing the various policies and policy actions prescribed within the RWMP. However, the evaluation highlighted lower performance in achieving the three headline strategic targets covering prevention, recycling, and landfilling.

On the basis of a number of policy, legislative and operational changes listed below, a replacement national waste management plan (this Plan) was recommended:

- Prior to the evaluation of the RWMP, the WAPCE called for the replacement of the three RWMP with a single national plan (as suggested by the CCMA in a pre-draft submission to DECC on the WAPCE) and this proposal was affirmed by the evaluation.

- Policy and legislative changes at EU level (in particular the European Green Deal (EGD), the 2nd Circular Economy Action Plan (CEAP) and the revised Waste Framework Directive 2018/851) and at national level (the WAPCE, the Climate Action Plan (CAP), the Whole of Government Circular Economy Strategy 2021-2022 (CES), the Circular Economy Programme 2021-2027 (CEP) and the Circular Economy Act 2022) must be considered in this new Plan. These policy and legislative changes will increase the focus on waste prevention, set new binding targets for municipal and packaging wastes and mandate a transition to the circular economy that must be accounted for within the policies and actions of this Plan.
- While a predefined set of requirements for the Plan have been set under the revisions to Section 22 of the WMA⁴⁸, a more flexible approach to the Plan was recommended to align with the WAPCE. The statutory requirements of Section 22 are fulfilled albeit through a recast structure within this Plan.
- This Plan will maintain the ability to adapt and adjust priority actions/targets to meet challenges and opportunities and these recommendations will be brought for approval to Regional Steering Groups to consider amended/new priority actions/targets. Any recommendations will be brought to the relevant CCMA oversight group.
- Finally, the evaluation pointed to the need for greater collaboration between key stakeholders, including shared ownership, to deliver policies and targets that support the transition to a circular economy.

This Plan has been developed in the context of these policy legislative and operational changes.

⁴⁸ Ref: European Communities (Waste Directive) Regulations 2020 (S.I. No. 323 of 2020).

3.2 SUPPORTING STRUCTURES

The overall direction and coordination of waste functions of the local government sector (LGS) are governed through the County and City Management Association (CCMA). Specific direction is provided by the Climate Action, Transport, Circular Economy and Networks Committee (CATCEN) of the CCMA which in turn is supported by the Local Government Management Agency (LGMA).

In 2021 the office of the Local Authority Waste Programme Coordinator (LAWPC) was established to coordinate the work of the existing local authority waste shared services and to strengthen the position of the local government sector within the wider waste sector.

Given the largely successful implementation of the policies and objectives of the previous RWMP through the existing structures, this Plan will be established as a single national plan while retaining the regional governance structures and working groups to support implementation. The regional groupings will remain unaltered and **Figure 3.1** shows the existing three waste regions and the local authorities represented.

Under the previous RWMP, the local authorities were responsible for education, prevention and recycling activities as well as regulating businesses, householders, and waste operators. These activities are driven by the lead authorities in each region where an RWMP was established (Dublin City Council, Limerick City and County Council/ Tipperary County Council and Mayo County Council) and supported by the other local authorities in each region and the RWMP. The RWMP have established and built strong stakeholder collaboration with the wider waste sector and it is intended to build on these arrangements for the implementation of this Plan.

Regulation and enforcement are undertaken by the local authorities and led by the Waste Enforcement Regional Lead Authorities (WERLA) which have been established in Dublin City Council, Cork County Council, and Leitrim/ Donegal County Council. The office of the National Waste Collection Permit Office (NWCPO situated within Offaly County Council) and the National TransFrontier Shipment Office (NTFSO, situated within Dublin City Council), also have key roles in waste regulation and enforcement activities. These existing structures are highly collaborative

and have been very effective in implementing the RWMP and it is proposed that these groups will retain overall responsibility for oversight, implementation, monitoring and enforcement of the Plan. The current roles of the local authorities and the other stakeholders with waste management responsibility are detailed in **Chapter 7** of this volume.

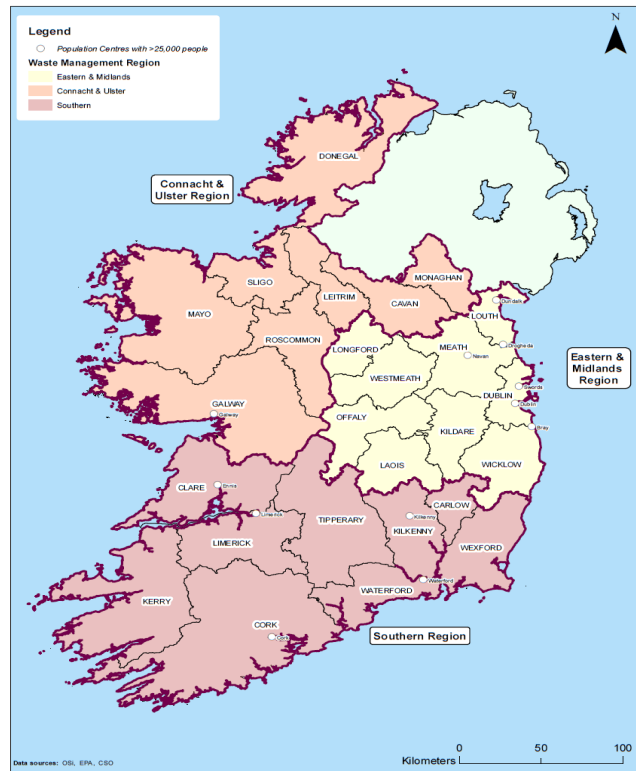


Figure 3.1: Large Towns and Counties within the three Waste Regions in Ireland

3.3 NATIONAL PROFILE

3.3.1 Population

In June 2022, the Central Statistics Office (CSO) reported⁴⁹ the preliminary Census 2022 population results indicating that the State had a population of 5.1 million (the highest since 1841). Population growth within the State has been increasing annually due to a combination of positive net migration and natural increases with Ireland, showing an average 1.1% population growth each year over the lifetime of previous RWMP (2015 to 2021). Waste generation is strongly linked to population growth, whereby more people leads to increased waste generation. The challenge faced by society is to break this link and reduce the volume of waste generated per person.

In terms of a regional profile, the CSO also reports on population statistics on a county basis and the population for each county from the 2016 and 2022 Census is presented in **Table 3.1** showing the data for counties within each of the Connacht-Ulster, Eastern-Midlands and Southern waste regions. The regions show varying levels of population growth in the period 2016 to 2022 with 9% for the Eastern-Midlands Region, 7% for the Southern Region and 6% for the Connacht-Ulster Region.

In addition to measured values, the CSO has also published⁵⁰ a suite of population projections (based on the 2016 Census baseline) on a regional basis for a series of scenarios based on varying fertility rates, mortality rates, internal migration, and international migration. The highest projected population growth is also presented in **Table 3.1** based on the CSO regional groupings for each of the counties under two internal migration scenarios – Dublin Inflow (inflow of population from other regions to Dublin) and Dublin Outflow (outflow of Dublin population to other Regions). The CSO results project the following:

- The Eastern-Midlands Region was the most populous waste management region at 2.5 million inhabitants in 2022 and the population is predicted to grow at a projected annual growth rate of 1.25% to 1.45% per annum. **Within the timeframe of this Plan (2024-2030), the population within the region is projected to increase by up to 10%.**
- Similarly, within the timeframe of this Plan **the population in the Southern and Connacht-Ulster Regions are predicted to increase by 5%** based on a projected growth between 0.5% to 0.8% per annum.

The population density and distribution around the country varies significantly and **Table 3.2** presents the CSO population densities based on the 2016 Census and this distribution is further illustrated in **Figure 3.2** (2022 population density data is not yet available). Dublin has the highest population density by a significant margin at 1,458 persons per square kilometre (note that this is low by EU city standards with cities of similar population to Dublin such as Munich, Prague and Budapest recording population densities two to three times that of Dublin). This is followed by the counties in the mid-east which bound Dublin (Kildare, Louth, Meath, Wicklow) albeit with a much lower density. The counties in the Southern Waste Management Region are largely uniform in density at 47-59 persons per square kilometre but with significant concentrations in the cities of Cork, Limerick, and Waterford as well as the larger towns mixed with large tracts of agricultural lands. The lowest population densities are noted in the Connacht-Ulster Waste Management Region at 33 and 35 persons per square kilometre.

The recorded and projected population data shows the Eastern-Midlands Waste Management Region currently contains the most inhabitants, at the highest densities and this region is projected to experience the highest population growth of the three regions. Conversely, the Connacht-Ulster Region has the lowest population, the lowest density and is projected to experience more modest growth. The Southern Region is more moderately populated, with expected future growth and increased densities given the mixture of cities, larger towns and rural areas in this region.

These population dynamics will be used to inform future waste projections and management within the regions throughout this Plan. However, it is noted that the Covid-19 pandemic will have uncertain impacts on population dynamics (both immigration and internal migration) that will potentially alter the CSO projections in the short-term and ongoing review of these population dynamics will need to be undertaken to inform the annual work plans prepared under this Plan (refer **Volume III Chapter 7**).

⁴⁹ Link: <https://www.cso.ie/en/csolatestnews/pressreleases/2022pressreleases/pressstatementcensusofpopulation2022-preliminaryresults/>

⁵⁰ Link: <https://www.cso.ie/en/statistics/population/regionalpopulationprojections/>

Table 3.1: Recorded and Projected Regional Populations (source: CSO)

County	2016 Measured Population ('000)	2022 Measured Population ('000)	CSO Population Region	2036 Projected Population based on Dublin Outflow Scenario ('000)	2036 Projected Population based on Dublin Inflow Scenario ('000)
Dublin	1,347	1,451	Dublin	1,604	1,877
Kildare	223	247	Mid-East	311	282
Louth	129	139	Mid-East	180	163
Meath	195	220	Mid-East	273	247
Wicklow	142	155	Mid-East	199	181
Laois	85	92	Midland	117	98
Longford	41	47	Midland	56	47
Offaly	78	83	Midland	108	90
Westmeath	89	96	Midland	123	103
Eastern-Midlands	2,329	2,530	-	2,970	3,088
Limerick	195	205	Mid-West	228	226
Tipperary	160	168	Mid-West	187	185
Clare	119	127	Mid-West	139	138
Wexford	150	163	South-East	178	159
Carlow	57	62	South-East	68	60
Kilkenny	99	104	South-East	118	105
Waterford	116	127	South-East	138	123
Cork	543	581	South-West	644	642
Kerry	148	155	South-West	175	175
Southern	1,586	1,692	-	1,875	1,813
Mayo	131	137	West	149	146
Galway	258	276	West	294	288
Roscommon	65	70	West	74	72
Donegal	159	166	Border	193	175
Cavan	76	81	Border	92	84
Monaghan	61	65	Border	74	67
Leitrim	32	35	Border	39	35
Sligo	66	70	Border	79	72
Connacht-Ulster	847	900	-	994	939

Note1: Data is based on the CSO M1F2 scenario on international migration and fertility/mortality.

Note 2: Data does not include Ukrainian refugees that have arrived in Ireland displaced by war since the Russian invasion of Ukraine in 2022.

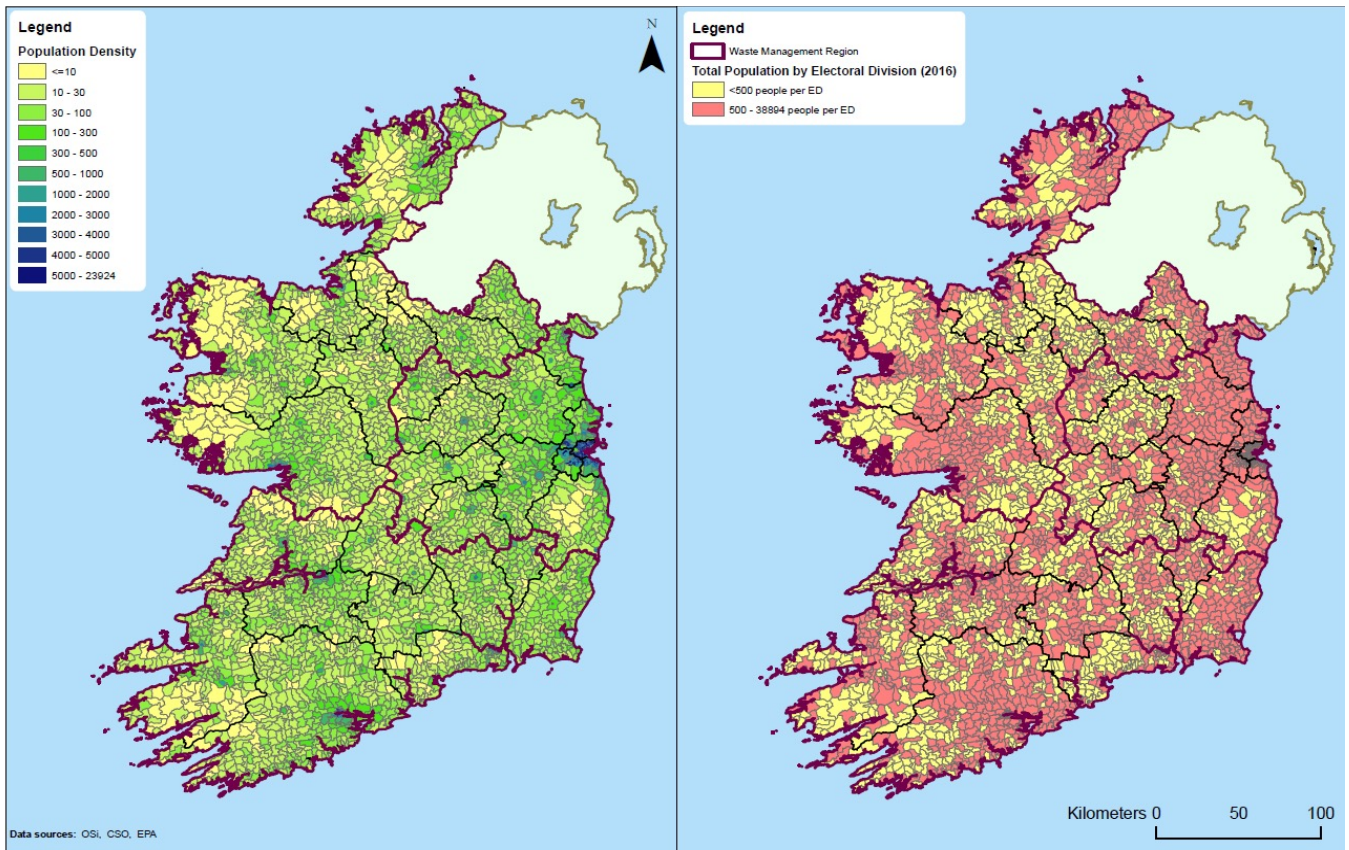


Figure 3.2: Population Density and Distribution in Ireland

Table 3.2: Population Density by Region (source: CSO)

Waste Management Region	CSO Population Region	Area (km ²)	2016 Population ('000)	Population Density (persons per km ²)
Connacht-Ulster	West (Galway, Mayo, Roscommon)	13,642	453.1	33
	Border (Cavan, Donegal, Leitrim, Monaghan, Sligo)	11,187	394.3	35
Eastern-Midlands	Dublin	924	1,347.4	1,458
	Mid-East (Kildare, Louth, Meath, Wicklow)	6,848	688.9	101
	Midlands (Laois, Longford, Offaly, Westmeath)	6,510	292.3	45
Southern	Mid-West (Clare, Limerick, Tipperary)	10,090	473.3	47
	South-East (Carlow, Kilkenny, Waterford, Wexford)	7,145	422.1	59
	South-West (Cork, Kerry)	12,120	690.6	57

3.3.2 Employment and Economic Activity

There remains a clear correlation between economic activity, consumption levels (as measured through Domestic Material Consumption – see text box page 29) and the volume of waste generation in Ireland. Decoupling waste generation from economic output is a clear challenge and this section highlights the recent changes in economic activity (both at the macro and sectoral level) over the lifetime of the RWMPs. It also provides details of projected growth in some of the key economic sectors. It is important to acknowledge that at the outset of the previous RWMP in 2015, the State was emerging from an economic recession and hence the economic growth in the interim should be viewed in this regard.

At the macro level, the Central Bank of Ireland publish a series of Quarterly Bulletins for the State⁵¹ and these bulletins project that total economic activity (as measured by Gross Domestic Product (GDP)) grew by 9.4% in 2022 and is forecast to grow by 2.9% in 2023, 2.5% in 2024 and 4.8% in 2025. While no projections post 2025 are provided, even

assuming modest GDP growth of 3% per annum in this period, over the lifetime of the Plan GDP may increase by a cumulative total of circa 40% by 2030 (relative to 2021).

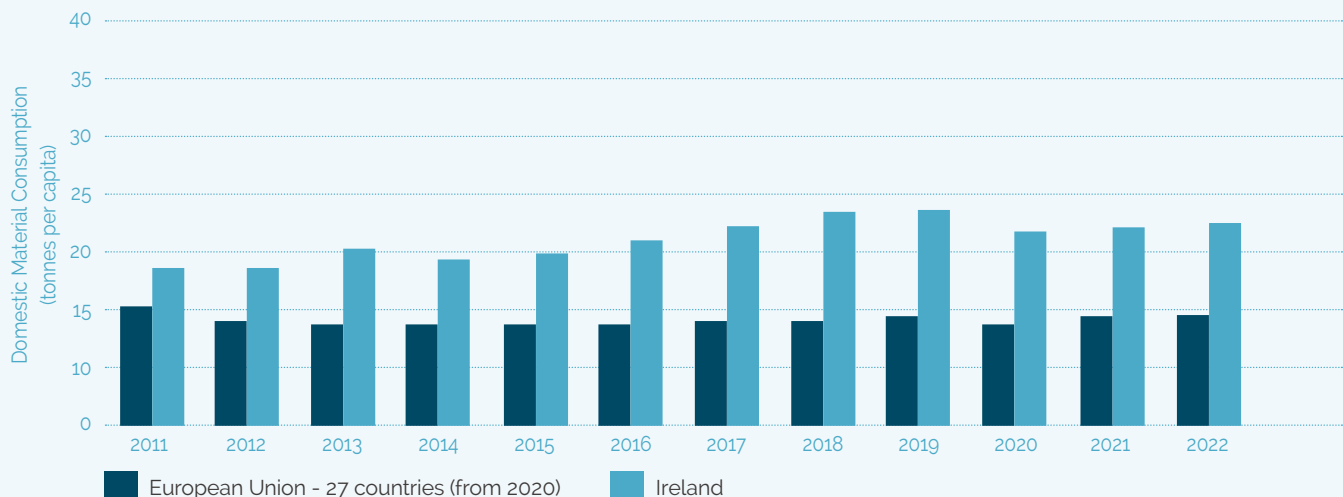
In terms of employment, the CSO quarterly labour force survey⁵² data for 2022 is shown in **Figure 3.3** illustrating the sectors that provide the greatest employment in the State. The largest employers are industry, wholesale/retail and health/social work each at circa 13% of the labour force. Construction and agriculture remain consistent employment sectors at 5% of total employment with the remaining sectors at levels <5% and largely consisting of service sectors.

The CSO also reports that average weekly earnings in 2022 were €871.62 which is an increase of 24% over the 2015 average earnings of €701.11. Over the same period the Consumer Price Index (CPI) showed an increase of 13.6% suggesting a net increase in disposable income for the average population and an increased potential for consumption since the publication of the RWMP in 2015.

Domestic Material Consumption (DMC)

DMC measures the total amount of materials directly used by an economy and is defined as the annual quantity of raw materials extracted from the domestic territory, plus all physical imports minus all physical exports. The EU average and Irish DMC values over the past decade are presented in the figure below and the data illustrates that Ireland is circa 70% higher than the EU average in recent years with Ireland at over 22.5 tonnes per capita compared to the EU average of circa 14.5 tonnes in 2022. Ireland's high level of importation per capita

relative to the low exports is the driver behind this higher DMC value. While some decrease was observed in 2020 and 2021, it is unclear if this is related to the Covid-19 pandemic or any meaningful reduction in consumption behaviour within the State. The consumption trends observed by the CSO indicate that this is expected to grow in the short term. A meaningful recycling, preparation for reuse, repair and reuse economy within Ireland would help to reduce the national DMC by reducing the current reliance on imports for goods.



⁵¹ Link: <https://www.centralbank.ie/publication/quarterly-bulletins> Note that the Central Bank advises that caution should be used in interpreting GDP developments for Ireland, as it is heavily influenced by globalisation and the activities of multinational enterprises. For the purposes of predicted waste generation (Chapter 6) the modified GNI indicator is employed.

⁵² Link: <https://www.cso.ie/en/releasesandpublications/ep/p-lfs/labourforcesurveyquarter22021/tables/>

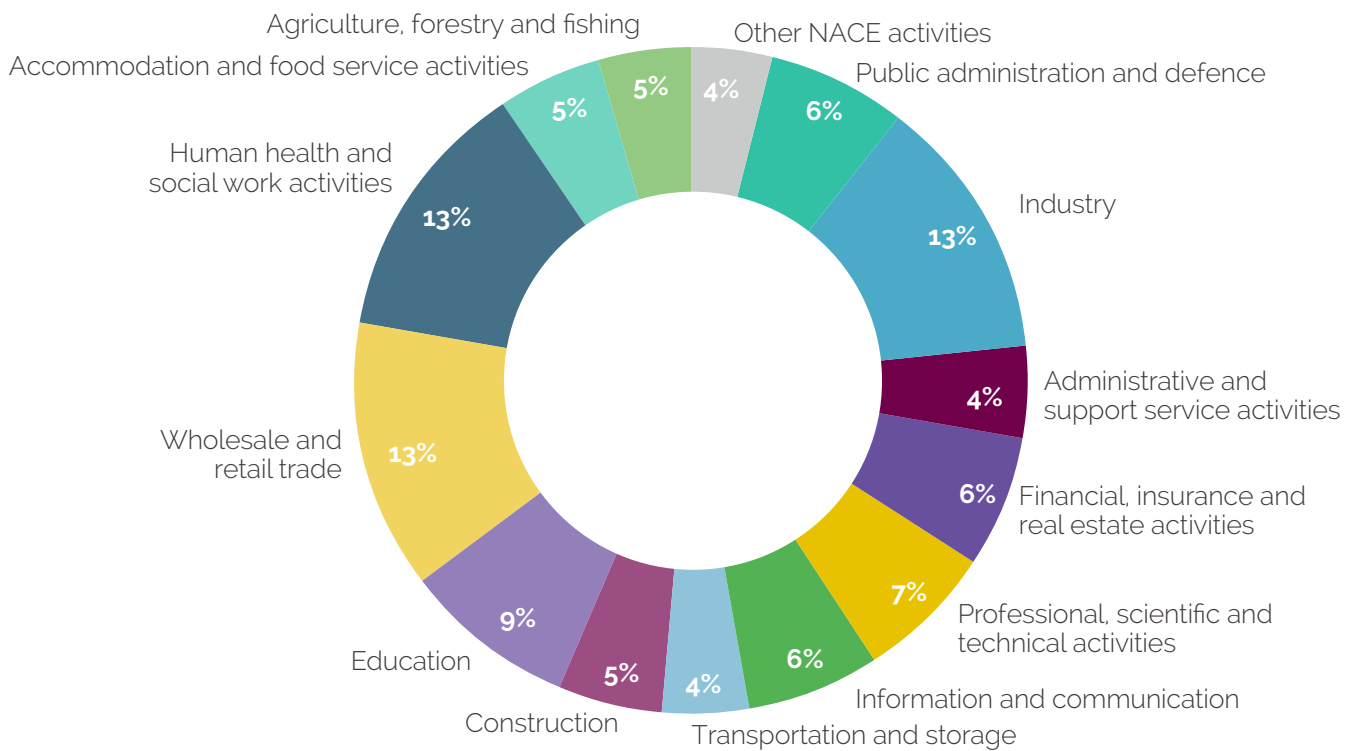


Figure 3.3: Persons in Employment in 2022 by NACE Sector (source: CSO)

On a more sectoral level, the CSO reports on a series of production indices for sectors to track outputs and economic activity, with many of these indices set against a baseline of 2015. A number of relevant indices are shown in **Table 3.3** including agriculture, construction, manufacturing industry and retail that show the sectoral trends over the timeframe of the RWMP (2015 to 2021). In addition, these trends have been extrapolated to estimate the outputs at the end of the Plan period (2030) assuming a continuous linear growth in output over the lifetime of this Plan.

The agriculture sector shows strong growth (up 16%) over the period 2015 to 2021 and this is largely in line with the sectoral targets for output in the Food Harvest 2020⁵³ and Food Wise 2025⁵⁴ policy documents. The growth in agriculture also includes for growth in the food and drink industrial sector which has experienced similar expansion. Looking forward, the sector is expected to continue to grow under the most recent policy, Food Vision 2030⁵⁵, albeit with less focus on agricultural output. **Extrapolating the measured growth rate estimates a 65% increase in output by 2030 (relative to 2015, but potentially skewed by a significant observed increase in 2022) or circa 12% over the lifetime of this Plan.**

Between the period 2015 to 2021 the construction sector index has risen by 27% reflecting the

significant growth in output experienced by the sector in this period. The housing demand, commercial property development as well as major infrastructure have fuelled the growth in the sector and this is expected to increase further with continued housing demand and the proposed projects under the National Development Plan 2021-2030, albeit with a reduced production recorded in 2020 and 2021 as a result of the Covid-19 pandemic. **Extrapolating the recent growth rate estimates an 65% increase in construction output by 2030 (relative to 2015) or 26% above the 2022 levels by 2030.**

The industrial production index has shown similar growth, increasing by 53% over the period 2015 to 2021 with this growth apparently unaltered by Covid-19 restrictions in 2020 and 2021. **Extrapolating the growth rate estimates a 120% increase in industrial output by 2030 (relative to 2015) or circa 21% over the lifetime of this Plan.**

The retail sector again showed strong growth (26%) over the period 2015 to 2021 and this is supported by the increased personal consumption levels observed which show a 25% increase in consumption over the same period. **Extrapolating the growth rate estimates a 50% increase in retail sales index by 2030 (relative to 2015) with a corresponding 74% increase in personal consumption.**

⁵³ Link <https://www.gov.ie/en/publication/5a0f2-food-harvest-2020/>

⁵⁴ Link: <https://www.gov.ie/en/publication/a6b0d-food-wise-2025/>

⁵⁵ Link: <https://www.gov.ie/en/publication/c73a3-food-vision-2030-a-world-leader-in-sustainable-food-systems/>

Table 3.3: Sectoral Indicators of Output and Economic Activity (source: CSO)

Sectoral Indicator	2015	2016	2017	2018	2019	2020	2021	2022	Estimated 2030 Growth	Waste Streams Impacted
Agricultural Gross Output at Producer Prices	100	102.2	106.4	106.5	110.6	112.7	116.1	147.1	165	Farm and Food
Volume of Production Index in Building and Construction	100	109.6	124.1	136.7	144.5	131.9	126.6	130.5	165	Construction and Demolition
Industrial Production Index	100	105.9	102.3	97.3	104.0	119.2	153.0	181.9	220	Hazardous, Packaging
Retail Sales Index (Volume Adjusted)	100	107.7	111.8	115.9	118.4	115.9	126.0	125.3	150	Packaging, Plastics, Textiles, Food, ELVs, Tyres, WEEE, Batteries
Consumption of Personal Income at Current Market Prices (€million)	91,510	96,316	100,682	106,821	111,572	101,440	114,120	132,927	160,000	

The CSO economic indices are presented on a national basis with no regional analysis, but for illustration **Figure 3.4** shows the location of the some of the key industrial operations (EPA licence threshold) within each of the regions along with the transport infrastructure that serves these sectors.

One of the key regional dynamics evident from the figure is the location of the chemical sector (including the pharmachem sector) predominately around Dublin (Eastern-Midlands) and Cork (Southern Region) and the concentration of industry in general around the cities of Dublin, Cork, Limerick, and Waterford.

Also evident from the map is the concentration of intensive agriculture (specifically the pig and poultry sectors) in the border areas of the Connacht-Ulster Region and the associated food and drink sector concentration in the area to serve this industry. There is also a broader trend evident whereby there is a clear higher distribution of all industrial sectors in the east of the country within the counties of Leinster and east Munster.

In terms of transport, the total length of the national primary and secondary road network in Ireland is 5,306km. This road network is the primary route for transporting waste within Ireland and importing/exporting to Northern Ireland. The Tier 1 Ports (Dublin, Cork and Shannon Foynes) and Tier 2 Ports (Rosslare and Waterford) are key international maritime gateways, handling approximately 90% of all tonnage within the State including all waste exports from the State.

Economic indicators point to continued economic growth over the lifetime of the Plan with GDP to potentially increase by a cumulative total of circa 40% by 2030 with similar levels of growth anticipated in personal consumption. These general economic and sector – specific (where available) projections have been used to estimate projected increases in waste generation in **Chapter 6** of this volume.

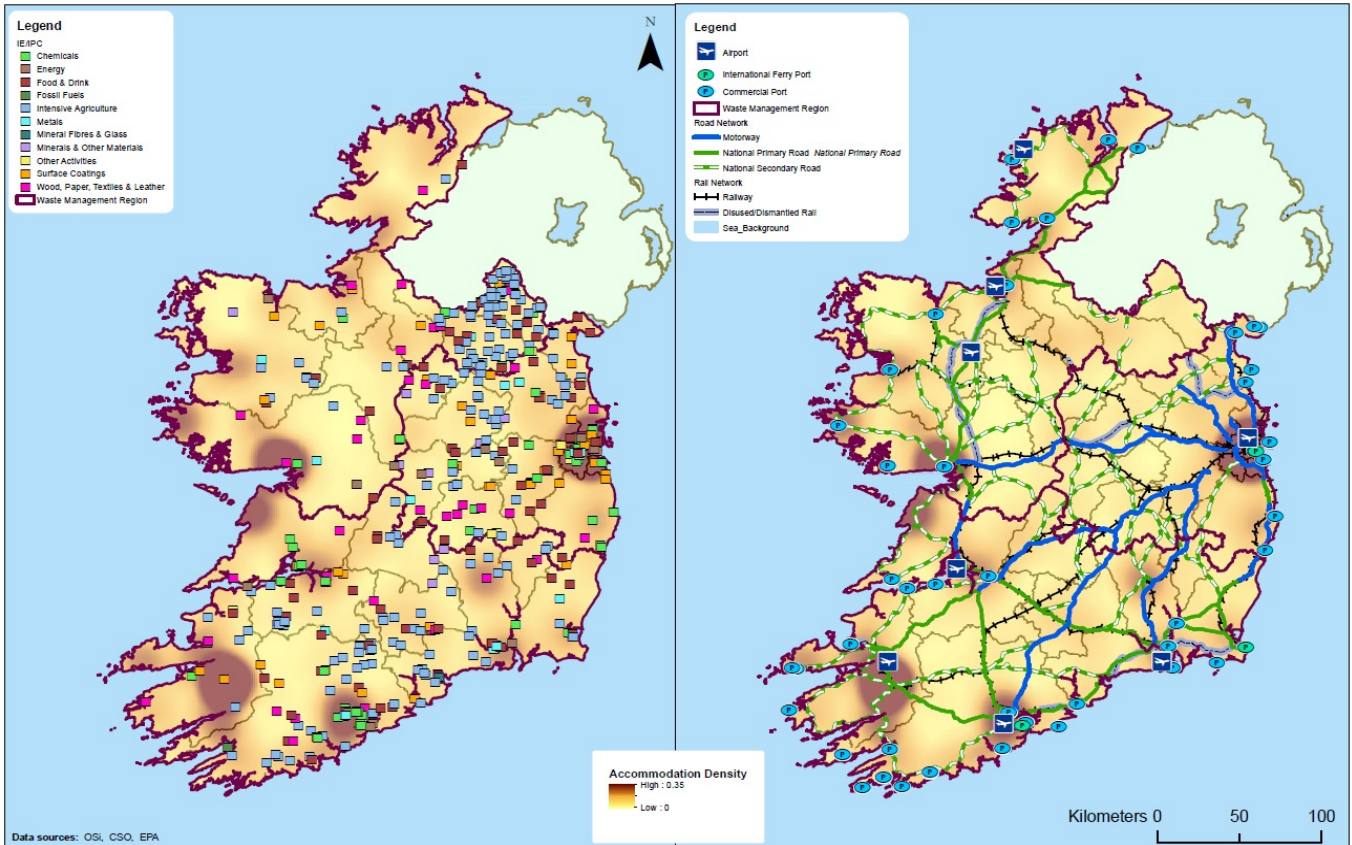


Figure 3.4: Ireland's Economic Activity and Transport Network

3.3.3 Circular Material Use

Ireland is currently on track to achieve many of the current EU waste targets which reflects positively on the progress made in the sector over the last 20 years. However, performance targets are increasing, and next generation targets will pose a significant challenge.

New targets and indicators will also be established (such as under the Circular Economy Act 2022) which will aim to measure the State's circularity rate, in other words the State's ability to keep materials in use and avoid continued extraction of primary raw materials. Unfortunately, on this broader measure Ireland is currently performing poorly.

Eurostat publish a metric termed the 'Circular Material Use' rate (CMU or the 'circularity rate') which is defined as the ratio of the circular use of materials to the overall material use. A higher CMU rate means that more secondary materials substitute for primary raw materials thus reducing the environmental impacts of extracting primary material and a more circular economy.

The circular use of materials (U) is reported as the amount of waste recycled in domestic recovery plants and therefore is directly measurable through this Plan. Increased recycling will directly increase the CMU.

The overall material use is measured by aggregating the domestic material consumption (DMC – refer text box on page 29) and the circular use of materials (U). DMC is defined as the annual quantity of raw materials extracted plus all physical imports, minus all physical exports. Typically, this is presented through four sectors, namely biomass (including agricultural crops), metal ores (i.e. mining), non-metallic minerals (includes construction materials) and fossil energy materials/carriers (peat, natural gas, etc.). Preventing the need for and/or substituting these primary materials with secondary materials will reduce the DMC and therefore increase the CMU.

While separate to the waste sector, the aforementioned sectors will need to liaise with the waste sector to develop solutions that will generate appropriate secondary materials for use to increase

the CMU. This Plan has limited scope to reduce the DMC from these sectors, and the required DMC reduction in these areas will require adoption of a national target into a wider national circular plan such as the CES which will be revised in 2024.

Section 7(6) of the Circular Economy and Miscellaneous Provisions Act 2022 requires that the CES is revised to set out targets for several sectors of the economy including construction, agriculture, retail, packaging, textiles, and electronic equipment. These targets shall include reductions in material resource consumption and the use of non-recyclable materials.

In 2021 Ireland's CMU was reported at 2%, compared to an EU average of 11.7% as shown in **Figure 3.5**. The figure shows that Ireland ranks as one of the lowest among the EU 27 Member States on circular material use rate.

The Sankey chart shown in **Figure 3.6** summarises Ireland's material flows and use in the economy in 2021, with the largest contributor from the extraction of natural resources (88 million tonnes). While not presented in the figure, Eurostat support data notes that the extraction of non-metallic materials represents 48% of the extraction of natural resources with most raw materials used by the construction industry. The remaining natural resources extracted include biomass (36%), fossil fuel (10%) and mining (6%). Extraction activities are high impact in terms of GHG emissions and increasing circularity of materials will support emission reduction strategies and secondary material markets.

By comparison, only one million tonnes of material was recycled in 2021 highlighting the need to both increase recycling and reduce material consumption to increase the national circularity rate.

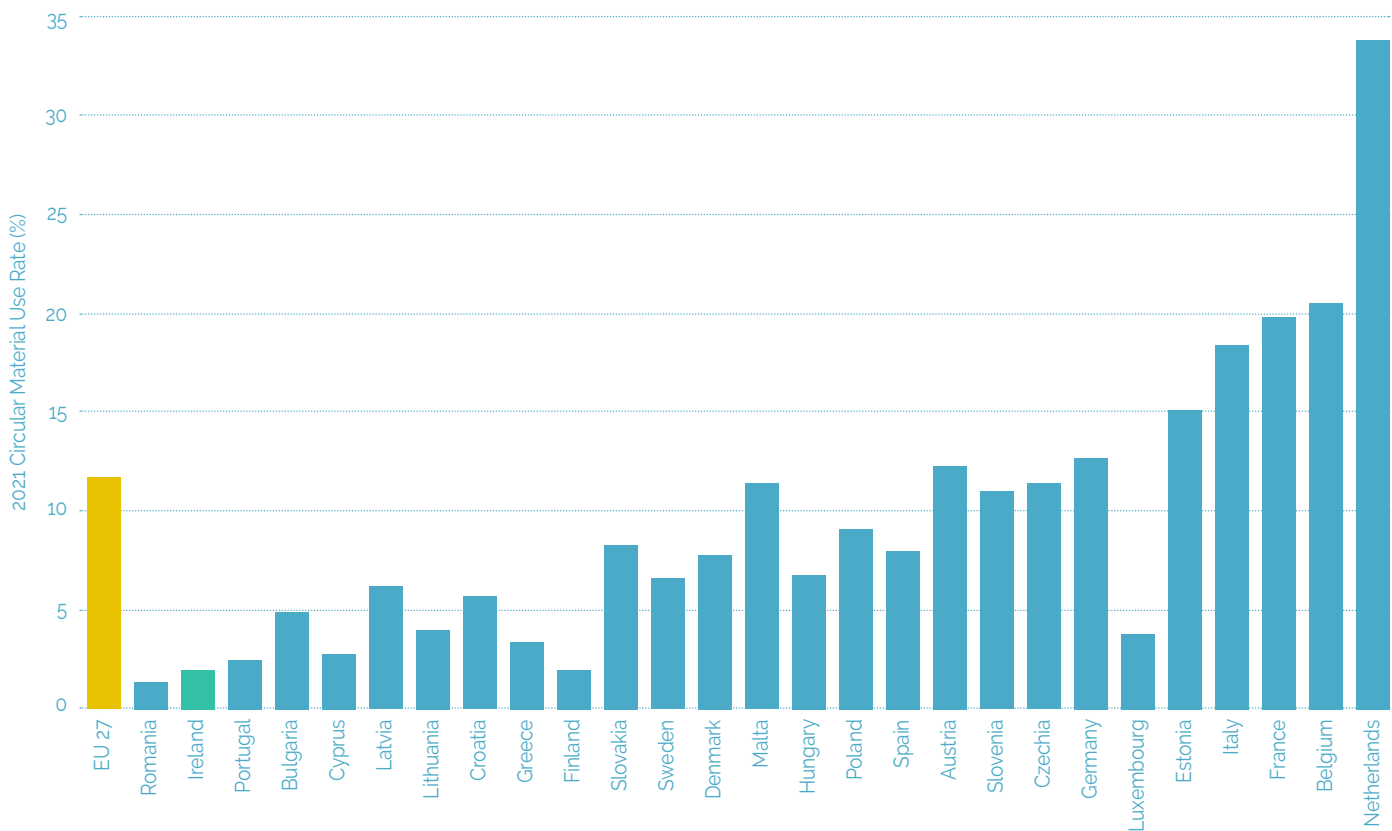


Figure 3.5: Ireland and other Member State's Circular Material Use Rate 2021 (source: EuroStat)

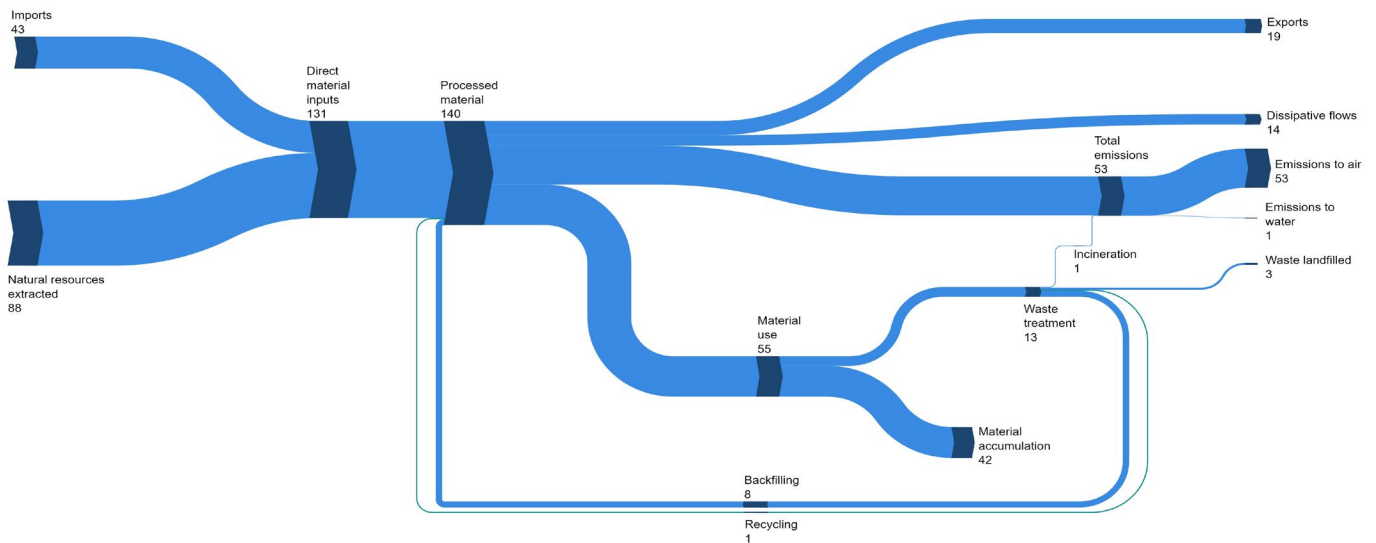


Figure 3.6: Ireland's Materials Flow 2021 (Unit – Thousand Tonnes) (source: EuroStat)

3.3.4 Environmental Sensitivity

The Plan is cognisant of the sensitivity of the receiving environment and the potential for impact of the policies and actions of the Plan on the environment. Where potential for adverse impacts on the environment are identified, a series of SEA and AA mitigation measures have been specified which are incorporated into this Plan (refer **Appendix 12 of Volume IV (Supporting Documentation)**) to ensure the highest levels of protection for the environment.

This is particularly pertinent for policies that have a spatial element where localised impacts may be identified for mitigation. To inform these analyses environmental sensitivity mapping has been employed and a sample of such mapping showing all European and Nationally protected ecological sites is presented in **Figure 3.7**.

The figure highlights the concentration and coverage of ecologically protected sites in the west of the country reflecting the high sensitivities in these areas. In particular, the western section of the Connacht-Ulster and Southern Regions display a high coverage of protected sites relative to the rest of the country.

Risk of adverse impact, and therefore development potential, for waste management activities in these areas is subject to these constraints. By comparison, the east of the country has a low concentration of such protected sites with the exception of larger areas such as the Wicklow Mountains and the Slieve Bloom Mountains as well as a number of coastal sites and therefore poses a generally lower risk of impact for development.

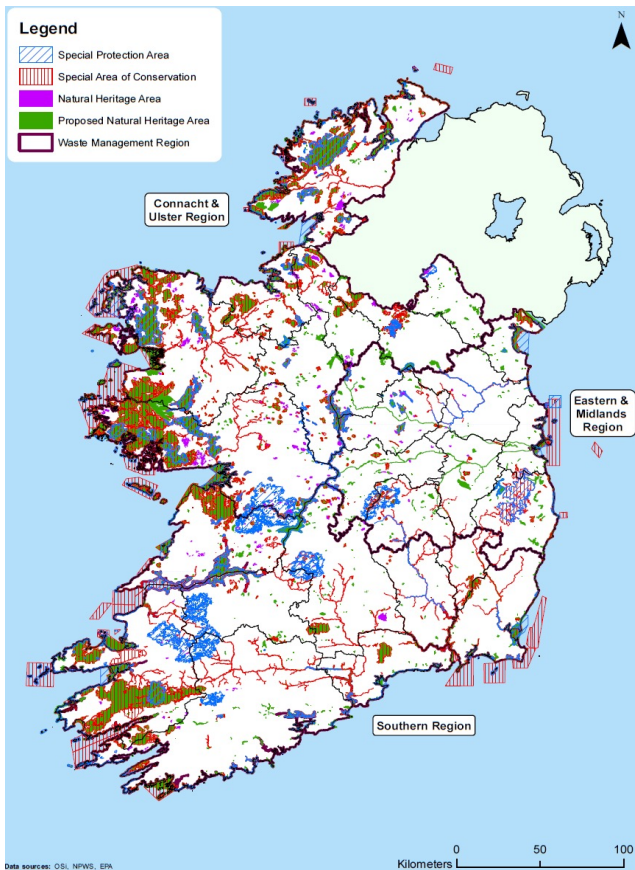


Figure 3.7: Environmentally Sensitive and Protected Areas in Ireland

Key Challenges arising from Part A: The Rules

Volume I, Part A identifies a range of challenges which must be addressed in the policy and action response presented in **Volume II** of this Plan and the key challenges to be addressed as listed as follows:

- The policy landscape for this Plan has changed significantly since 2015 and this Plan must have the flexibility to respond to this evolving circular and climate policy base.
- This Plan needs to integrate with the wider circular (Circular Economy Programme and Circular Economy Strategy) and waste (Waste Action Plan for a Circular Economy and National Hazardous Waste Management Plan) policy direction to ensure that all policies and actions arising are suitably aligned with other national policy.
- The Sectoral Emission Ceiling set for the Circular Economy Sector under the Climate Action Plan require an urgent and significant shift from traditional models to a circular economy to reduce emissions from waste and promote reuse, repair and recycling.

- Ireland's Circularity Rate (CMU) was reported at 2% compared to an EU average of 11.7% and this Plan needs to support a national response to reducing consumption and increasing recycling and the use of secondary materials.
- The Waste Action Plan for a Circular Economy calls for this Plan to include targets for reuse, repair, resource consumption and a reduction in contamination. In addition, Section 24 of the Circular Economy Act 2022 requires this Plan to include targets for 'the use of products and materials that have been re-used, re-manufactured or repaired, or any combination thereof.
- Decoupling waste generation from population growth and economic activity remains a major challenge and this Plan needs to include the appropriate measures to target behaviour change and enforcement compliance to curb consumption and reduce the generation of waste.
- The protection of human health and the environment are fundamental aspects of EU policy and this Plan needs to ensure that any policies or actions proposed have these protections suitably embedded.



PART B:
**THE
LANDSCAPE**



4 MATERIAL STREAMS

This chapter provides a summary of each material stream relevant to the Plan to inform policy setting in **Volume II**. For each stream, 2019 generation volumes are provided along with details on collection and treatment routes, existing market forces and future/pending EU policy and targets. While data for 2020 and 2021 is available, the potential impact of the Covid-19 pandemic on generation rates may be significant and data from 2020 and 2021, while reported, is not considered wholly representative of the baseline. In this regard, 2019 data is used to establish the valid baseline for this Plan unless specified otherwise.

4.1 CIRCULAR ECONOMY SECTOR

While in its infancy, the circular economy sector is growing in Ireland and several programmes and projects have developed since the publication of the RWMP in 2015 including but not limited to:

- **Circular Economy Innovation Grant Scheme (CEIGS)** established by the government as a key support for innovation in the circular economy. The scheme is open to social enterprises, voluntary and community organisations and businesses with less than 50 employees. In November 2021, DECC announced funding of €490,000 for ten projects across Ireland in areas such as sustainable fashion, marine plastics, reusable food packaging and construction.
- **CIRCULÉIRE** is Ireland's first cross-sectoral industry-led innovation network dedicated to accelerating the net-zero carbon circular economy in Ireland. It is a €4.5m public-private partnership co-created by Irish Manufacturing Research and three strategic partners; DECC, EPA and the European Institute of Innovation and Technology (EIT) Climate - Knowledge and Innovation Community (KIC) as well as 25 founding industry members. The overarching objective is to source, test, finance, and scale, circular manufacturing systems, supply chains and circular business

models to deliver significant reductions in both CO₂ emissions and waste.

- **Community Resources Network Ireland (CRNI)**⁵⁶ is the all-island representative body for community-based reuse, recycling, and waste prevention organisations. In 2021, the CRNI members reused 12,441 tonnes, repaired 54 tonnes and recycled 10,195 tonnes of material that were diverted from the waste system. CRNI reports that this saved 171,238 tonnes of carbon emissions. The activities highlight significant co-benefits for climate and waste by adopting a circular approach to material management.
- The **Green Public Procurement (GPP) Guidance for the Public Sector**⁵⁷ was published by the EPA in 2021 to support the inclusion of sustainable and green practices into public sector procurement procedures. Ireland has committed to implementing GPP in all tenders using public funds by 2023. The Guidance is accompanied by Irish GPP criteria for the ten priority sectors which have been developed, based on common EU criteria, with adaptations to reflect the Irish market and procurement practices. As an example, for catering services some of the GPP technical criteria to be considered include food waste prevention, general waste prevention, recycling and residual waste and disposal of food waste.
- The RWMP launched the **MODOS Training for a Sustainable Future Programme**⁵⁸ to upskill micro, small and medium size enterprises on circular economy principles.
- The **Construction Material Exchange Platform (CMEx)**⁵⁹ is a digital platform for organisations to trade excess building materials or reusable waste materials from projects and accelerate the transition to a circular economy launched by the Irish Green Building Council in December 2022.

⁵⁶ Link: <https://crni.ie/>

⁵⁷ Link: <https://www.epa.ie/publications/circular-economy/resources/green-public-procurement-guidance.php>

⁵⁸ Link: <https://www.localenterprise.ie/DublinCity/Training-Events/Management-Development/Modos-Circular-Economy-Dublin-Training-Programme-2022.html>

⁵⁹ Link: <https://www.igbc.ie/events/construction-material-exchange-platform-public-launch/>

- Article 9(4) of the WFD requires Member States to monitor and assess the implementation of reuse measures by measuring reuse through a common methodology. **Implementing Decision (EU)2021/19**⁶⁰ presents this common methodology as well as a format for reporting reuse activities to the Commission. The product categories specified in the methodology as suitable for measuring reuse are listed as follows:
 - Textiles;
 - Electrical and Electronic Equipment;
 - Furniture;
 - Construction Material and Products; and
 - Other Products for which measures were adopted.
- In 2023, the EPA published the first set of **national reuse statistics** for Ireland and reported that the average annual reuse rate per person in Ireland is 10.6kg per person in 2021⁶¹. Quantitative data on reuse rates and activity was obtained via an online survey of a representative sample of the Irish population.
- The 2021 data found that approximately **54,800 tonnes** of second-hand products were bought or exchanged in Ireland. Textiles accounted for 73% of all second-hand purchases/exchanges, with approximately 11.4 million items of second-hand clothing items reused in Ireland in 2021. Electrical and Electronic Equipment (EEE) accounted for the most reuse per weight at approximately 16,800 tonnes. This includes small consumer electronic devices, personal computer equipment and home appliances.
- Organic Waste (i.e. food waste recycling bin)e.g., food and garden waste;
- Bulky waste, e.g., waste that cannot fit in a wheelie bin such as broken furniture, carpets, toys etc.; and
- Waste Electrical and Electronic Equipment (WEEE) which is further addressed in **Section 4.7**.

In 2019, Ireland generated (managed and unmanaged waste) 3,085,652 tonnes of municipal waste (an increase of 6% from 2018) with 48% generated by the commercial sector and 52% generated by households. In 2020, Ireland generated 3,210,220 tonnes of municipal waste (a 4% increase) and 57% was from households and 43% from commercial and public service sources (this variance between the commercial/household share in 2020 was likely affected by the Covid-19 pandemic restrictions).

In 2021, Ireland generated 3,170,388 tonnes of municipal waste⁶² which is a 1% decrease from 2020 and showed a similar split of 57% from households and 43% from commercial and public service sources. The data suggests that the share of household/commercial observed on 2020 during the Covid-19 pandemic remained in 2021 and may be reflective of a longer term trend whereby more hybrid working practices results in a higher share for household over commercial waste.

The following sections provide a more detailed analysis of the municipal commercial and household sectors as well as the evolution of treatment pathways for municipal waste in recent years.

Volume II (through Focus Area 12) and **Volume III** are focused on accelerating the establishment of the circular economy sector in Ireland.

4.2 MUNICIPAL WASTE

Municipal waste is waste similar in nature and composition to waste produced by households. Total municipal waste generated includes waste generated by commercial activities and households. The EPA provides data for the following waste streams from commercial and household sources:

- Residual Waste (black bin), i.e. waste that cannot be recycled;
- Recyclable Waste (i.e. green bin), e.g., glass, plastic, paper and board, metals;

4.2.1 Commercial Waste

The commercial sector generated 48% of all municipal waste in Ireland in 2019, accounting for 1,466,550 tonnes. This decreased to 1,380,395 tonnes in 2020 where working from home restrictions likely impacted the commercial waste generation statistics. In 2021, commercial waste generation reduced by a further 1% to 1,365,835 tonnes suggesting that the reductions in 2020 may be more indicative of a longer term trend in decreasing commercial waste generation as a result of increased hybrid working practices in some sectors. Commercial wastes are largely captured using kerbside collection of residual waste, recyclable waste, and organic waste.

⁶⁰ Link: <https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=CELEX:32021D0019>

⁶¹ Link: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/reuse/>

⁶² Link: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/municipal/>

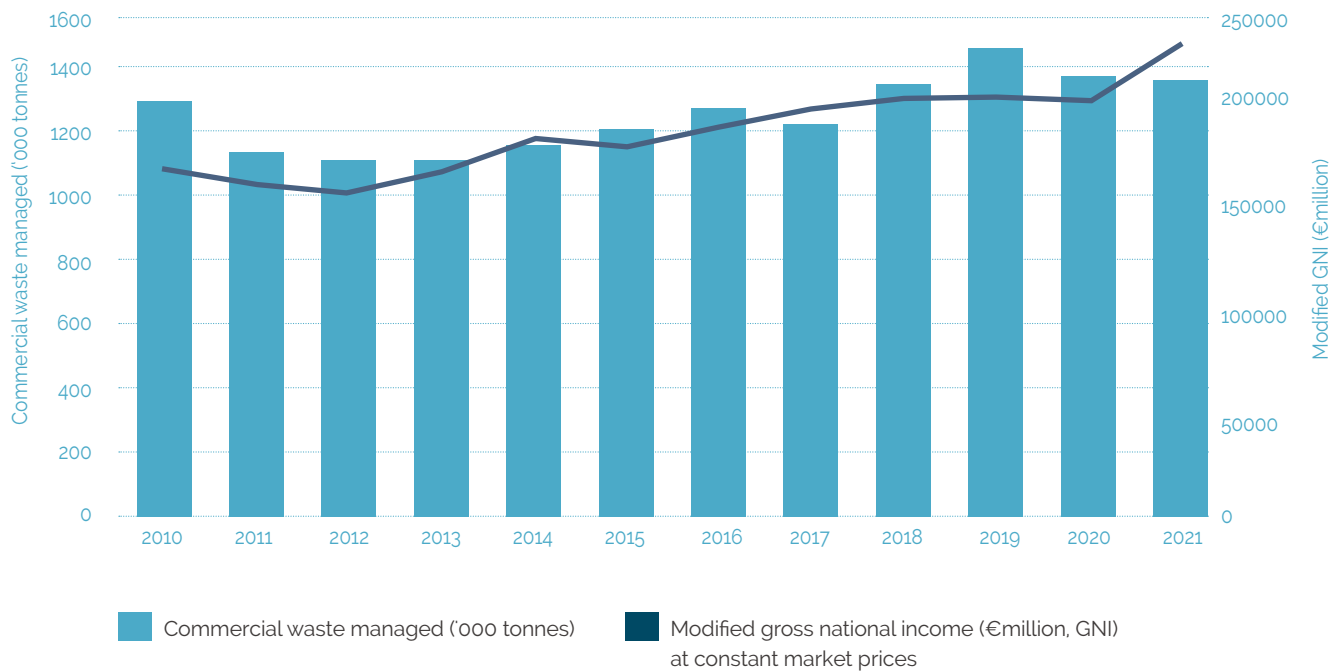


Figure 4.1: Total Commercial Waste Generated versus GNI (source: EPA)

Figure 4.1 shows the volumes of commercial waste generated from 2007 to 2021. The data shows that since 2012 the annual generation rate has been increasing steadily up to the effect of Covid-19 in 2020 and 2021. The graph also shows the annual modified Gross National Income (GNI) in the same period. The graph illustrates that the commercial waste generation rate largely follows this economic indicator up to 2020 suggesting that increased economic wealth has led to increased waste generation. Reversing this trend is a key challenge for the sector and while some decoupling is observed in 2021, it is unclear if this is as a direct result of modified commercial working practices as noted above.

The EPA 2022 waste characterisation survey of commercial wastes⁶³ is summarised in **Figure 4.2**. The EPA reports that while there has been improved segregation in recent years, 74% of the content of the commercial residual bin could potentially be diverted either to the mixed dry recycling bin (37%), food waste recycling (32%) bin or could be brought to CAS (5%). However, it is noted that not all commercial premises have access to, or are employing, a 3-bin system. Complete roll out of the food waste recycling bin coupled with increased

awareness and enforcement is required to improve capture and segregation in the commercial waste collection system. Projected future generation rates of commercial MSW are presented in **Section 6.1** of this volume based on the known drivers for generation.

There is a need for improved practices among commercial waste generators effected through behaviour change to improve source segregation of waste and increase recycling rates. The WAPCE proposes awareness raising and enforcement actions requiring segregated waste bins and increased compliance with the commercial waste collection system.

Regulations to implement a mandatory segregation and incentivised waste charging regime for commercial operators were published in March 2023⁶⁴ and came into effect on the 1st July 2023.

Focus Area 1 in **Volume II** includes a series of targeted policies and priority actions to address commercial waste issues.

⁶³ Link: <https://www.epa.ie/publications/monitoring--assessment/waste/national-waste-statistics/whats-in-our-bins-top-sheet.php>

⁶⁴ S.I. No. 104 of 2023 Waste Management (Collection Permit) (Amendment) (No. 2) Regulations 2023

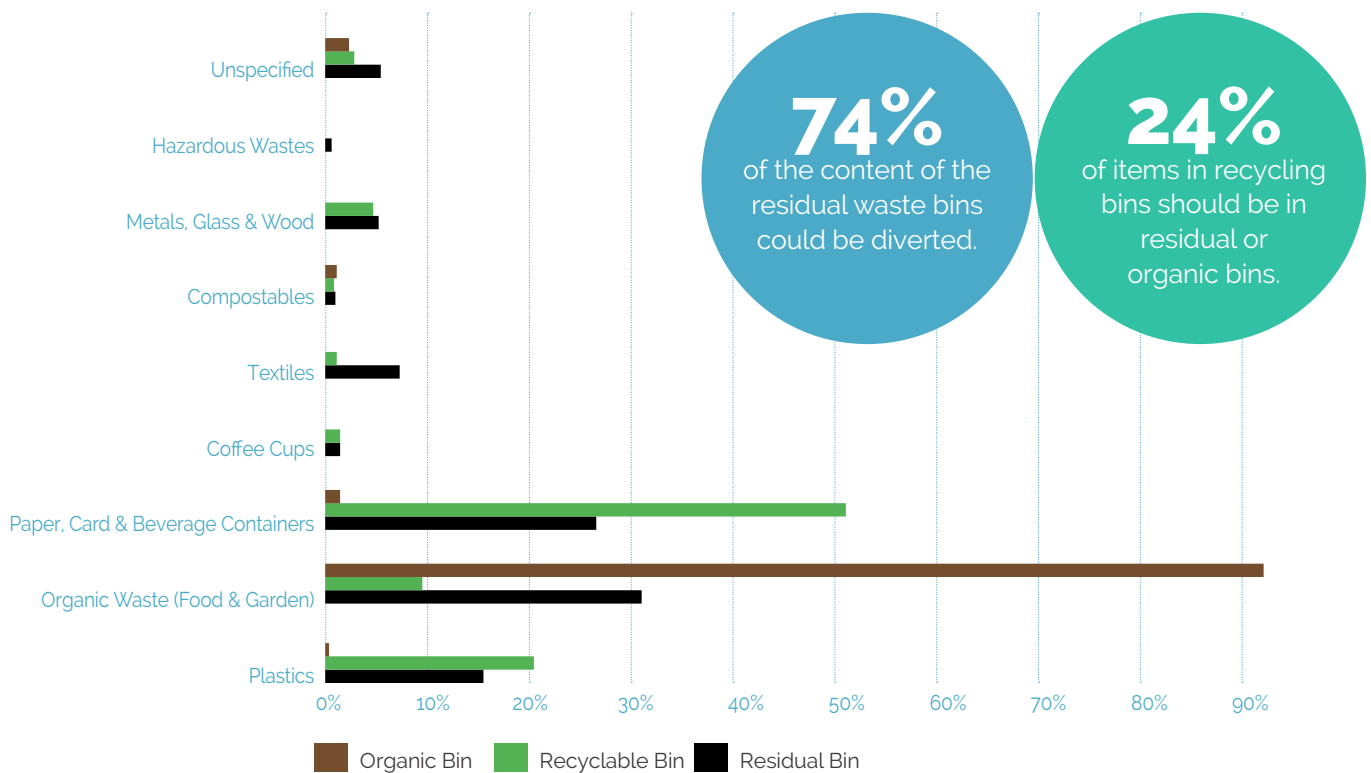


Figure 4.2: Results of 2022 Commercial Waste Characterisation Surveys (source: EPA)

4.2.2 Household Waste

The 2016 CSO Census data reported a total housing stock (including apartments) in Ireland of 2,003,645 properties. Quarterly new dwelling statistics published by the CSO indicate that this has increased by a further 95,308 properties, in the interim, to a current housing stock of 2,098,953 properties. The CSO data indicates that circa 12.2% of these properties are apartments with the remainder houses.

The EPA reports that in 2019, Irish households generated 1,619,102 tonnes of household waste (managed and unmanaged waste). This includes waste from the kerbside collection of residual waste (40%), recyclables (16%) and food waste (10%) as well as waste collected at civic amenity sites (CAS), bring banks and pay to use (PTU) compactors (33%).

The EPA data indicates that 97% of household waste is managed with the remaining 3% unmanaged (e.g., fly tipped or backyard burning etc.).

Note that data from the EPA shows that municipal household waste increased to 1.89 million tonnes in 2020 (an 18% rise from 2019) but this may not represent a natural trend as the EPA state that this is likely linked to a change in householders' behaviours caused by the Covid-19 pandemic. For 2021, municipal household waste decreased by 3% to 1.84 million tonnes (managed and unmanaged)⁶⁶. The EPA report that the continued high levels of household waste generated in 2021 (relative to pre-pandemic levels) are likely due to householders behaviour during the Covid-19 pandemic as in 2020.

Figure 4.3 shows the total household waste managed since 2010 relative to the CSO estimated and measured population. The results show an increasing trend in household waste generation over the past decade that is aligned to a growing population. The waste generation rate has shown little variation over 10 years standing at 318 kg per person in 2010 and 320 kg per person in 2019. While the generation rate increased to 362 kg per person in 2020 and 361 kg per person in 2021, as noted, these years are likely an anomaly due to changing behaviours and the Covid-19 pandemic.

⁶⁶ Link: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/household/>

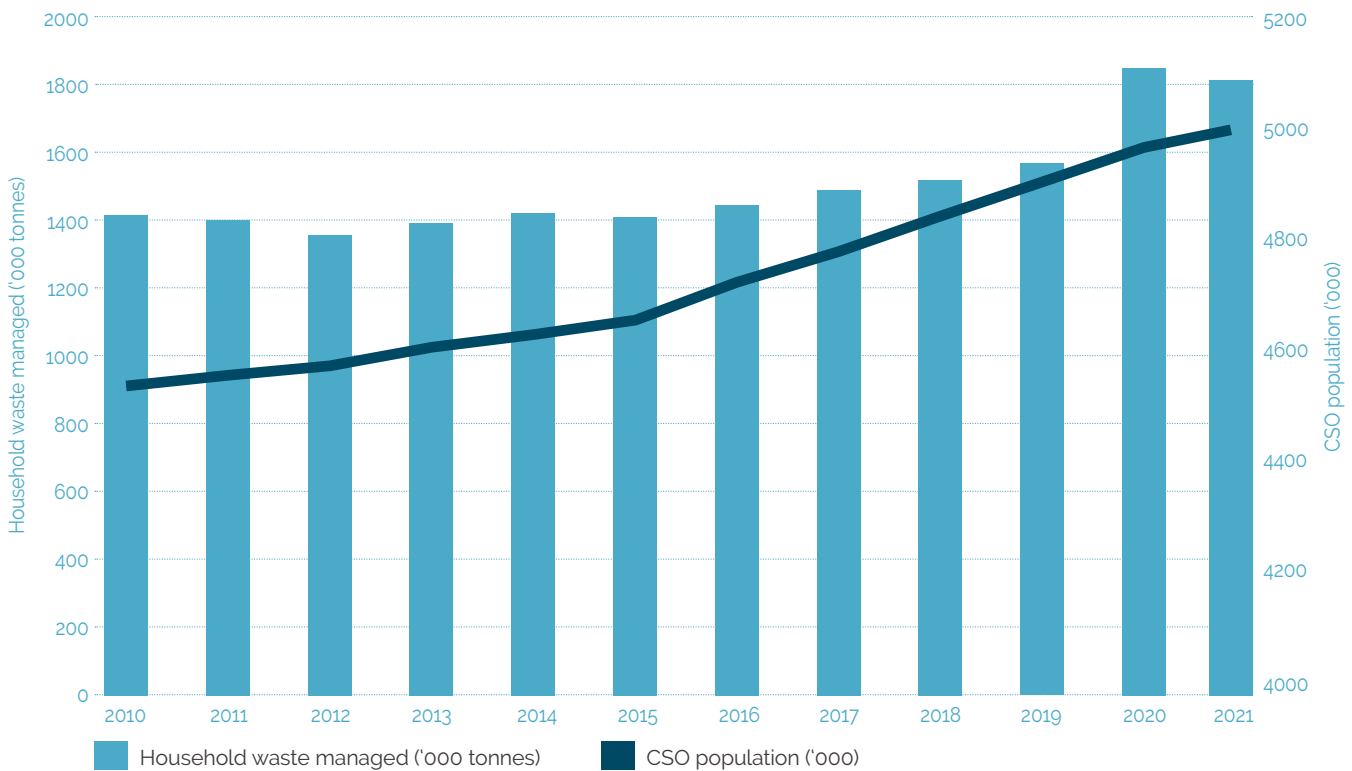


Figure 4.3: Total Household Waste Generated versus Population (source: EPA and CSO)

The data illustrates that there has been no meaningful decoupling of household waste generation from population growth in this period. As noted in **Section 3.3.2**, the CSO shows a 24% increase in average weekly earnings and subsequently personal consumption since 2015 which, when coupled with population growth, are the key drivers in this household waste generation trend.

In November 2021, the CSO published a report on household environmental behaviours⁶⁷ based on a sample size of 25,000 households, which analysed behaviours on the management of household wastes. Some of the key points noted from the survey include the following:

- Approximately 80% of households who responded to the survey have a wheelie bin collection system, used for recyclable and non-recyclable waste;
- 64% of urban households used a food waste recycling bin, compared to 24% of rural households for food waste;
- Rural households were more likely to dispose of food waste in the general waste bin (34% compared to 25% of urban households);
- Rural households were more likely to compost food waste at home (29% compared to 10% in urban settings) or use food waste as animal feed (28% compared to 6% of urban households);

- 69% of rural households compost garden waste at home, compared to 22% of urban households; and
- 52% of urban households place garden waste in the food waste recycling bin, compared to 10% of rural households.

In 2022, the EPA undertook a major waste characterisation study of household waste bins⁶⁸ and the results of this study are summarised in **Figure 4.4**. The figure shows the fractions of waste identified by the EPA in a sample of kerbside household bins. The study reveals that a significant percentage (47%) of kerbside household waste is being placed in the incorrect bin. These non-target materials are wastes which should be segregated into different bins or brought to bring centres.

The household residual bin contains the highest proportion (64%) of non-target materials. These non-target materials, such as food waste, some uncontaminated plastics, papers, metals, and cardboards, should have been placed in the mixed dry recycling bin or the food waste recycling bin or brought to designated bring centres. These materials have a high circular potential if collected and segregated for recycling, which is not currently being realised as these materials are being treated through thermal recovery or landfill via the residual bin. The trend is that non-target materials in the residual bin are increasing.

⁶⁷ Link: <https://www.cso.ie/en/statistics/environmentstatistics/householdenvironmentalbehaviours/>

⁶⁸ Link: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/waste-characterisation/>

The mixed dry recycling bin contains 36% non-target materials, including unrecyclable cardboard, textiles, organic waste, paper, fines (the <20mm fraction), and glass. These non-target materials potentially contaminate the mixed dry recycling resource, reducing the potential for this material to be recycled.

The food waste recycling bin has shown improvement with non-target materials falling from 2018 (8%) to 2022 (5%). Even low levels of non-compostable materials like plastic, batteries, and glass can adversely affect the circularity of this stream by disrupting the operation of biogas and composting facilities and reducing the quality of products.

With respect to waste collected from apartments in particular, there remains a significant number of (apartment) households that are without a 3rd bin for bio-waste, despite the majority of these households being located within an area with an agglomeration of >500 people. This means that in the absence of separate collection for bio-waste, the default for this material is the residual bin (although bio-waste is also being placed in the recyclables bin, albeit to a much lesser extent). Consequently, the respective tonnages of this material are not being captured for recycling. This represents an urgent challenge in view of the EU recycling targets as well as the requirement for Ireland to implement separate collection of all bio-waste by 31st December 2023 in accordance with the revised WFD.

Furthermore, there are also significant challenges with respect to segregation of recyclables at apartments in particular. The 2022 Household Waste Characterisation study found that food waste content was significantly more prominent in the apartment residual bins (41%) than house residual bins (14%). Food waste was also significantly more prevalent in the apartment mixed dry recycling bin (13%) than in houses (4%).

A significant contributing factor to this difference is considered to be the charging structure for household waste collection for apartment dwellers. These costs are tied into the overall fee that each household must pay to their Management Company, which includes an extensive range of services including landscaping, lighting, lift maintenance, cleaning, and maintenance of internal common areas, etc. The apartment dweller typically has no sight of the difference in charges being applied to the different bins and therefore has no incentive to segregate accordingly. In addition, apartment dwellers share bins with neighbours (typically 1100L wheeled bins) and if the neighbours are performing poorly, this has an overall impact on the quality of the material in the bin and can serve to disincentive apartment dwellers further.

Household residual wastes are typically sent to thermal recovery facilities (waste to energy) with lesser quantities sent for disposal at one of the three remaining non-hazardous waste landfills. The contents of the residual bin survey included a

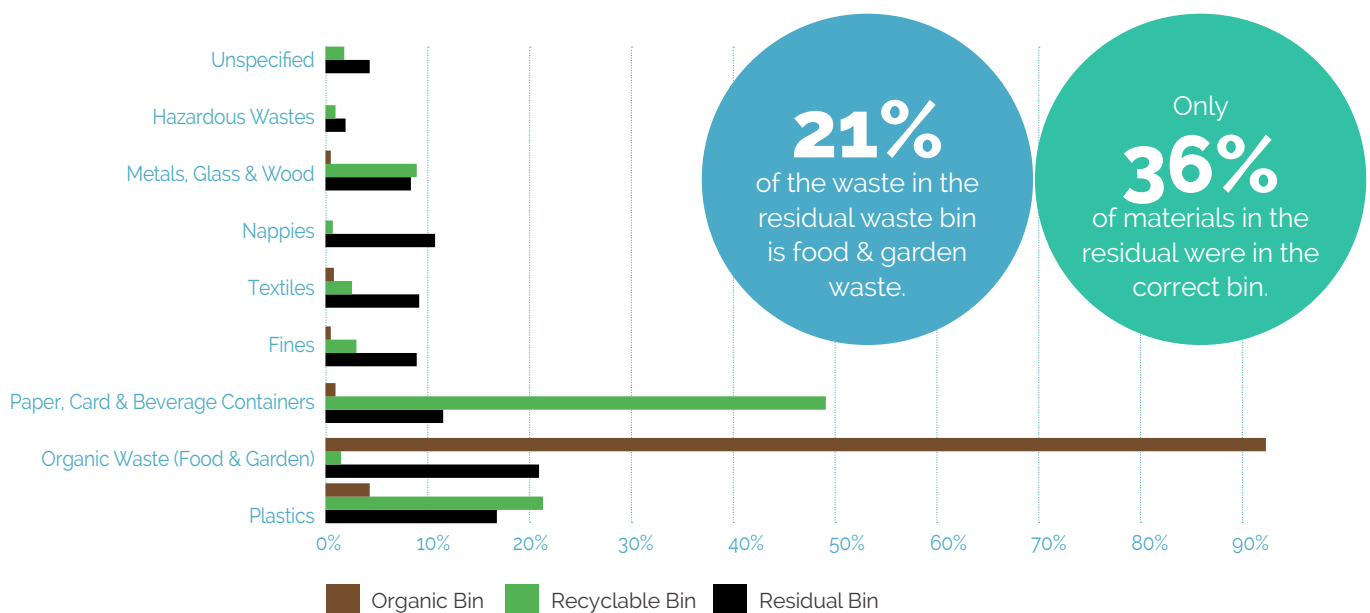


Figure 4.4: Results of 2022 Household Waste Characterisation Surveys (source: EPA)

range of valuable resources with circular economy potential such as plastics (17%), organic waste (17%), paper/card (8%) and textiles (9%) which equate to 51% of all wastes within the residual bin. Sending these valuable resources for recovery or disposal is not sustainable and points to an urgent need to improve household behaviours to enable better source segregation.

Mixed dry recyclables (MDR) are typically pre-treated at facilities in Ireland which sort, segregate and bulk these materials primarily for export and recycling abroad. The contents of the food waste recycling bin are recycled using biological treatment solutions (such as composting or anaerobic digestion) generating compost or biogas. Further details specifically on food waste are presented in **Section 4.3**.

Household waste data illustrates that improved behaviour and the decoupling of waste generation from population growth and wealth are the key factors in the management of this waste stream and there is an urgent need for further and stronger interventions in this area. Projected generation rates of household waste are presented in **Section 6.1** of this volume based on the known drivers for generation.

Focus Area 2 in **Volume II** includes a series of targeted policies and priority actions to mitigate waste generation and improve segregation by households.

4.2.3 Municipal Waste Treatment

The EPA reports that in 2021, municipal waste was predominately treated through energy recovery (41%), recycling (41%) and landfill (16%) with the final 1% as unmanaged waste (refer **Section 4.11**). At 41%, the State has shown little or no progress in increasing the recycling rate over the past decade. Nationally, there has been a moderate decline in the recycling trend since 2009 as shown in **Figure 4.5**.

The State has therefore not achieved the 50% recycling rate target for 2020 and without significant and effective intervention, the 2025 and 2030 targets of 55% and 60% will also not be achieved.

Volume III Chapter 1 summarises planned interventions for municipal waste generation and recycling to establish the impact on residual waste generation and to determine the need for treatment capacity.

Municipal waste treatment data for 2021 highlights other trends (listed below) that must be addressed to support greater recycling and circularity of materials:

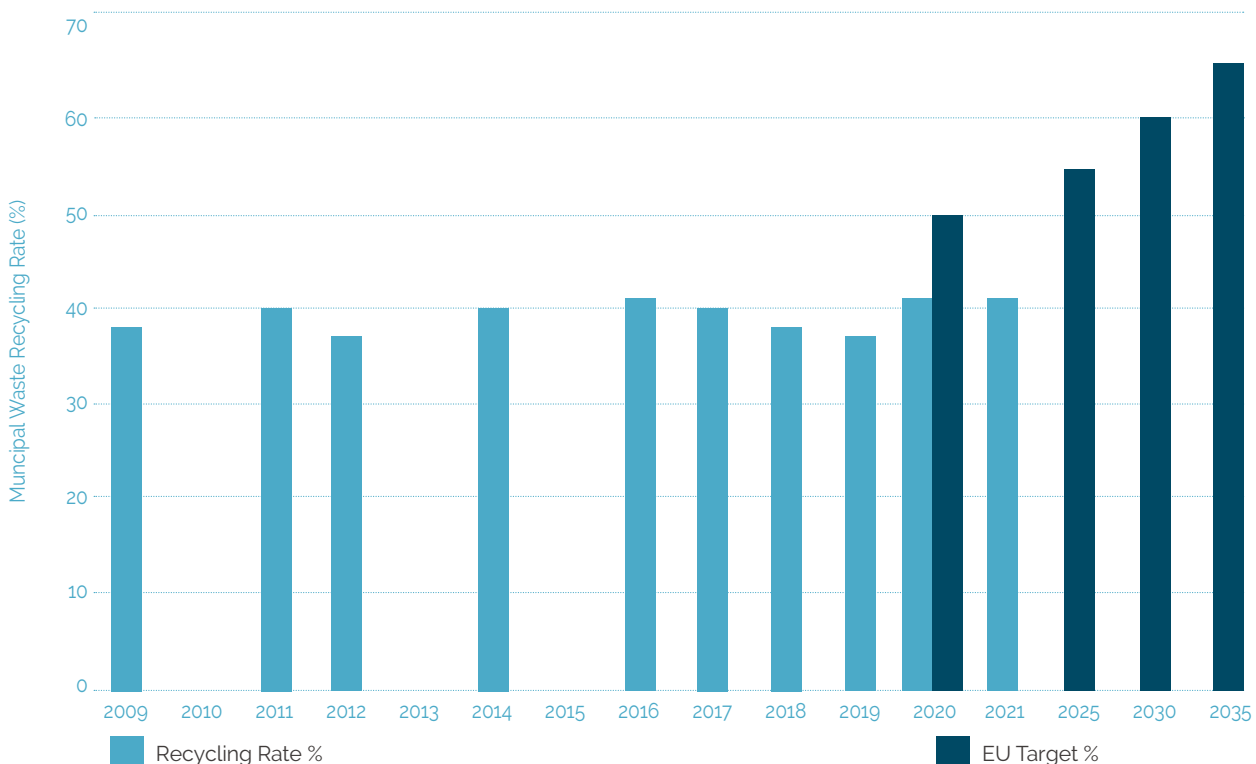


Figure 4.5: Recycling of Municipal Waste Generated and Future EU Targets (source: EPA)

- 43% of managed municipal waste was recovered through thermal treatment. Residual commercial and household waste contains reusable/ recyclable resources that are being lost through this treatment option. Greater segregation is required to capture these materials; and
- 38% of municipal waste was exported for treatment in 2021. The transportation of significant tonnages of waste is adding to the emissions footprint generated by the treatment of waste. In climate terms, local treatment solutions are preferred, followed by international destinations which are closer to Ireland (i.e. European based) who manage waste to the same standards. This approach is better aligned to the established WFD principles of proximity and self-sufficiency. More local treatment infrastructure is required to manage wastes through reuse, preparation for reuse, repair and recycling which will help to reduce the reliance on international markets and destinations.

Further details on the existing waste infrastructure in Ireland are provided in **Chapter 5** with an analysis of existing treatment capacity and the potential need for contingency measures to manage this waste stream.

4.3 FOOD WASTE

The CEAP estimates that 20% of food produced in the EU is lost or wasted. The National Food Waste Prevention Roadmap 2023-2025⁷⁰ was published in November 2022 and sets out actions to reduce food waste by 50% by 2030. The EPA funds a National Food Waste Prevention Programme, StopFoodWaste⁷¹, that will work to achieve the 2030 target.

In Ireland, food waste⁷² is generated by primary production (i.e., agriculture, fisheries, etc.), the food processing industry, households, the hospitality sector and retail/distribution. In 2021, the EPA estimates that Ireland generated 753,000 tonnes of food waste and **Figure 4.6** shows the various sources of food waste generation;

- Primary production generated 53,000 tonnes (7% of total food waste) from horticulture, fruit and vegetables, which accounts for the largest fraction followed by tillage, non-meat animal products and fishing/aquaculture;
- The food and beverage manufacturing and processing sector in Ireland generated an estimated 215,000 tonnes of food waste (29% of total) in 2021;

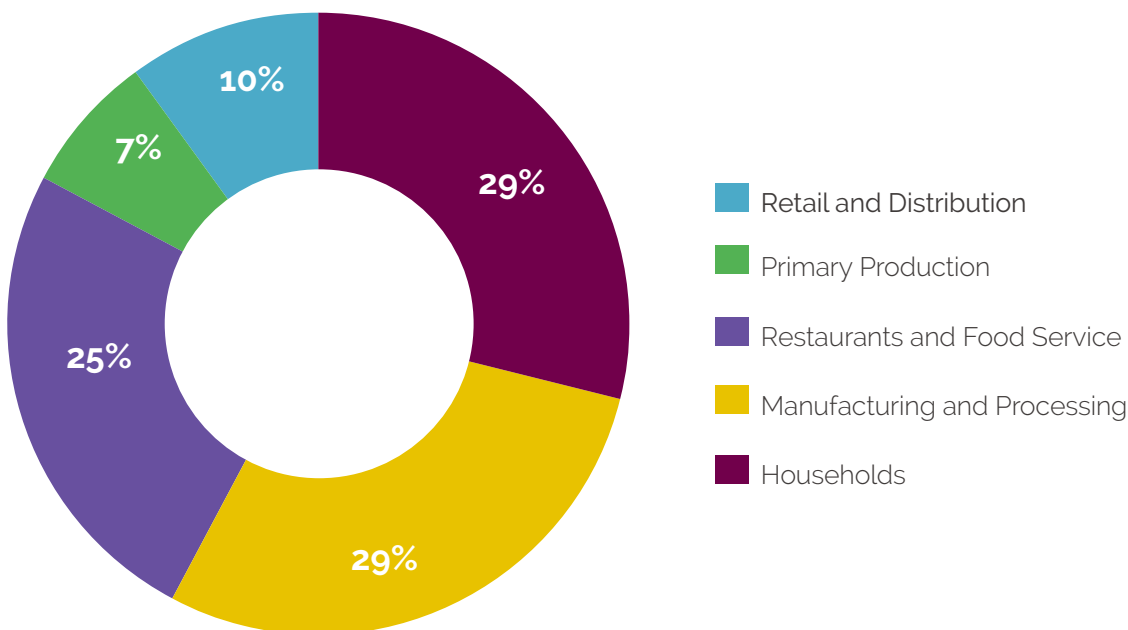
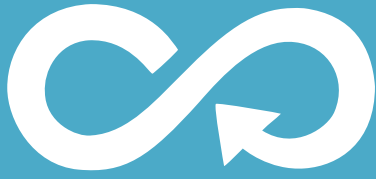


Figure 4.6: 2021 Sources of Food Waste (source: EPA)

⁷⁰ Link: <https://www.gov.ie/en/publication/824c3-national-food-waste-prevention-roadmap-2023-2025/>

⁷¹ Link: <https://stopfoodwaste.ie/>

⁷² All food as defined in Article 2 of Regulation (EC) No 178/2002 of the European Parliament and of the Council that has become waste.



SDG12

RESPONSIBLE CONSUMPTION AND PRODUCTION

UN SUSTAINABLE DEVELOPMENT GOAL – TARGET 12.3

By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

- Household food waste generated is 221,000 tonnes (29%) and the average Irish household throws out 120 kg of food waste each year;
- The hospitality sector (hotels/restaurants) generated 189,000 tonnes of food waste in 2021 (25%); and
- The retail and distribution sector generated 75,000 tonnes of waste in 2021 (10%).

Under the revised WFD, food waste reporting is a mandatory part of Ireland's National Waste Statistics obligations and the first reporting commitment was in June 2022 for the reference year 2020 (as shown above). The EPA has stated in the CEP that one of the initial actions is to develop national sectoral benchmarks for food waste in the supply chain and hospitality sectors.

Looking forward, under the Farm to Fork Strategy published in 2020 under the EGD, the Commission has adopted the UN Sustainable Goal Target 12.3 and will set a baseline (based on the 2020 reference year data presented in June 2022) and introduce legally binding targets to reduce food waste across the EU.

Food waste from households is largely captured through kerbside collection and as shown in **Figure 4.4**, organic waste (both food and garden) makes up 93% of the food waste recycling bin, 21% of the residual bin and 2% of the recycling bin. These results show that while segregation of this stream

into the household food waste recycling bin is happening, there remains significant contamination of the other bins.

In 2023, 69% of households⁷⁴ had a food waste recycling bin and the challenge is to extend collection of this waste stream. Under the European Union (Household Food Waste and Bio-waste) Regulations 2015, all households living in a population agglomeration >500 people are entitled to a Food Waste Recycling service from their waste collector (this covers circa 67% of the population). This threshold has been removed through legislation implemented in January 2024 to facilitate a wider roll out of the brown bin to communities thereby enabling greater segregation of food wastes.

A similar breakdown was observed by the EPA in the commercial bin characterisation study in 2022 which found that 31% of the waste in the commercial residual waste bin consists of food waste. The Waste Management (Food Waste) Regulations 2009 require all major producers of food waste to use a dedicated bin and ensure that it is not mixed with other waste.

Under the Circular Economy Package and revisions to the WFD, separate collection of biowaste must be implemented in all Member States by 31 December 2023. Ireland can build on its strong food waste recycling collection network with further implementation and capture through targeted policies and actions set out in **Volume II**, supported

⁷⁴ This figure applies to a baseline of all occupied households in the country. At present, only households within an agglomeration of 500 or more, must be offered a food waste recycling bin, and when that is factored into the baseline, 90% of occupied households had a food waste recycling bin in 2020. In January 2024 legislation was implemented to remove this threshold and now this requirement applies to all occupied households in the country

by new regulations, to require a full national roll out of the food waste recycling bin.

Segregated organic waste collected through the kerbside food waste recycling bin system is processed at the network of composting or anaerobic digestion (AD) facilities (further details in **Chapter 5**). Food waste misplaced in the residual waste bin is predominately sent for thermal recovery with the potential circularity of this stream lost.

The National Food Waste Charter⁷⁵ is a public commitment by organisations in Ireland to measure, reduce and report on food waste. It represents a collective industry commitment to reduce food waste along the entire supply chain.

Other innovative approaches within the sector include enterprises, such as Food Cloud, which connect retailers and food businesses that generate food waste to charities in need. While such operations are valuable in reducing food waste, the sector needs to focus on the over-supply of food to these industries.

Focus Area 5 in **Volume II** includes targeted policies and priority actions that support the implementation of the Food Waste Prevention Roadmap and the wider management of food waste within the State.

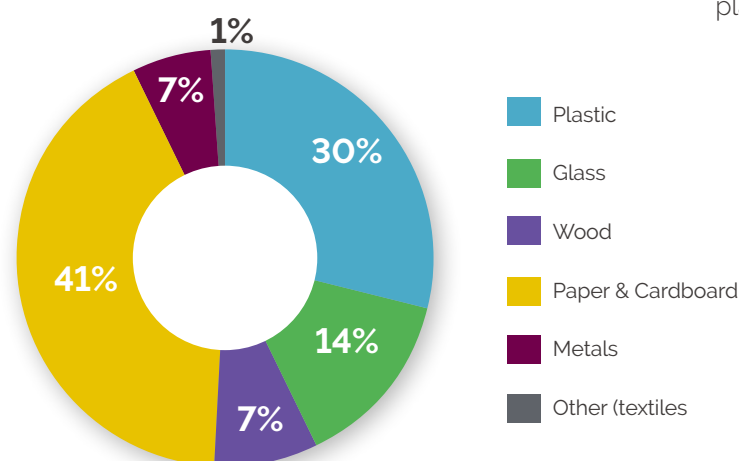


Figure 4.7: Types of Packaging Waste 2021

4.4 PACKAGING WASTE

Ireland generated 1,275,161 tonnes of packaging waste in 2021 representing an increase of 25% from 2016 continuing the upward trend in the generation of this waste stream. Ireland has one of the highest rates of packaging waste in the EU at 253 kg per capita.

Figure 4.7 shows that paper/cardboard (41%) and plastic (30%) represent the largest fractions of packaging waste. The EPA 2022 waste characterisation study found that packaging accounts for 34% of all household waste collected at kerbside. Household packaging waste is also collected through the CAS network and the Bring Bank network. Commercial packaging waste is largely collected through kerbside collections; a small amount is collected at CAS.

In 2021, 58% of all packaging waste collected was recycled. Recent data shows a declining trend in overall recycling rate down from a high of 70% in 2013. This is largely as a result of the use of more complex packaging materials with lower recyclability. The EPA report that packaging waste recycling is increasing three times slower than packaging waste generation.

In 2021, 31% of packaging waste recycling is undertaken in the State with the remainder exported to markets in the EU and beyond.

Of the packaging waste managed, 32% was sent for energy recovery at either thermal treatment facilities or cement kilns. The increase in thermal treatment of packaging waste, up from 18% in 2013, is due to the amount of packaging being misplaced in residual bins and the lower quality of packaging materials placed on the market.

⁷⁵ Link: <https://foodwastecharter.ie/#:-:text=The%20Food%20Waste%20Charter%20is,and%20reporting%20their%20food%20waste.>

Poor segregation by consumers as well as the increase in low quality and composite materials is impacting on packaging recycling rates. This trend is at odds with circular economy principles and this Plan must seek to redress this balance to increase recycling of packaging.

Repak was established in 1997 as a business-led compliance scheme licensed by government to collectively fund the recovery and recycling of packaging waste on behalf of producers. This was the first producer responsibility scheme to be established in Ireland. Members of the compliance scheme are charged a fee in accordance with the amount and type of packaging placed on the market. Member fees are used to subsidise the collection and recovery of waste packaging through registered recovery operators.

The WFD requires the modulation of financial contributions to Extended Producer Responsibility (EPR) schemes in order to minimise waste and maximise the recycling of materials. EPR fees will be used to penalise the use of materials that are less environmentally friendly and reward the use of materials which have a lower environmental impact. Repak fees for plastics that can be recycled increased in 2021 to €117.37 per tonne⁷⁷ reflective of net necessary cost principles being applied which states that the producer will pay 80% of any costs⁷⁸ left over after the income from the sale of a waste packaging material is taken into account and the consumer pays the remaining cost. The 2021 fee for recyclable plastic was maintained for 2022 and is reduced to €112.39 in 2023.

The non-recyclable plastic fees from 01 July 2021 increased to €175 per tonne. A further increase to €214 per tonne came into effect in 2022 reaching the current 80% net necessary cost estimation of €301.70 per tonne by 2023. Fees are subject to annual approval by the Board of Repak.

Ireland is meeting all current packaging recycling targets set in the EU Packaging Waste Directive⁷⁹ as shown in **Figure 4.8** for 2021. The figure shows a mixed recycling performance with high levels of glass recycling (84%) relative to lower levels of plastic recycling (28%). This figure also shows the future recycling targets for 2025 and 2030 set by Directive (EU) 2018/852 amending the Packaging Waste Directive. The data shows that Ireland must make progress on total recycling, metals and paper/board to achieve these targets by 2025 and 2030.

The most significant challenge is achieving the plastic waste recycling rate requiring a doubling of the existing rates by 2025 and 2030. Further details on plastic waste are provided in **Section 4.5**. The CEAP identifies packaging as a key product value chain with significant potential for this stream to be reused or recycled within a closed loop system.

In November 2022, the Commission issued a proposal to revise the Packaging and Packaging Waste Directive⁸⁰ to contribute to reaching the objective of ensuring that 'all packaging on the EU market is reusable or recyclable in an economically viable way by 2030'. Article 7 of the proposal sets the minimum recycled content in plastic packaging and these are presented in **Table 4.1**. While these

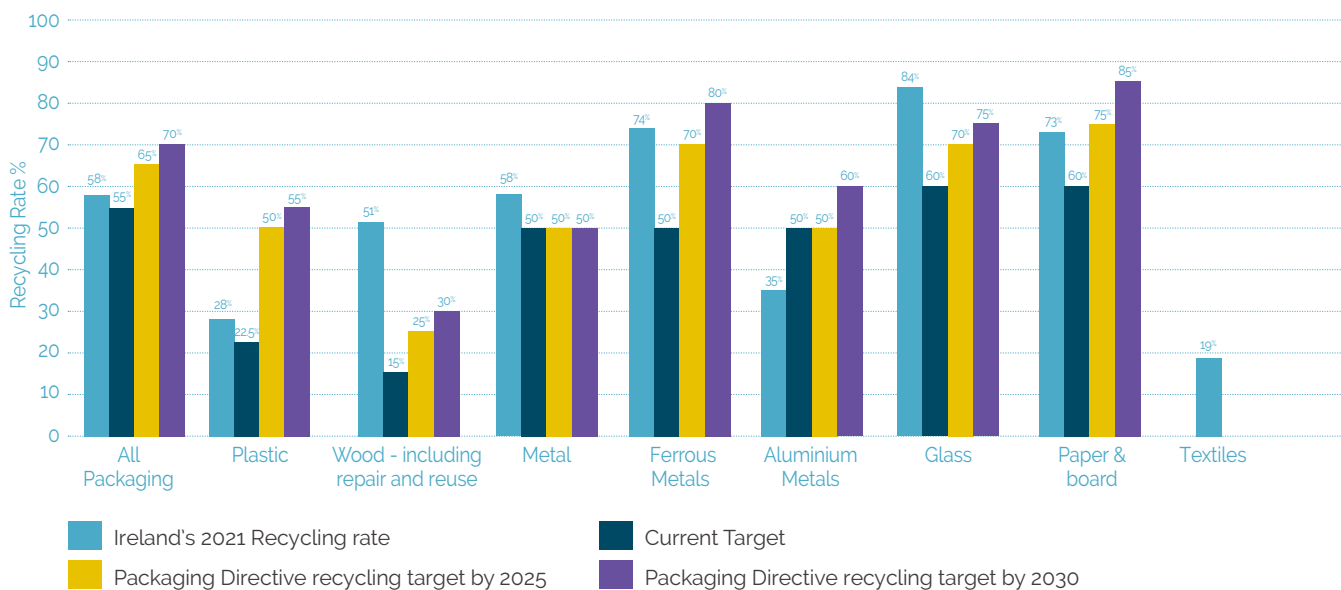


Figure 4.8: 2021 Packaging Waste Recycling Rates relative to current and planned targets (source: EPA)

⁷⁷ Link: <https://repak.ie/news-room/blog/eco-modulated-fees/>

⁷⁸ These costs include operational costs such as the collection, treatment / processing and management of waste packaging materials.

⁷⁹ Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L0852>

⁸⁰ Link: https://environment.ec.europa.eu/publications/proposal-packaging-and-packaging-waste_en

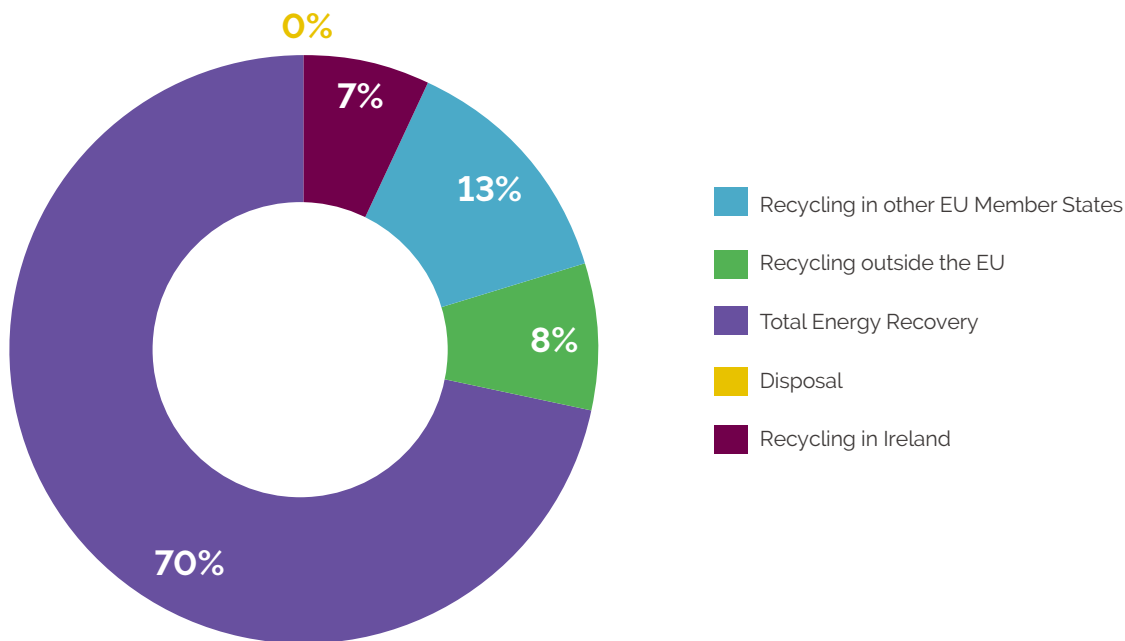


Figure 4.9: 2021 Recycling and Recovery Rates of Plastic Waste (source: EPA)

Table 4.1: Minimum Percentage of Recycled Content recovered from Post-consumer Plastic Waste

Recycled Material	From 1 January 2030	From 1 January 2040
Contact sensitive packaging made from polyethylene terephthalate (PET) as the major component;	30%	-
Contact sensitive packaging made from plastic materials other than PET, except single use plastic beverage bottles	10%	-
Contact sensitive plastic packaging, except single use plastic beverage bottles	-	50%
Single use plastic beverage bottles	30%	65%
Packaging other than those referred to above	35%	65%

targets are outside the timeline of this Plan, these targets are included to provide clarity on the scale of potential future targets for the sector.

Focus Area 6 in **Volume II** includes targeted policies and priority actions for packaging waste.

4.5 PLASTICS (INCLUDING SINGLE USE PLASTICS)

The high functionality and relatively low cost of plastic means that this material has become omnipresent in everyday life. The OECD have reported⁸¹ that the amount of plastic waste produced globally is on track to almost triple by 2060 with around half ending up in landfill and less than a fifth recycled. Like packaging, plastics are identified in the CEAP as a key product value chain with a view to increasing the uptake of recycled plastics and contributing to more sustainable use of plastics.

Plastic waste is generated by both the commercial and household sectors with 372,818 tonnes of plastic waste generated in 2021. EPA waste characterisation surveys in 2022⁸² record that plastics have been identified at varying levels in all commercial and household bins as follows:

- **Commercial:** Residual Bin (15%), Recycling Bin (21%) and Food Waste Recycling Bin (<1%)
- **Household:** Residual Bin (17%), Recycling Bin (21%) and Food Waste Recycling Bin (4%)

⁸¹ Link: <https://www.oecd.org/environment/global-plastic-waste-set-to-almost-triple-by-2060.htm>

⁸² Link: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/waste-characterisation/>

Effective source segregation of plastics for both commercial and kerbside collections is a concern and significant changes and incentives are required to fully separate and capture this waste stream. In 2021, there was a change to the acceptance criteria for waste plastic whereby all plastic packaging waste, including soft plastic, can now be placed in household recycling bins as long as it is clean, dry and loose to increase recycling rates and reduce contamination. The planned implementation of a Deposit Return Scheme (DRS) for plastic bottles in February 2024 is also intended to improve the current recycling rate.

Figure 4.9 shows the relative recycling and recovery rates of plastics generated in Ireland. The data indicates that 7% of this stream is recycled in Ireland with 28% recycled overall. The majority of plastic waste generated (70%) is recovered by thermal treatment which has increased from 44% in 2017.

Separate to commercial and household generated plastic waste, 'farm plastics' constitute a separate plastic stream that includes sheeting, netting, bale twine, bale wrap or bale bags. Ireland has specific regulations⁸³ on this waste stream that requires a compliance scheme which is administered by the Irish Farm Film Producers Group CLG (IFFPG). In 2021, IFFPG collected 36,950 tonnes of farm plastics for recycling through both bring centres and farm collections. A national target of 70% recycling for this stream was surpassed by the IFFPG in 2021 at 90%.

A major legislative development for this stream is the Single Use Plastic Directive ((EU) 2019/904) which was transposed into Irish law in July 2021. The Directive promotes circular approaches that give priority to sustainable and non-toxic reusable products and reuse systems rather than to single use products, aiming to reduce the quantity of waste generated. The key features of this legislation include:

- A series of SUP products are banned from being placed on the market since July 2021;
 - Cutlery (forks, knives, spoons, chopsticks);
 - Plates;
 - Straws;
 - Cotton bud sticks;
 - Beverage stirrers;
 - Sticks to be attached to and to support balloons;

- Food containers made of expanded polystyrene; and
- Products made from oxo-degradable plastic.
- Beverage containers (bottles, cartons) up to 3 litres in size will be banned from the Irish market from 3 July 2024, unless its cap is attached to the main part of the container;
- Beverage producers will also be prohibited from placing any SUP polyethylene terephthalate (PET) bottle up to 3 litres in size on the Irish market from January 2025 unless it contains a minimum of 25% recycled plastic;
- From January 2030 these bottles must contain a minimum of 30% recycled plastic;
- The Directive sets a collection target of 90% for SUP products placed on the market in a given year by weight by 2029 (with an interim target of 77% by 2025);
- Since 5 January 2023, producers of packaging are now required to cover the costs of litter clean-up, awareness raising and waste collection in addition to existing EPR obligations associated with the following SUP items – food containers, packets, wrappers, beverage containers, cups and light weight carrier bags;
- Since 5 January 2023, producers of tobacco filter products which contain plastic are also subject to an EPR scheme; and
- By 31 December 2024, producers of balloons, wet wipes and fishing gear will also be subject to an EPR scheme.

Tackling plastic waste requires both a reduction in generation rates (supported by the SUP Directive) coupled with an effective source segregation and recycling model. Future measures in this area must support the introduction of these new EPR schemes and support systems and behaviours to deliver higher plastic recycling targets as shown in

Figure 4.8.

Focus Area 7 in **Volume II** includes targeted policies and priority actions to support the implementation of the SUP Directive.

⁸³ S.I. No. 341 of 2001 - Waste Management (Farm Plastics) Regulations, 2001 as amended by S.I. No. 396 of 2017.

4.6 TEXTILES

Textiles are products of clothing, footwear and interior furnishings (e.g. carpets, curtains, bedding, furniture) composed of at least 80% by weight of textile fibres (based on EU Textile Labelling Regulation 2011⁸⁴). The CEAP estimates that less than 1% of all textiles worldwide are recycled into new textiles and the average EU citizen buys nearly 26 kg and discards 11 kg of textiles each year. Much of this consumption is driven by fast fashion whereby cheap clothes are made from virgin resources (mainly plastic based materials such as polyester, acrylic, nylon and elastane) with limited reuse potential and are ultimately discarded after a few uses.

The EPA Waste Characterisation Surveys of 2022 identified that 2.5% of the household recycling bin and 8.8% of the residual bins consisted of textiles. Similarly, for commercial bins 1.1% of the recycling bin and 7.0% of the residual bin consisted of textiles.

Separately, an EPA research report⁸⁵ on the 'Nature and Extent of Post-Consumer Textiles in Ireland' is the first detailed study of textile waste undertaken in Ireland. Key findings from this report are as follows:

- Ireland imports 292,000 tonnes and exports 34,000 tonnes of new textiles and textiles products per annum;
- Per capita generation of post-consumer textiles in Ireland is estimated at 35 kg per person per year;
- The generation of total post-consumer textiles in Ireland is estimated to be around 170,000 tonnes per year which includes clothing, footwear and other textile products;
- Textiles disposed of by households through the residual bin system and sent for thermal recovery or landfill account for 65% of post-consumer textiles; and
- The remaining 35% include commercial textile banks, the charity sector and vintage shops.

On top of the textiles collected in the standard waste collection systems, there are also textiles reused outside of the waste regime through charity shops. Other potential reuse outlets include bring banks and retailers offering take back schemes (H&M, Penneys, etc.), however, not all of this material

is ultimately reused. Charity Retail Ireland (formerly Irish Charity Shops Association, ICSA) estimates that circa 23,000 tonnes of textiles are managed each year in charity shops with circa 12,000 tonnes sold as garments and the remaining 11,000 tonnes sold on to commercial textile recyclers.

In July 2023, the EPA reported the first reuse statistics for Ireland⁸⁶ as required under Commission Implementing Decision (EU) 2021/19. In 2021, there were 12,652,000 textile items reused at a total weight of 3,771 tonnes and textiles account for 73% of all second-hand purchases/exchanges in Ireland in 2021 illustrating the circular potential for this stream.

Under the revised WFD ((EU) 2018/851), the following changes are pending in relation to the management of textile waste:

- Ireland is required to set up a separate collection system for textiles by 1 January 2025; and
- By 31 December 2024, the Commission shall consider setting preparing for reuse and recycling targets for textile waste.

The Commission published the EU Strategy on Textiles⁸⁷ in March 2022 to promote sustainable and circular textiles. This strategy will provide a comprehensive framework to create conditions and incentives to boost the competitiveness, sustainability and resilience of the EU textile sector.

The WAPCE commits to a number of key additional measures for tackling textile waste including a ban on textiles in the general waste bin, a ban on acceptance of textiles at landfill and thermal treatment and the establishment of a textile industry action group which commenced its work in 2022.

Focus Area 9 in **Volume II** includes targeted policies and priority actions to change consumer behaviours to prevent textile waste and increase circular systems in the management of post-consumer textiles.

⁸⁴ Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32011R1007>

⁸⁵ Nature and Extent of Post-Consumer Textiles in Ireland, 2021. Link: <https://www.epa.ie/publications/circular-economy/resources/nature-and-extent-of-post-consumer-textiles-in-ireland.php>

⁸⁶ Link: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/reuse/#:~:text=Data%20highlights,6%20kg%20per%20person.>

⁸⁷ Link: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12822-EU-strategy-for-sustainable-textiles_en

Table 4.2: WEEE Collected and Managed 2016-2021 (source: EPA)

Parameter	2016	2017	2018	2019	2020	2021
Total WEEE Collected (tonnes)	51,303	52,312	62,714	62,638	64,846	71,811
WEEE Recovered (tonnes)	49,534 (97%)	47,504 (91%)	55,754 (89%)	57,897 (92%)	59,404 (92%)	66,811 (93%)
WEEE Preparation for Reuse and Recycling (tonnes)	43,681 (85%)	43,860 (84%)	52,010 (83%)	53,162 (85%)	55,012 (85%)	59,896 (83%)

4.7 WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) AND BATTERIES

Waste electrical and electronic equipment (WEEE) includes for a wide range of appliances (fridges, TVs, washing machines, etc.), communications devices (computers, mobile phones, tablets, etc.) and any other electronics at the end of their life. This is one of the fastest growing waste streams in the EU with current annual growth rates of 2% and is listed as a key product value chain under the CEAP.

The WEEE Directive (2012/19/EC) sets a minimum collection rate of 65% for WEEE as well as a series of individual targets for the reuse, recovery and recycling of six different categories of WEEE. In recent years, Ireland has surpassed all EU targets for recycling and recovery of WEEE highlighting the high compliance rates for this stream.

WEEE Ireland and the European Recycling Platform (ERP) are national compliance scheme organisations working on behalf of industry producers responsible for the collection and management of WEEE in Ireland from retailer take back schemes, the CAS network and one-off collection events. In 2021, a record 71,811 tonnes of WEEE was collected in Ireland for treatment, the highest quantity ever recorded in the State. Eurostat⁸⁸ reports that Ireland's per capita collection of WEEE (14.27kg/capita in 2021) is one of the highest in Europe and circa 30% higher than the EU average.

Table 4.2 shows the annual levels of WEEE collected, recovered, and prepared for recycling in Ireland over the period 2016 to 2021. The data shows an increasing trend in the total WEEE generated in recent years with generally high levels of recovery (greater than 90%) and preparation for reuse and recycling (generally 85%). The EPA reports that while the majority of WEEE collected is pre-treated in Ireland nearly all of this is then exported for final treatment.

WEEE is a high value and carbon intensive resource with sound reuse potential but currently there is limited reuse, preparation for reuse and repair activities undertaken in the State. While compliance schemes operate effective and successful collection and recovery systems, there has been less focus on higher order treatment (reuse, and preparation for reuse and repair). This is changing with further improvements needed over the lifetime of this Plan.

A number of circular economy initiatives, which involve WEEE, have been established, such as the Circular Economy Skills Initiative⁸⁹ and Repair My Stuff⁹⁰ but there is a need for more reuse, and preparation for reuse and repair activity within the community and these are suitably supported under this Plan.

The EU lists lithium as a critical raw material⁹¹. These are raw materials of high importance to the EU economy with a high risk associated with their supply. Such is the concern of the European

⁸⁸ Link: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics_-_electrical_and_electronic_equipment&oldid=556612

⁸⁹ Link: <https://fit.ie/circular-economy-skills-initiative/>

⁹⁰ Link: Repair My Stuff

⁹¹ Link: https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en

Commission it is putting forward a European Critical Raw Materials Act⁹². Lithium ion batteries are increasing in use and it is important that this stream is captured separately and handled appropriately to avoid fire hazard.

Batteries are regulated under Directive 2006/66/EC⁹³ and the transposed Irish regulations⁹⁴ which cover the manufacture, labelling and disposal of portable, industrial and automotive batteries. Battery producers have obligations under the Directive. WEEE Ireland and the European Recycling Platform (ERP) are the national compliance scheme organisations for batteries.

Ireland has targets for the minimum levels of collection and recycling of various batteries and accumulators, all of which Ireland achieved in 2020. However, the poor segregation of batteries and the placement in kerbside bins highlights the need for greater awareness to support the compliance schemes to collect this stream more effectively.

In July 2023 a new regulation⁹⁵ entered into force on waste batteries to ensure that batteries have a low carbon footprint, use minimal harmful substances, need less raw materials from non-EU countries, and are collected, reused and recycled to a high degree in Europe. These regulations include a series of

progressive limits on the following:

- Recycled content in industrial batteries, electric vehicle batteries, light means of transport batteries and starting, lighting and ignition batteries for cobalt, lead, lithium and nickel from August 2030 and August 2036;
- Collection targets for all types of waste batteries by December 2023, December 2027 and December 2030;
- Targets for recycling efficiency of various battery types from December 2025 and December 2030; and
- Targets for recovery of materials (cobalt, copper, lead, lithium and nickel) from all battery types by December 2027 and December 2031.

The evidence indicates that while Ireland is ahead of the current target, significant progress needs to be made in battery collection systems to meet the next generation targets in 2027 and 2030.

Focus Area 3 in **Volume II** includes targeted policies and priority actions specific to compliance schemes to enable these schemes to maximise collection and promote circularity of high value streams such as WEEE and batteries.

4.8 END-OF-LIFE VEHICLES

Table 4.3: ELV Reuse, Recycling and Recovery Rates, 2012-2021 (source: EPA)

Reference Year	Target	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ELV Reuse and Recycling Rate %	85	81	82	80	82	83.3	86	85.9	86.4	87.43	90.33	87.81
ELV Reuse and Recovery Rate %	95	83	88	92	91	91.8	92.8	94.6	95.17	95.21	97.12	95.74

Under the European Union (End-of-life Vehicle) Regulations 2014, the term 'End-of-Life Vehicle' (ELV) refers to a specified vehicle⁹⁷ which is discarded or is to be discarded by its registered owner as waste⁹⁸. An estimated 145,628 ELVs were treated in Ireland in 2021 equating to 154,365 tonnes of waste generated. ELVs are a valuable source of materials (metals, glass, etc.) that can be reused, recycled and recovered.

ELVs must be managed at an Authorised Treatment Facility (ATF) where vehicles are accepted free of charge. ELV Environmental Services (ELVES)⁹⁹ is Ireland's producer compliance scheme set up by vehicle manufacturers to help deliver on the obligations under the European Union (End-of-Life Vehicles) (Amendment) Regulations 2016. The ELVES

⁹² Link: https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_5523

⁹³ Link: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32006L0066>

⁹⁴ European Union (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) amended by the European Union (Batteries and Accumulators) (Amendment) Regulations 2014 (S.I. No. 349 of 2014).

⁹⁵ Link: <https://eur-lex.europa.eu/eli/reg/2023/1542/oj>

⁹⁷ 'Vehicle' means any vehicle designated as category M1 or N1 defined in Annex IIA to Directive 70/156/EEC, and three wheel motor vehicles as defined in Directive 92/61/EEC, but excluding motor tricycles.

⁹⁸ Link: <https://www.irishstatutebook.ie/eli/2014/si/281/made/en/print>

⁹⁹ Link: <https://www.elves.ie/en>

scheme promotes a network of ATFs to encourage vehicle owners to enable the recycling of ELVs via permitted ATFs.

The EU End-of-Life Vehicle Directive¹⁰⁰ (2000/53/EC) aims to limit and prevent waste from ELVs and outlines measures to promote the reuse, recycling and recovery of ELVs. The Directive requires each Member State to meet the targets of 95% reuse and recovery of ELVs, with a minimum of 85% reuse and recycling. The latest EPA data presented in **Table 4.3** shows that Ireland has increased the ELV recycling and recovery rates over the past decade with results from 2018 onwards showing compliance with these EU targets.

One of the key circular economy considerations for this sector is incentivising vehicle manufacturers to modify vehicle design to make use of more recycled materials and ensure recycling of ELVs can be undertaken more easily. This measure is required at EU level and is outside the scope of this Plan given the absence of a car manufacturing industry in Ireland.

As noted, Focus Area 3 in **Volume II** includes targeted policies and priority actions specific to compliance schemes including ELVs.

4.9 TYRES

Tyres are mainly made up of a mix of natural and synthetic rubbers around steel cord but other materials such as fillers and plasticisers are also present to improve performance. A high percentage of a waste tyre can be recycled but there is a residual fraction that is non-recyclable.

In 2020, 40,393 tonnes of waste tyres were managed in Ireland¹⁰¹ and **Table 4.4** shows that while 68% were recycled, there remains a 27% fraction that is sent for energy recovery. Typically, waste tyres are either baled for export (46%) or pre-treated by crumbing (28%) prior to recycling.

Note: The data does not include tyres that went for storage or fines residue from waste tyre shredding that went directly to landfill.

In 2017, new Regulations¹⁰² came into effect to govern the registration, sale and safe recycling of all tyres placed on the market in Ireland. These Regulations included a tyre compliance scheme operated by Circol ELT (End-of-Life Tyres). Circol ELT is responsible for the collection and management of tyres in Ireland from members of the compliance scheme for car and motorcycle tyre waste.

While there are no statutory recycling or recovery targets, Circol ELT is obligated to meet minimum targets annually, i.e. a rate of 70% recovery and 30% recycling of all tyres collected. In 2022, Circol ELT collected 35,500 tonnes of tyres and achieved a 97% recycling rate. The recovery and recycling levels demonstrate the positive impact of the compliance scheme since implementation.

However, high reliance on the export market for this waste stream is a concern and the development of additional indigenous treatment options should be examined further. In addition, the increasing diversion of tyres to thermal recovery rather than recycling, as observed in 2020, needs to be addressed, insofar as possible, within this Plan.

As noted, Focus Area 3 in **Volume II** includes targeted policies and priority actions specific to compliance schemes including tyres.

Table 4.4: Waste Tyre Treatment Data 2020 (source: EPA)

Final Treatment	Quantity (tonnes)	Fraction
Ballast	646	2%
Preparing for Reuse	1,181	3%
Energy Recovery	10,940	27%
Recycled	26,626	68%
Total	40,393	100%

¹⁰⁰ Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32000L0053>

¹⁰¹ This excludes tyres that were exported as a part of depolluted ELVs.

¹⁰² S.I. No. 400 of 2017 - Waste Management (Tyres and Waste Tyres) Regulations 2017.

4.10 CONSTRUCTION AND DEMOLITION WASTE

The CEAP notes that construction and demolition (C&D) waste accounts for 35% of waste generated within the EU. This waste stream is exclusively generated by the construction sector which is experiencing significant growth in Ireland since the economic downturn with levels far in excess of the EU average (2021 C&D waste accounts for circa 60% of total waste generated in Ireland).

In 2021, Ireland generated 9 million tonnes of C&D waste continuing the significant growth in this waste stream observed since 2013 as shown in **Figure 4.10**. Generation rates decreased to 8.2 million tonnes in 2020 as a result of Covid 19 restrictions on the building industry but have returned to 2019 levels in 2021 despite additional Covid-19 restrictions. Soil and stone accounts for the largest fraction of this waste stream (typically 70-80% of the total stream) and increasing to 85% in 2019 to 2021.

The remaining 15% of C&D waste consists of a range of materials as shown in **Figure 4.11**. Concrete, brick, tile and gypsum is the largest fraction at 45% followed by mixed waste at 27% indicating that 362,380 tonnes of C&D waste remained unsegregated in 2021.

Outside of the waste regime, soil and stone may also be managed as Regulation 27 by-product. In June 2019 the EPA issued '*Guidance on Soil and Stone By-Products*¹⁰³ to support the sector followed by more general guidance in May 2020¹⁰⁴. In the calendar years 2018 to 2021, the EPA received by-product notifications for 20 million tonnes of soil and stone material. Of these 19% were withdrawn, 40% were notified as by product, 1% notified as waste and 41% were yet to be determined at year end. The EPA determined that 8,132,194 tonnes of the soil and stone notified were by-product, as notified, and that 122,620 tonnes were waste during this period.

The EPA has developed national By-Product criteria for two construction waste streams:

- Greenfield Soil & Stone used in developments with planning permission or an exemption from the need for planning permission which provides for the use of this by-product material. Draft Criteria and Explanatory Note¹⁰⁵ are published and this decision was implemented in early 2024; and
- Site won asphalt for use as a raw material in Reclaimed Asphalt Pavement (RAP) plants for the manufacture of bituminous mixtures¹⁰⁶ which was implemented in late 2023.

These national decisions have the potential to prevent significant quantities of materials becoming waste and maintaining the high circular potential of these materials.

Construction waste materials may also be reused outside the waste regulation regime once these materials have achieved Regulation 28 end-of-waste status. To date, the EPA has granted end-of-waste status to four operators for recycled aggregates and national end-of-waste criteria have also been developed by the EPA for recycled aggregate¹⁰⁷ (reference No. EoW-N001/2023). In order to produce recycled aggregates in accordance with the national decision, the producer must register with EPA.

C&D waste is considered to have a high inherent value and while some streams such as metals have high recycling rates, significant quantities are still being sent for disposal. The CEAP identifies C&D waste as a key value product chain through a number of future initiatives (such as the Construction Product Regulation¹⁰⁸ and Renovation Wave¹⁰⁹). It is planned to introduce material recovery targets set in EU legislation for C&D waste and its material-specific fractions.

¹⁰³ Link: <https://www.epa.ie/publications/licensing--permitting/waste/soil-and-stone-by-products.php>

¹⁰⁴ Draft By-Product Guidance, EPA, 2020. Link <https://www.epa.ie/publications/licensing--permitting/waste/draft-by-product-guidance.php>

¹⁰⁵ Link: <https://www.epa.ie/publications/licensing--permitting/waste/draft-national-by-product-criteria-greenfield-soil-and-stone.php>

¹⁰⁶ Link: <https://www.epa.ie/media/epa-2020/licensing-amp-permitting/waste/Proposed-National-By-Product-Criteria-Ref.-No.-BP-N0012023.pdf>

¹⁰⁷ Link: <https://www.epa.ie/publications/licensing--permitting/waste/-national-end-of-waste-criteria-recycled-aggregates.php>

¹⁰⁸ Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.

¹⁰⁹ Link: https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en



Figure 4.10: Construction and Demolition Waste generated in Ireland 2012-2021 (source: EPA)

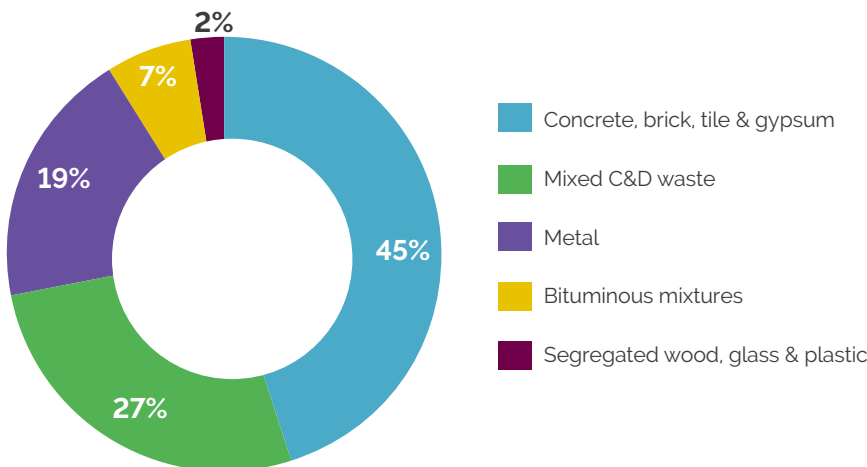


Figure 4.11: Breakdown of Non- Soil and Stone Fraction of Construction and Demolition Waste in 2021 (source: EPA)

Prevention and improved recycling of C&D waste could be achieved by employing best practice circular construction activities, such as designing out waste, enhanced segregation of C&D materials into individual material streams and by maximising the use of resources. The EPA published a revised 'Best Practice Guidelines for the Preparation of Resource Management Plans for Construction & Demolition Projects'¹¹⁰ in November 2021 to guide the industry on this revised approach with a focus on prevention and circular thinking.

The continued growth in the construction sector (as noted in **Section 3.3.2**) is anticipated to increase the volume of waste generated by the sector within the timeframe of this Plan. A summary of the projected growth in C&D waste generation is presented in **Section 6.2**.

Other key developments for the sector may include the mica redress scheme. The Department of Housing, Local Government and Heritage (DHLGH) estimates that 7,500 homes may require remediation works as a result of defective

¹¹⁰ Link: <https://www.epa.ie/publications/circular-economy/resources/best-practice-guidelines-for-the-preparation-of-resource--waste-management-plans-for-construction--demolition-projects.php>

concrete blocks which may range from repairs to full demolition. The potential demolition wastes generated as a result of this scheme need to be considered to ensure that suitable reuse options for the material can be identified and implemented without impacting human health, the environment and the integrity of any future use.

Focus Area 8 in **Volume II** includes targeted policies and priority actions for the construction and demolition sector that seek to prevent the generation of this waste and also manage this material stream to support circular systems.

4.11 Illegal Waste

In 2022, local authorities received 70,000 environmental complaints¹¹¹ and 90% of the complaints related to waste and litter. Almost 70% (approximately 135,000) of the reported 2022 environmental inspections undertaken by the LGS were related to waste and litter enforcement. 93% (580) of the environmental prosecutions were initiated in the waste sector (excluding litter).

The main illegal waste activities recorded in Ireland include the following:

- Litter which generally refers to any type of waste left in an open or public place such as food and drink packaging, cigarette ends, dog fouling, etc.;
- Backyard burning of wastes which is prohibited¹¹³;
- Illegal dumping or fly-tipping;
- Illegal operators and unauthorised collectors, such as unauthorised End-of-Life (ELV) collectors, or the commonly referred to as a 'Man-in-Van', have been identified as a priority in terms of illegal activity and unaccounted for waste;
- Unauthorised treatment of waste at unauthorised sites including unauthorised ELV sites or scrap yards;
- Unregistered and revoked tyre retailers operating outside the regulatory framework; and

- Suspected Major Producers (SMPs) of packaging who are not meeting obligations under the Regulations.

The EPA estimates for unmanaged municipal waste in the period 2016 to 2021 are shown in **Table 4.5** and while the results show an increasing trend, the levels are stable at circa 1.6% of total municipal waste (refer **Section 4.2** Municipal Waste).

The Waste Enforcement Regional Lead Authorities (WERLAs) are responsible for coordinating waste enforcement actions and set priorities and common objectives for consistent waste enforcement, including public awareness and education activities (related to enforcement).

The WERLAs coordinate the DECC funded Anti-Dumping Initiative (ADI)¹¹⁴ which aims to identify high risk or problem areas, develop appropriate enforcement responses, and carry out clean-up operations. Since 2017, funding of over €17 million¹¹⁵ has been provided which has supported over 1,800 projects across all local authorities in pursuance of illegal waste activity. The scale of waste collected in the three waste management regions through the ADI is reported in **Table 4.6** (note that waste data for 2020 and 2021 is not available).

A lack of data on the quantity of unmanaged and illegal waste being disposed of nationally continues to be an issue. In 2020, the EPA commenced a study on the nature and extent of waste crime in Ireland (yet to be published) to look at the impact of waste crime activities, including the extent to which illegal dumping has occurred over the past decade. The previous report which looked at unauthorised waste disposal was prepared in 2005.

Table 4.5: Estimated Unmanaged Municipal Waste 2016 to 2021 (source: EPA)

Parameter	2016	2017	2018	2019	2020	2021
Total Estimated Municipal Unmanaged Waste (tonnes)	44,868	44,501	47,145	48,660	29,600	25,600

¹¹¹ Link: <https://www.epa.ie/publications/compliance--enforcement/public-authorities/focus-on-local-authority-environmental-enforcement-performance-report-2022.php>

¹¹³ Waste Management (Prohibition of Waste Disposal by Burning) Regulations 2009 (S.I. No. 286 of 2009).

¹¹⁴ Link: gov.ie - Anti-Dumping Initiative (www.gov.ie)

¹¹⁵ Period 2017-2022.

Table 4.6: Waste Collected by Year 2017-2022 through the Anti-Dumping Initiative (source: WERLA)

Region	2017	2018	2019	2022
Connacht-Ulster (tonnes)	1,483	1,140	377	1,021
Eastern-Midlands (tonnes)	854	930	620	2,270
Southern Region (tonnes)	530	501	642	2,120
Total (tonnes)	2,867	2,571	1,639	5,411

The full impact of the Covid-19 pandemic on waste management in Ireland is yet to be seen, as is discussed in **Chapter 7**. The EPA State of the Environment Report¹¹⁶ noted that surveys indicate commercial wastes decreased by 50% and household waste generation increased by 21% during Covid-19 restrictions. Preliminary data indicate that waste management services have continued to operate successfully during the period, however, there has been a rise in illegal dumping and backyard burning reported during the pandemic (in particular during periods of highest restrictions).

The repatriation of illegally transported/disposed waste from Northern Ireland (NI) to the Republic of Ireland (RoI) has been an ongoing issue with an estimated 170,000 tonnes of waste yet to be repatriated. Waste originating from RoI was discovered at a number of unlicensed sites in NI and the process of repatriation is still underway. A lack of available treatment capacity in RoI has affected the State's ability to repatriate this waste.

4.12 Hazardous Waste

Hazardous waste means waste which displays one or more of the hazardous properties listed in Annex III of the WFD¹¹⁷. Industrial operations are the largest generator of hazardous waste in Ireland, producing solvents, sludges, oils and chemicals. Many other sectors such as construction, healthcare, waste to energy plants, farms and households also produce a range of hazardous wastes, including paints, oils, batteries, pesticides, asbestos and contaminated soils.

In 2021, 466,941 tonnes of hazardous waste were generated in Ireland (a 16% decrease on the 557,221 tonnes generated in 2020) with the largest source generated from industry followed by the construction sector as well as municipal sources. The top five categories of hazardous waste generated in Ireland are outlined in **Figure 4.12** showing that construction wastes (23%), organic chemical processes (18%) and Wastes from waste management facilities (17%) are the highest fractions generated.

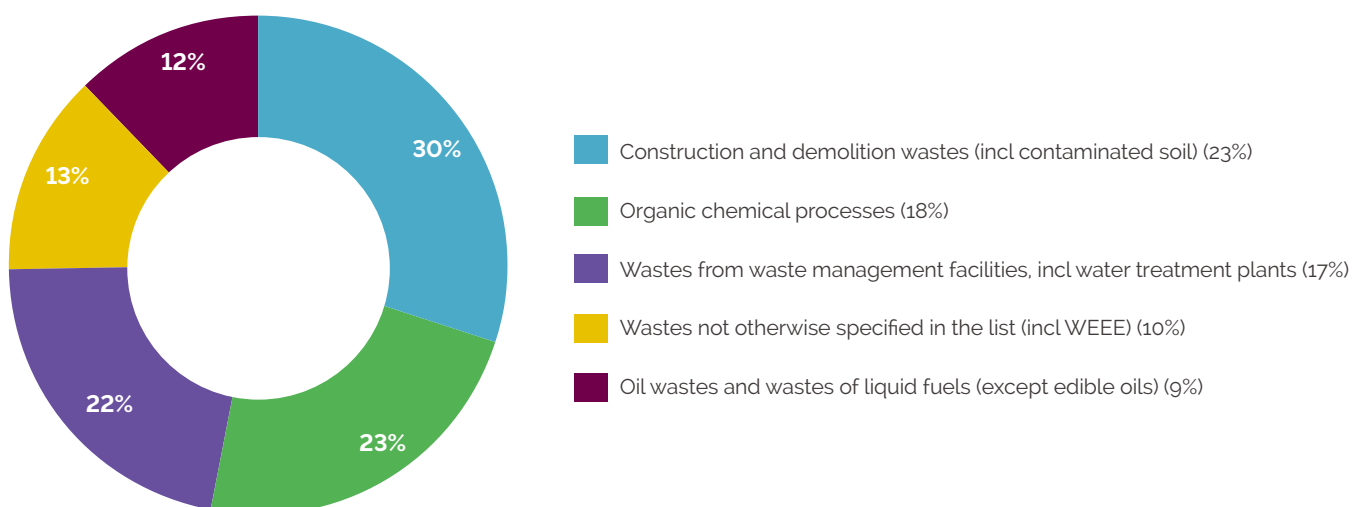


Figure 4.12: Top 5 Hazardous Waste Streams in Ireland 2021 (source: EPA)

¹¹⁶ Link: <https://www.epa.ie/our-services/monitoring--assessment/assessment/irelands-environment/state-of-environment-report/>

¹¹⁷ Waste materials that are explosive, oxidising, flammable, irritant, harmful, toxic, carcinogenic, corrosive, infectious, mutagenic, sensitising or eco-toxic in nature.

Since 2015, the levels of hazardous waste generated in Ireland have been increasing as shown in **Figure 4.13** (with a noted decline in exports and increase in on site treatment during the Covid-19 pandemic). This is largely due to increases in the generation of incinerator ash from increased thermal treatment at waste to energy facilities and increased generation of contaminated soils associated with construction.

Incinerator bottom ash (IBA) was reclassified by the EPA as a non-hazardous waste following testing in April 2020. From this point onwards IBA that is generated is tracked in the non-hazardous waste management system which also leads to the pronounced decreases in hazardous waste generation in 2020 and 2021.

2021 is the first year in which more hazardous waste was treated in Ireland than was exported for treatment (52% treated in Ireland and 48% exported). Hazardous waste treatment in Ireland takes place on site of generation (95,130 tonnes) or at Irish hazardous waste management facilities (148,575 tonnes). 99% of contaminated soils generated were treated at Irish hazardous waste facilities. 99% of exports for treatment were to EU member states and to Great Britain and Northern Ireland. All exports were to countries that are party to the Basel Convention.

Directive (EU) 2018/851, amending the WFD, has included a number of specific provisions on hazardous waste including the following:

- By 1 January 2025, Member States must establish separate collection of hazardous waste generated by households; and
- The European Chemicals Agency (ECHA) is tasked with developing a database on articles containing substances of very high concern (SVHCs). New substances are regularly added to the Candidate List under the EC REACH Regulation¹¹⁸. From 5 January 2021, companies that produce, import or supply articles being placed on the EU market, and containing substances on this list, have to submit information on these articles to the Substances of Concern in Articles, or in complex objects (Products) (SCIP).

The EPA has prepared a 'National Hazardous Waste Management Plan'¹¹⁹ (NHWMP) for the period 2021 to 2027, published in late 2021. The key priorities for this plan are the prevention of hazardous waste, improved collection, endorsement of the proximity principle, effective regulation and the promotion of the circular economy. Some of the key measures of the NHWMP include the following:

- Prepare for separate collection of hazardous waste fractions produced by households (as per Directive (EU) 2018/851);
- Establish nationwide collection and transfer of farm hazardous wastes, including unused veterinary products;
- By 2023, establish national collection of surplus and out-of-date medicines from household waste stream; and
- By 2023, establish collection platforms for surplus paint from commercial and household sources.

The above requirements will be a key consideration for implementation within this Plan and to ensure that the relevant policy is in place to support the kerbside and CAS collection systems in delivering these requirements.

In future policy the priorities for hazardous waste lie within the twin pillars of improving product design to design out hazardous materials and the reduction of hazardous waste generation. Ireland is a net importer of products which contain hazardous substances. This Plan has no remit in relation to imported goods but it needs to support the indigenous production industry to design out hazardous substances.

With a healthy economic forecast, it is predicted that the generation of hazardous waste will continue to grow over the term of this Plan (mainly driven by the construction sector). Similar to other waste streams, the decoupling of hazardous waste generation from economic activity remains a challenge and behaviour change policies need to address the increasing trend in hazardous waste generation.

¹¹⁸ Link: <https://echa.europa.eu/regulations/reach/legislation>

¹¹⁹ Link: <https://www.epa.ie/publications/circular-economy/resources/national-hazardous-waste-management-plan-2021---2027.php>

This Plan needs to recognise policies and procedures to improve segregation and collection systems in line with NHWMP policies. Presently, Ireland has no commercial hazardous waste incinerator or landfill for recovery/disposal of this stream and the State remains reliant on export. The consideration of the need for indigenous treatment capacity to reduce the reliance on exports must be considered as part of the Plan's resilience and contingency measures.

Focus Area 10 in **Volume II** includes targeted policies and priority actions for the management of hazardous waste through the implementation of the National Hazardous Waste Management Plan.

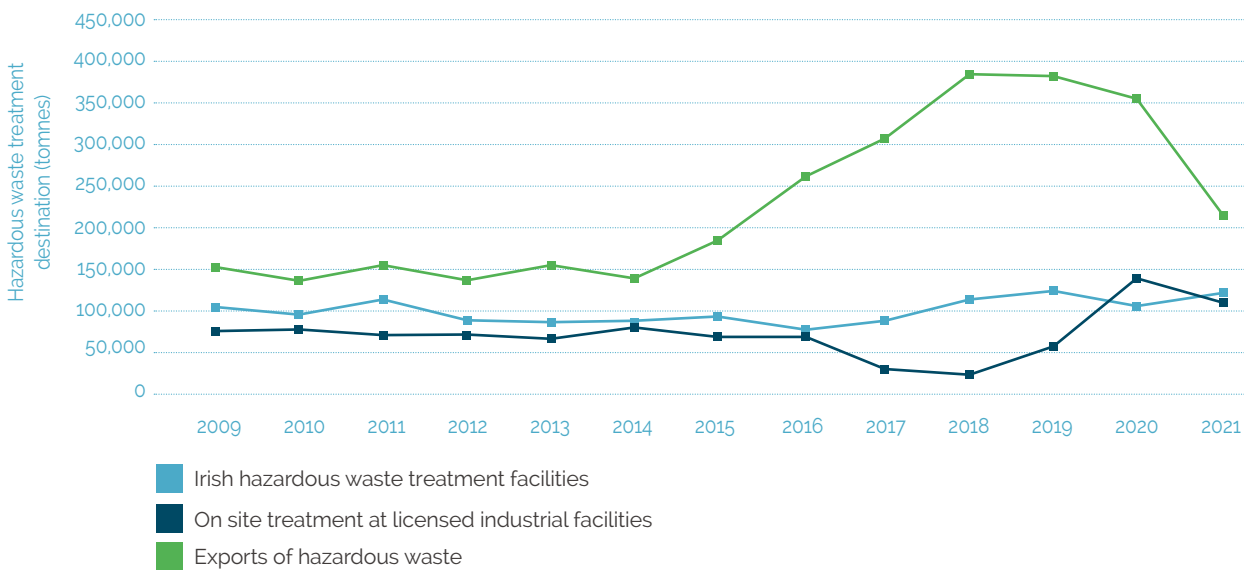
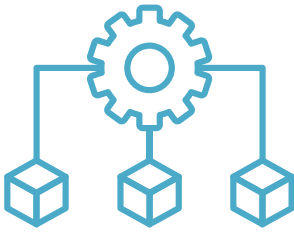


Figure 4.13: Hazardous Waste Management in Ireland 2009-2021 (source: EPA)



5 INFRASTRUCTURE

Since the publication of the previous RWMP in 2015, final treatment infrastructure in Ireland has changed significantly. Positively, the trend of decreased disposal to landfill has continued and there is greater self-sufficiency through indigenous material reuse, recycling, and thermal recovery outlets. However, recent data from the EPA, in conjunction with ongoing monitoring by the RWMPO, shows a continued reliance on the export of waste.

This chapter provides an overview of collection systems, final treatment capacity in Ireland, export markets and highlights the types of treatment required to manage all wastes. Policies and actions to support this infrastructure need are presented through Focus Areas 11 to 16 in **Volume II** and key deliverables to support implementation are presented in **Volume III Chapter 3**.

5.1 REUSE, PREPARATION FOR REUSE AND REPAIR

The reuse, preparation for reuse and repair sector has made significant progress since the RWMP were published in 2015 with a range of new and diverse businesses established across the sector.

The Community Resources Network Ireland (CRNI) has 47 members that provide a range of reuse, preparation for reuse and repair activities, from selling second-hand clothes to the preparation for reuse, repair and upcycling of bulky waste material such as bicycles and mattresses. The CRNI works closely with Charity Retail Ireland which has over 500 outlets operating across Ireland and uses the circular economy model to raise funds.

In 2021, CRNI recorded¹²⁰ the following activities achieved:

- 12,441 tonnes of resources reused;
- 54 tonnes repaired;
- 10,195 tonnes of resources sent for recycling;
- 171,238 tonnes of CO₂ saved;
- 771 jobs supported;
- 7,661 volunteers engaged; and
- €52 million turnover generated.

Textiles comprise a large proportion of the reported figures, mainly attributed to Charity Retail Ireland, which sells large quantities of second-hand garments in charity shops across the country.

There are 1,267 reuse centres nationally including retail stores and online services. Online platforms such as Adverts, Donedeal, Freecycle, Gumtree, and Repairmystuff, offer the opportunity for people to buy and sell, and/or exchange for free, second-hand goods.

Although WEEE is a highly valuable waste stream, ideal for preparation for reuse, the current reuse rate of WEEE products in Ireland is low relative to the total collected for recycling in the system.

The majority of Ireland's used tyres are baled and exported for recycling purposes, with just 1% of tyres prepared for reuse as remoulded or retreaded tyres.

Preparation for reuse is the process by which waste is checked, cleaned, or repaired and placed back into the market without any other pre-processing. Although this method of treatment is higher on the waste hierarchy than recycling and energy recovery, there are currently no 'preparation for reuse' centres in Ireland. The preparation for reuse sector is labour intensive and requires skilled workers and adequate infrastructure to be provided.

¹²⁰ CRNI 2021 Annual Report, Link: <https://crni.ie/annual-reports/>

In general, the reuse, preparation for reuse and repair industry is labour intensive which makes operations expensive to run. This, in turn, drives up the price of the end product and it can be challenging for the reuse sector to achieve competitive prices in the market.

In 2022, the EPA published the first set of national reuse statistics for Ireland and reported that the average annual reuse rate per person in Ireland was 10.6kg per person in 2021¹²¹. Quantitative data on reuse rates and activity was obtained via an online survey of a representative sample of the Irish population.

The 2021 data found that approximately 54,800 tonnes of second-hand products were bought or exchanged in Ireland. Textiles accounted for 73% of all second-hand purchases/exchanges, with approximately 11.4 million items of second-hand clothing items reused in Ireland in 2021. Electrical and Electronic Equipment (EEE) accounted for the most reuse per weight at approximately 16.800 tonnes. This includes small consumer electronic devices, personal computer equipment and home appliances.

Focus Area 12 in **Volume II** includes targeted policies and priority actions that support the development of the reuse and repair network within the State.

5.2 COLLECTION INFRASTRUCTURE

Collection infrastructure within the State is varied and dependent on the characteristics of the waste stream to be collected. Collection systems include kerbside collections, bring banks, civic amenity sites (CAS), PTUs (Pay-to-Use), take-back schemes and one-off collections.

Municipal waste is primarily collected through kerbside services operated by private companies with additional material collected through bring banks, CAS, PTUs as well as skip collections. The kerbside systems generally operate as either a two-bin (recyclables and residual) or three-bin (recyclables, residual and food waste recycling bin) system. Some kerbside glass collection operates on a small scale.

Construction and demolition waste is primarily collected through private waste collectors operating an agreed collection regime directly with the contractor.

Focus Area 4 in **Volume II** includes targeted policies and priority actions that support the enhancement of the current regulated collection systems to segregate and capture more material streams to maximise the circularity of collected materials.

5.2.1 Commercial Collection Infrastructure

Commercial waste is subject to a kerbside collection system operated by private collectors offering collection of residual, recyclable or organic waste. However, the extent of collection is less well documented than household waste. As with households, it is noted that not all commercial premises avail of the food waste recycling bin system. In addition to the 3-bin/2-bin system, collection of segregated packaging waste also takes place including materials such as glass, baled cardboard, and plastic.

The implementation of incentivised charging structures for commercial waste kerbside collection to provide an economic imperative to drive the changes needed in this sector has been included in the Circular Economy Act 2022¹²².

The 2022 EPA waste characterisation study¹²³ noted that there is significant scope for improvement in how bins are used by non-household (and household customers) and the following findings were noted:

- 74% of the contents of the non-household residual bins can potentially be diverted to either recyclable or food waste recycling bins or should be brought to a CAS;
- Of the total waste presented in the recycling, food waste and residual kerbside bins, 10% of this waste is non-acceptable waste (i.e. waste that should not be placed in any of the three bins). This non-acceptable waste fraction is largely made up of textiles, glass, paint, WEEE and hazardous waste such as hazardous paint, hazardous WEEE and batteries, which are serviced by separate collection systems.

¹²¹ Link: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/reuse/>

¹²² Section 26 amendment of Section 34(7)(f) of WMA. Link: <https://data.oireachtas.ie/ie/oireachtas/act/2022/26/eng/enacted/a2622.pdf>

¹²³ Link: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/waste-characterisation/>

The current situation highlights the need for a significant improvement in the scope and coverage of commercial waste collections to drive the quantities and quality of materials collected.

5.2.2 Household Collection Infrastructure

For 2021, the EPA reported that 65% of all household waste (1,172,619 tonnes) was collected through the kerbside collection system. Of the household waste collected at kerbside in 2021, this consisted of 60% in the residual bin, 23% in the recyclables bin and 18% in the food waste recycling bin and low levels of segregated glass. The EPA also reported that while there have been significant improvements in the roll out of the food waste recycling bin, only 69%¹²⁴ of Irish householders who had a kerbside bin collection service in 2021 had a brown bin (percentage includes bin sharing) in 2021. In 2021, there was 10,024 tonnes of kerbside segregated glass collected.

Figure 5.1 shows the household kerbside collection coverage by county in 2021 and illustrates that the percentage of households on a kerbside collection system ranges from over 90% in the larger urban areas (Dun Laoghaire–Rathdown, Fingal, South Dublin, Cork city, Galway city) to just over 50% in rural counties (Cavan, Kerry, Roscommon). This trend is as expected and greater emphasis needs to be placed on increasing the options for waste collection in rural counties. It should be noted that the data does not

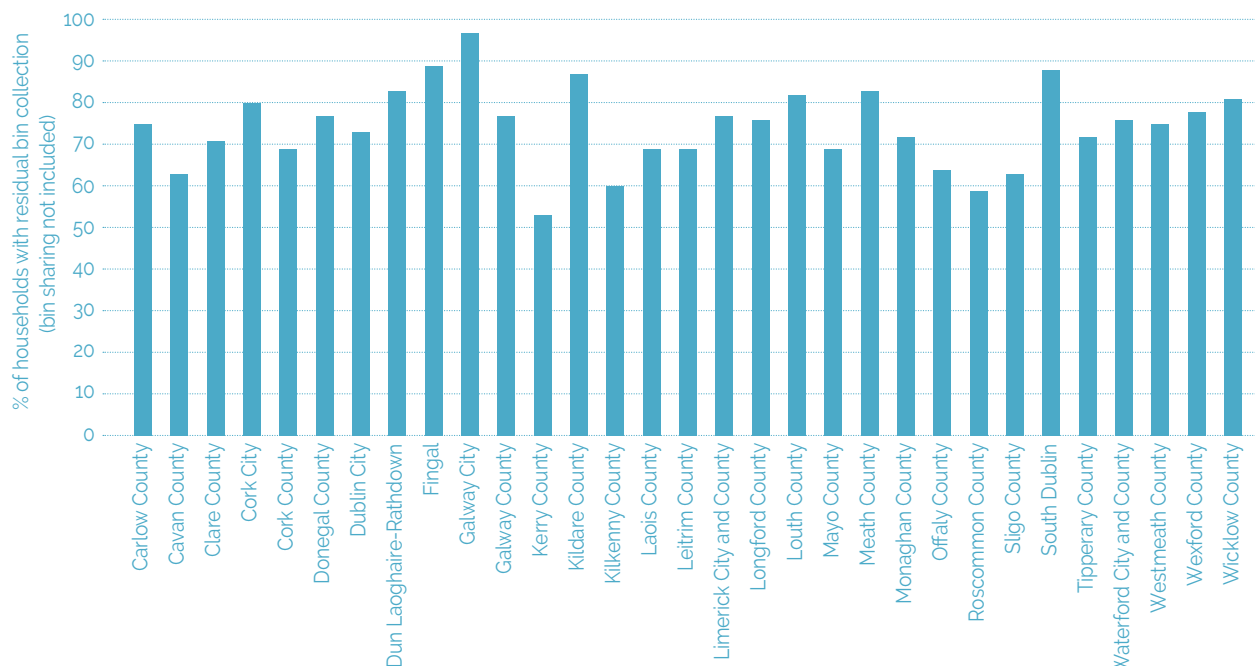


Figure 5.1: Fraction of Households on a Kerbside Collection System in 2021 by County in Ireland (source: EPA)

factor in possible bin sharing in both urban and rural areas.

The volume of household waste collected per capita via the kerbside system in the residual, recyclable, food waste recycling and glass bins is shown in **Figure 5.2**. The data highlights shortfalls in the kerbside household waste collection system, in particular around the provision and use of the food waste recycling bin. The data shows that the food waste recycling bin features more heavily in the more urban counties compared to the more rural counties¹²⁵. It is noted that the CSO household survey in 2019 on waste behaviours indicates that in rural communities 69% of organic waste is either home composted or fed to animals (refer **Section 4.2.2**). The roll out of the kerbside food waste recycling bin to all households, as well as other circular options, for example the separate collection of biowaste (which includes garden waste) from 31 December 2023, will facilitate increased recycling of organic waste.

Figure 5.3 shows the total waste collected in each county and highlights the fractions captured through kerbside collection versus non-kerbside collection systems. It is clear that the quantity of waste collected through the 'kerbside collection' stream is the primary capture method for all counties in Ireland but the other collection methods play a significant role in capturing this stream.

¹²⁴ This figure applies to a baseline of all occupied households in the country. At present, only households within an agglomeration of 500 or more, must be offered a food waste recycling bin, and when that is factored into the baseline, 90% of occupied households had a food waste recycling bin. This population threshold has been removed from January 2024 requiring all occupied households in the country to be offered a food waste recycling bin.

¹²⁵ For agglomerations of <500 people, provision of a food waste recycling bin is not currently required - European Union (Household Food Waste and Bio-waste) Regulations 2013 - S.I. No. 71 of 2013.

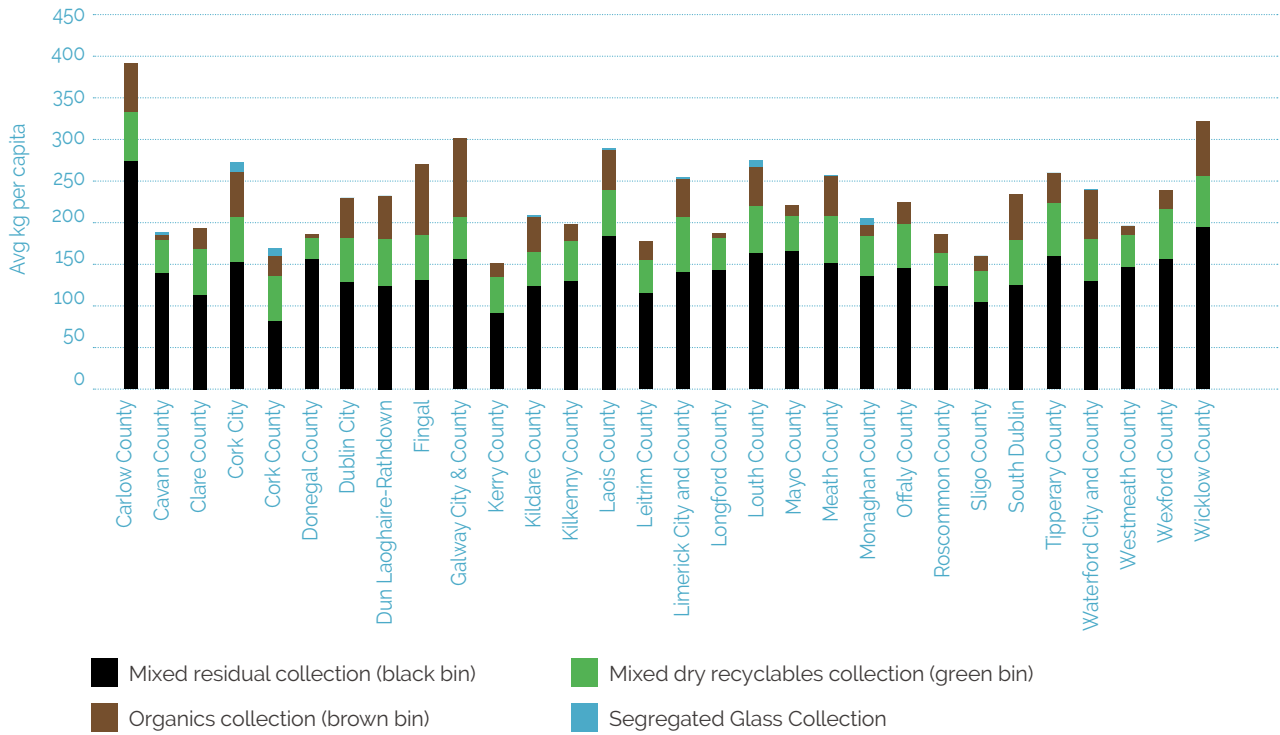


Figure 5.2: Volume of Household Kerbside Waste Collected and Segregated Glass Collection in 2021 by Bin Type and County (source: EPA)

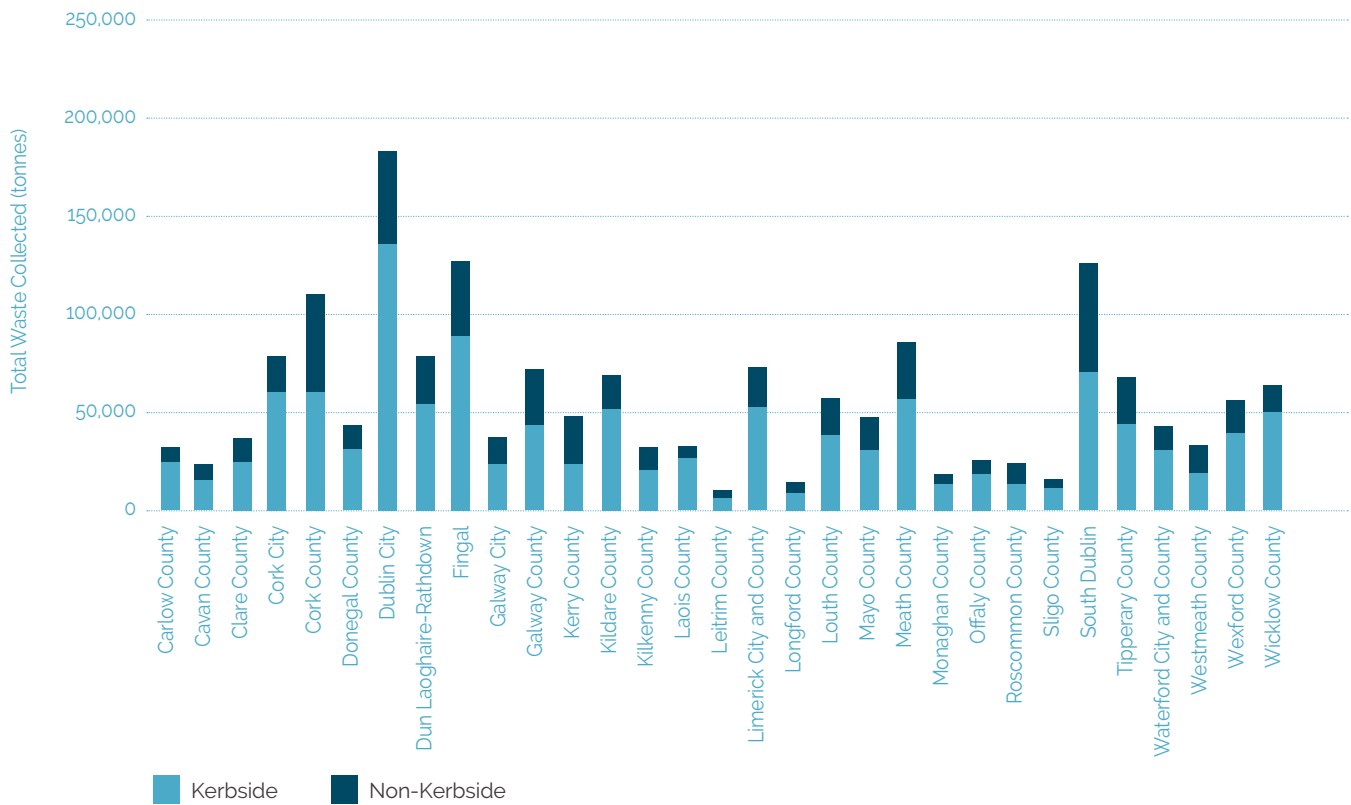


Figure 5.3: Breakdown of Kerbside versus Non-kerbside MSW Collection 2021 (source: EPA)

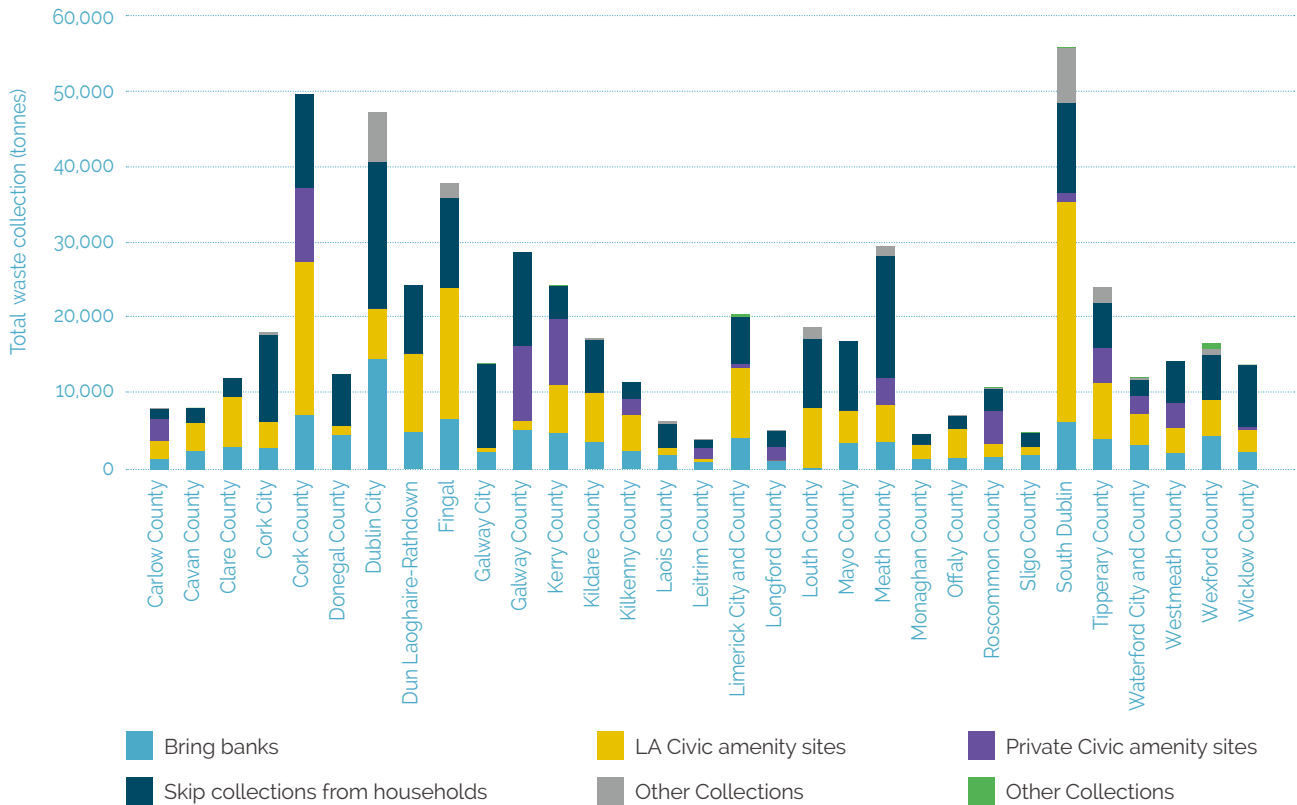


Figure 5.4: Breakdown of Non-kerbside Waste Collection 2021 (source: EPA)

Figure 5.4 provides a breakdown of the 'non-kerbside' waste collection methods in each county and the waste volumes registered as collected through these methods. This figure shows that skip collections and CAS are the dominant source of non-kerbside waste capture. Typically private waste skips for householders are unsegregated which can have poor circular outcomes, whereas CAS and bring banks are segregated and provide for a better quality of collected material.

This Plan aims to achieve more consistent kerbside collection systems across the country with increased participation in kerbside collection systems. Increased participation and increased awareness in source segregation can help increase both the quantity and quality of materials collected. These improvements will aid recycling through reduced contamination and higher quality feedstock as well as reducing the volumes of unmanaged waste within the State.

5.2.3 Civic Amenity Sites

There are 96 local authority Civic Amenity Sites (CAS) which play a significant role in waste management in Ireland. The CAS are designed to cater for waste streams outside current kerbside collection systems such as hazardous, WEEE, wood, metals, paints, green waste and 'higher-order' activities such as reuse and education. CAS are designed to complement, and in some instances provide an alternative option to, kerbside collection of household wastes. CAS are essential recovery infrastructure for items that are not collected, or are costly to collect at the kerbside. Enhancing the CAS operations can help Ireland's transition to a circular economy.

The CAS have adapted to changing circumstances such as privatised waste management, changing waste compositions, circular economy considerations and legislative changes. As reported in the 'National Review of Civic Amenity Sites' in 2020¹²⁶, the customer survey data indicates that most visits to CAS (65%) occur at monthly to quarterly intervals and that 99% of customers were householders, the 1% balance being commercial customers.

¹²⁶ Link: <https://www.mywaste.ie/wp-content/uploads/2021/02/National-Review-of-Civic-Amenity-Sites.pdf>

Currently, the CAS operate under financial pressure, with government supports ceasing and local authority budgets exclusively covering the resources required to maintain the sites. Simultaneously, customers have growing expectations of the services provided at the CAS, such as a wider range of accepted materials, friendly and efficient staff and a clean, modern, pleasant site for a competitive fee.

These financial and operational pressures mean that the infrastructure and operation of the local authority CAS needs adjustment and accordingly needs investment to enable the establishment of an integrated, consolidated coordinated network of CAS and the transition to a more circular economy. Work has commenced on this task under the auspices of a CCMA National Working Group.

5.2.4 Other Collection Systems

Municipal waste can also be collected through scheduled collections (such as bulky waste) operated by the local authorities and skip waste services operated by the private sector.

Local authorities and/or the EPA also operate periodic waste drop-off services. For example, the successful pilot farm hazardous waste collection scheme where 46 one day collections were held from 2013 to 2017. Over the course of this period the EPA reported that over 9,000 farmers voluntarily participated in the collections and contributed financially towards the disposal costs of over 1,000 tonnes of hazardous waste which were collected and properly managed.

Other material collection systems that lie outside of the waste reporting regime include the reuse and repair market such as charity shops, clothes banks, etc. As an example, the EPA has recently released a report¹²⁷ on post-consumer textiles and estimates that the annual generation of total post-consumer textiles in Ireland is approximately 170,000 tonnes, of which, circa 35% is sent to commercial textile banks, the charity sector and vintage shops.

To date in Ireland, six Producer Responsibility Initiatives (PRIs) have been successfully established. These PRIs require producers and suppliers to fund the collection and treatment of specific waste

streams, including batteries, ELVs, farm plastic, packaging, tyres and WEEE. The WAPCE has signalled feasibility studies for PRIs for other streams including textiles, bulky waste, paint, medicines and farm hazardous waste.

Regulations establishing the legislative framework for EPR schemes for tobacco filters containing plastic, balloons and wet wipes were signed into law on the 28th November 2022. The success of the existing schemes has resulted in improved collection rates and segregation (source separation) of these materials.

5.2.5 Construction and Demolition Waste Collection Infrastructure

9 million tonnes of construction and demolition waste was collected and managed in 2021 which followed a decrease in 2020 (expected due to Covid-19 restrictions) and returned to 2019 levels (8.8 million tonnes).

Authorised collection of this waste stream from construction sites is wholly undertaken by permitted private waste collectors through a combination of material haulage vehicles (such as for soil and stone) as well as skips for smaller waste streams such as metal, wood, glass, plastic, etc. No detail is available on the levels of unauthorised collections from construction sites.

Material haulage of inert soil and stone is typically direct to a suitably licensed or permitted reception site for backfilling. Smaller quantities of concrete, brick, tile, and bituminous mixtures are also collected and used for backfilling.

Material haulage of inert soil and stone is typically direct to a suitably licensed or permitted reception site for backfilling. Smaller quantities of concrete, brick, tile and bituminous mixtures are also collected and used for backfilling.

Non-hazardous or hazardous soils are collected by waste haulage vehicles and may require a level of treatment prior to disposal at landfill or export.

¹²⁷ Nature and Extent of Post-Consumer Textiles in Ireland, 2021. Link: <https://www.epa.ie/publications/circular-economy/resources/nature-and-extent-of-post-consumer-textiles-in-ireland.php>

Segregated skips for metals, wood, plastic, and glass are typically transported to suitably licensed or permitted recycling facilities but some fractions are collected for energy recovery.

There were 362,380 tonnes of mixed waste collected in skips in 2021 illustrating a generally poor level of source segregation within the sector. These waste skips are collected and require a level of pre-treatment and sorting prior to further treatment at recycling or energy recovery plants.

96% of C&D waste underwent final treatment in Ireland in 2021 while 4% was exported abroad for final treatment. Most C&D waste treated in Ireland was recovered by backfilling (85%), while 7% went for disposal and only 8% was recycled.

5.3 PRE-TREATMENT

Pre-treatment infrastructure in Ireland is provided predominantly by the private sector authorised under waste facility permits or EPA licences. These operations separate and prepare waste for onward movement to other destinations for final treatment. Pre-treatment activities are not restricted to particular waste streams and these facilities handle many different types of waste (in line with the consent granted).

These processing activities are not on any particular waste hierarchy tier; instead these can be regarded as 'precursors' to specific types of waste treatment. Typical pre-treatment activities at facilities in Ireland include sorting of recyclables, waste compaction and processing of Municipal Solid Waste (MSW) to produce either Solid Recovered Fuel (SRF) for use in co-incineration in cement kilns or Refuse Derived Fuel (RDF) for use in thermal treatment facilities.

The scale of authorised pre-treatment capacity in Ireland is estimated to be approximately 6.2 million tonnes per annum (based on 2020 throughputs as consented capacity not available for all consents). **Table 5.1** provides a breakdown of the throughput by pre-treatment authorisation type for all waste streams. The standard of pre-treatment facilities ranges from basic transfer stations to basic functional processing (such as compaction) to sophisticated mechanical processing involving multiple steps to optimise separation and deliver quality outputs. Each of these operations is included in the data shown in **Table 5.1** along with the total waste accepted in 2020 to illustrate the scale of this operation.

Advanced processing operations that produce higher quality materials are preferred and help to achieve higher rates of recycling. The quality outputs from these operations attract higher market prices

Table 5.1: Pre-treatment Capacity in Ireland

Type of Authorisation	No. of Facilities	2020 Waste Accepted (tonnes)
Waste Facility Permit	243	2,539,140
EPA-licensed	59	3,478,652
Total	302	6.2 million

Table 5.2: Authorised Materials Recovery Facilities in Ireland

Type of Authorisation	No. of Facilities	Annual Authorised Capacity (tonnes)
EPA-licensed Facilities	6	457,500
Local Authority Permitted Facilities	4	192,499
Total	10	649,999

as these higher quality materials are in demand for the manufacture of new products. These types of operations support the potential for greater circularity and use of secondary materials.

Material Recovery Facilities (MRF) are sophisticated mechanical processing facilities essential to the efficient sorting of co-mingled recyclables collected through kerbside and other collection systems. These MRFs are classed as pre-treatment (and have also been accounted for within the data in **Table 5.1**) and produce quality materials for onward processing and recycling. The number and capacity of authorised and operational MRFs in the State is summarised in **Table 5.2**. The total authorised capacity for MRFs within the State equates to 649,999 tonnes per annum.

5.4 MUNICIPAL SOLID WASTE TREATMENT

MSW is mixed and separately collected waste from households and similar commercial wastes and further details on the nature and quantities of MSW are presented in **Section 4.2**. Once collected through kerbside and other systems, there are a range of MSW treatment options available within the State at different levels of the waste hierarchy and these are described in the following sections. A description of each treatment option is presented along with the current authorised capacity available to treat MSW.

5.4.1 Recycling Infrastructure

Ireland has an indigenous recycling industry that reprocesses waste into new materials and products. The EPA reported that 18% of the packaging waste generated in 2021 was recycled in Ireland. This comprised mainly glass and wood, with almost all of Ireland's paper, cardboard and plastic packaging recycled abroad. It is recognised that the economies of scale required to recycle certain waste streams (e.g. paper, steel and aluminium) do not exist in Ireland. However, there are all-island opportunities to develop indigenous recycling infrastructure for certain waste streams. Applying an all-island approach (subject to Brexit protocols) would reduce the reliance on export and enable the sector to transition to a more circular economy and create further employment.

Focus Area 13 in Volume II includes targeted policies and priority actions to support the recycling sector within the State with general and material specific policies provided.

5.4.1.1 Composting, Anaerobic Digestion and Biostabilisation

The authorised annual capacity for composting and anaerobic digestion (AD) facilities in Ireland is presented in **Table 5.3**. This table shows the dedicated capacity for final treatment of organic waste available within the State in 2019, which equates to 687,660 tonnes with additional capacity in Northern Ireland increasing the capacity on the island.

The latest EPA data for 2018 and 2019 is summarised in **Table 5.4** and shows that the quantities of waste accepted at composting and AD facilities increased by 19% in 2019 compared to 2018, with 20% of the 2019 tonnes transferred to Northern Ireland for treatment. The data also shows a corresponding increase in the acceptance of organic fines¹²⁸ for biostabilisation prior to being sent to landfill for disposal or other approved uses.

The data suggests that there is sufficient capacity in the market to meet the current demands. However, with increasing waste generation, separate collection and the challenges with the national recycling rate, the need for biological treatment is predicted to grow.

5.4.1.2 Plastic Recycling

There is limited plastic recycling undertaken in the State, however, the scale of plastic reprocessing has started to increase in recent years. In 2019, Repak introduced a financial subsidy targeted at increasing the quantity of plastic packaging being reprocessed in Ireland. The latest available data shows that reprocessing of plastic packaging in Ireland has subsequently tripled from 13,781 tonnes in 2019 to 42,504 tonnes in 2020 but has reduced to 26,048 tonnes in 2021. This significant increase in 2020 is attributed to the introduction of this financial instrument to stimulate plastic reprocessing activity in Ireland.

Further reprocessing capacity has been developed at a plant in Galvone, Limerick in late 2021 with a capacity to treat 70,000 tonnes/annum of difficult to process plastic packaging. Similarly, planning permission has recently been granted to a facility in Portlaoise to recycle up to 35,000 tonnes of plastic and metal packaging.

¹²⁸ This material arises from the mechanical pre-treatment of residual waste by trommelling or screening.

Table 5.3: Authorised Capacity for Composting and Anaerobic Digestion in Ireland in 2019

Treatment Type	Authorised Capacity Tonnes per Annum 2019
Composting ¹²⁹	459,000
Anaerobic Digestion ¹³⁰	110,000
Biostabilisation of Organic Fines	143,700
Total¹³¹	687,660

Table 5.4: Waste Accepted at Composting, AD and Biostabilisation facilities and Waste Exports to Northern Ireland

Waste Type	2018 (tonnes)	2019 (tonnes)	Exported to Northern Ireland 2019 (tonnes)	% of overall
Biowaste ¹³²	445,000	528,000	105,600	20%
Municipal Biowaste only (subset of Biowaste figure above)	257,000	295,000	89,642	30%
Organic Fines accepted for Biostabilisation	138,000	152,000	-	-

5.4.1.3 Tyres

The latest published EPA data reports that 40,393 tonnes of waste tyres were managed in Ireland in 2020 with a recycling rate of 68% (recycled either in Ireland or abroad). There are a number of facilities engaged in tyre recycling in Ireland which typically involves processing the tyres to produce a rubber crumb which can be used in equestrian areas, sports pitches and other rubber products. There are seven tyre treatment facilities operating under waste facility permits on the NWCPO facility register with an authorised annual acceptance capacity of 91,200 tonnes. The EPA reported that there was a decrease in the tonnage of waste tyres recycled in Ireland in 2020 (14%) compared to 2016 (26%) and the State remains reliant on export with 81% of final treatment being achieved abroad.

5.4.1.4 Glass

The EPA report that Ireland generated 173,378 tonnes of waste glass in 2021 and achieved a recycling rate for this stream of 84%. A total of 137,717 tonnes of this recycling (79% of the total generated) was undertaken within the State and a further 3% was recycled in other EU Member States.

As noted earlier, Ireland has exceeded the glass recycling target of 60% set in the EU Packaging Waste Directive¹³⁴.

There is one authorised glass recycling facility in the State located in Kildare with authorised capacity to treat 150,000 tonnes of glass per annum. In addition, a second facility is located in Northern Ireland with an authorised capacity to treat 106,250 tonnes of glass per annum.

Directive (EU) 2018/852 amending the Packaging Waste Directive has set future glass recycling targets for 2025 (70%) and 2030 (75%). The current recycling rate already exceeds these next generation targets and the continued operation of the existing capacity on the island will be essential to achieve these targets and to ensure the quality of recycled glass is maintained.

¹²⁹ Does not include facilities where only waste generated on-site is treated such as industrial facilities.

¹³⁰ An additional 99,900 tonnes of anaerobic digestion capacity became operational in 2020 at the Huntstown Bioenergy Limited Ltd. facility (P0093-02).

¹³¹ The split between the various activities is approximate as some facilities can carry out more than one activity.

¹³² These figures exclude (i) home composting estimates, (ii) facilities that treated their own waste only, (iii) waste imported to Ireland for treatment, and (iv) organic fines accepted for biostabilisation.

¹³³ The EPA reported a notable rise in the treatment of organic fines at composting plants in Ireland, from approximately 50,000 tonnes in 2013 to 138,000 tonnes in 2018 and 152,000 tonnes in 2019.

¹³⁴ Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L0852>

5.4.1.5 Wood Packaging

In 2021 the EPA stated that Ireland generated 96,716 tonnes of waste wood packaging (excluding wood repair). This total excludes a further 20,521 tonnes of packing wood that was generated but repaired. Of the 96,716 tonnes of waste generated, 51% (49,408 tonnes) was recycled in Ireland with no recycling in other EU Member States. Ireland has exceeded the wood recycling target of 15% set in the EU Packaging Waste Directive. Similar to glass, Directive (EU) 2018/852 has set future wood packaging recycling targets for 2025 (25%) and 2030 (30%) and current recycling rates are well in excess of these targets.

There are ten facilities authorised to accept and repair/recycle waste wood packaging within the State. These facilities have the authorised capacity to accept and treat 287,350 tonnes of waste per annum. Data supplied by Repak indicates that circa 140,000 tonnes of this capacity is utilised annually suggesting that there is sufficient capacity to treat greater waste quantities.

5.4.2 Thermal Recovery

There are six thermal recovery facilities operating in Ireland with the necessary consents to treat residual municipal solid waste. These include two thermal treatment facilities with energy recovery and four co-incineration facilities that use material derived from the processing of municipal waste as a fuel in the manufacturing of cement.

The two dedicated thermal treatment plants have a combined capacity of 910,000 tonnes per annum to treat MSW as listed in **Table 5.5**. The data for 2022 shows that both plants operated at full capacity with maximum waste input delivered (noted that the additional 90,000 tonnes at Dublin Waste to Energy was only granted a licence review in 2023 and this capacity is not included in the 2022 returns).

The four cement plants authorised for co-incineration of MSW have a combined authorised capacity to treat MSW (as SRF) of 482,875 tonnes per annum in 2022. Note that these plants have additional capacity for other waste streams either

Table 5.5: Thermal Recovery Facilities in Ireland

Authorised Waste-to-Energy Facilities	Authorised Annual Capacity (2023) (tonnes)	Waste Treated in 2022 (tonnes)
Thermal Treatment		
Indaver Ireland Ltd. (W0167-03)	220,000 ¹³⁵	213,629
Dublin Waste to Energy Ltd. (W0232-01)	690,000	593,156
Thermal Treatment (Co-incineration)		
Breedon Cement Ireland Ltd. (Kinnegad) (P0487-07)	105,000	310,000 ¹³⁶
Irish Cement Ltd. (Platin) (P0030-06)	220,000 ¹³⁷	
Irish Cement Ltd. (Limerick) (P0029-06)	30,000	
Mannok Cement Ltd. (Ballyconnell) (P0378-03)	127,875	
Total	1,392,875	1,116,885

Table 5.6: Proposed Thermal Recovery Facilities in Ireland

Facility	Location	Proposed Additional Capacity per Annum (tonnes)	Waste Type	Status
Glanpower Ltd. (W0282-01)	Derryclure, Offaly	65,000	Mixed Municipal Waste	Consents in place. Pyrolysis Plant scheduled to commence construction in 2024-2025.
Indaver Ireland Ltd.	Ringaskiddy, Cork	216,000	Residual Waste	ABP now re-evaluating the permission granted for the facility in May 2018
Total		261,000		

¹³⁵ Capacity reverted from 235,000 tonnes to 220,000 tonnes at end of 2019.

¹³⁶ Estimated waste treated at all consented cement plants combined in 2022 (equating to 64% of consented capacity in 2022).

¹³⁷ Note that this is the total SRF capacity available for coprocessing under P0030-06. A further 75,000 tonnes coprocessing capacity is available for other non-municipal waste streams including solvents, tyres, wood, plastics, etc.

for co-processing or for use as alternative raw materials. These plants treated 223,500 tonnes of MSW in 2019 which equated to circa 63% of the authorised capacity at the time (note that in 2019 Irish Cement Platin operated under a previous licence with a lower capacity of 120,000 tonnes per annum and the Irish Cement Limerick plant commenced co-processing in 2023). Based on a combined consented capacity of 482,875 tonnes per annum and a typically two thirds operating capacity, it is assumed that this operational capacity is currently circa 310,000 tonnes. Note that Cement Manufacturing Ireland (CMI) have advised that the cement plants would seek to increase this operational capacity to circa 400,000 tonnes by 2030.

The lower treatment capacity relative to authorised capacity in the cement plants is due to the requirement for a minimum waste quality to meet the operational requirements for combustion in a cement kiln. For 2020, the cement plants operated under a reduced capacity during the Covid-19 pandemic and this data is not presented as this is not considered representative of baseline.

A number of the existing thermal recovery facilities are currently undergoing expansion and new developments are either under construction or engaged in the process of seeking regulatory consents. These are outlined in **Table 5.6** showing a potential further 261,000 tonnes of thermal treatment capacity subject to consents and funding.

Focus Area 14 in **Volume II** includes targeted policies and priority actions for the recovery of rMSW as well as other streams. In particular, Target Policy TP14.2 supports the development of additional dedicated thermal treatment capacity to resolve the current deficit in rMSW treatment capacity.

Increasing the capacity of thermal treatment will result in a commensurate increase in the volume of hazardous fly ash and other non-hazardous ash and residues generated at these plants. Data on the generation of this waste in Ireland from 2018 to 2022 is shown in **Table 5.7**.

Table 5.7: Ash generated by Waste to Energy Facilities in Ireland

Facility Name	Licence No.	Type	2018 (tonnes)	2019 (tonnes)	2020 (tonnes)	2021 (tonnes)	2022 (tonnes)
Indaver Ireland Ltd.	W0167-03	Hazardous	-	13,687	14,740	15,596	14,653
		Non-hazardous	-	40,541	43,204	38,923	40,142
		Flue Gas Residue	9,425	-	-	-	-
		Bottom Ash	36,787	-	-	-	-
		Boiler Ash	1,666	-	-	-	-
Dublin Waste to Energy Ltd.	W0232-02	Hazardous	-	-	69,658	25,401	25,299
		Non-hazardous	-	-	75,198	108,568	103,504
		Flue Gas Residue	26,815	29,434	-	-	-
		Bottom Ash	104,061	117,748	-	-	-
		Boiler Ash	-	-	-	-	-
Total			178,754	201,410	202,800	188,488	183,598

The quantity of hazardous waste generated at thermal treatment facilities has increased in 2019 and 2020 since the introduction of a new pre-treatment practice where flue gas residue and boiler ash are mixed together with water to form solid blocks (the additional water increases the weight). Due to the introduction of this new practice the different weights of each ash type are no longer separately reported.

In 2020, approval was granted by the EPA for the classification of incinerator bottom ash (IBA) as non-hazardous waste, opening up wider treatment options for this waste stream with landfills in Ireland now accepting IBA. Subsequently in 2021, An Bord Pleanála granted planning consent for the acceptance of up to 150,000 tonnes per annum of IBA at Knockharley landfill in Meath. A licence review to permit this process was granted by the EPA in 2023. This facility can largely cater for the current volumes of IBA generated by the two thermal treatment plants but additional capacity would be required if proposed capacities become operational.

Presently, Ireland does not have the infrastructure to manage hazardous ashes and this waste stream is exported for final treatment. It is not known if the volumes of hazardous ash generated are sufficient to make indigenous treatment economically viable.

5.4.3 Landfill

The number of landfills accepting municipal waste for disposal has continued to decrease from seven in 2016 to three facilities in 2023, which are all privately-owned and operated. **Table 5.8** summarises the active facilities operating in the State and the quantity of waste accepted in 2022.

These landfills primarily accept residual non-hazardous waste from municipal sources (commercial and household customers) and are also important outlets for residues from thermal treatment (e.g. non-hazardous bottom ash, some of which is accepted for recovery) and processing of MSW (e.g. biostabilised organic fines). The continued demand for landfill for the disposal of residual municipal waste currently exceeds the available capacity on an annual basis.

An increase in MSW capacity at Knockharley landfill up to 188,000 tonnes per annum of rMSW was approved by An Bord Pleanála in April 2021 and was granted a licence review by the EPA in 2023.

The current planning permission for the landfill at Ballynagran expires in June 2026 after which the 150,000 tonnes rMSW disposal capacity will no longer be available unless a new application is lodged.

The landfill at Drehid has permission for the acceptance of 120,000 tonnes rMSW with a projected closure date of 2028. In June 2023, an application was lodged with ABP (reference: PA09.317292) for an extension to the existing facility. Should planning consent be granted a licence review will also be required to facilitate operation post 2028.

Corranure Landfill in Cavan is included in the table for reference with a licensed capacity of 45,000 tonnes but this landfill has not accepted municipal waste in recent years and only accepts material to complete cell capping.

Note that Ballaghveny Landfill (W0078-03), owned by Tipperary County Council, is licensed by the EPA to accept 32,000 tonnes of non-hazardous municipal and C&D waste. However, this landfill accepts waste from pre-approved commercial contractors only and not the general public. The main reason for re-opening this landfill was to clear an illegal waste disposal site in Tipperary.

Focus Area 15 in **Volume II** includes targeted policies and priority actions for disposal of rMSW and Target Policy TP15.1 includes the target for not more than 10% disposal of rMSW by landfill by 2035.

Table 5.8: Operational Municipal Waste Landfills in Ireland

Facility	Location	Annual Licensed Disposal Capacity (tonnes)	Disposed 2022 (tonnes) – includes rMSW and other streams
Operational Landfills accepting Municipal Waste			
Knockharley Landfill (W0146-04)	Meath	188,000 ¹³⁹	199,965
Ballynagran Residual Landfill (W0165-02)	Wicklow	150,000 ¹⁴⁰	215,107
Drehid Waste Management Facility (W0201-03)	Kildare	120,000	144,984
Corranure Landfill (W0077-04)	Cavan	45,000	0
Total		458,000 (Excluding Corranure)	560,056

5.5 CONSTRUCTION AND DEMOLITION WASTE TREATMENT

5.5.1 End-of-Waste (Regulation 28)

End-of-Waste (EoW) is a mechanism whereby a material is recycled or recovered so that it ceases to be considered waste and can be used as a resource. These processes support the circular economy transition increasing production and markets for secondary materials and reducing the need for primary raw materials.

The EoW regulatory instrument was introduced in the EU Waste Framework Directive in 2011. Harmonised EU Regulations setting out EoW criteria

have been developed for glass cullet, and copper, iron, steel, and aluminium scrap¹⁴¹.

In Ireland, 13 EoW decisions have been made to date, allowing specific companies to treat certain materials changing the classification from waste to resource. The materials and businesses (not all of which relate to construction) are listed in **Table 5.9**¹⁴². As a good practice example of the circular economy in action, one operator reported that 54,531 tonnes of waste concrete achieved EoW status in 2020 through processing into recycled aggregate. The overall data on the tonnage of material achieving EoW status per annum in Ireland is not readily available.

Table 5.9: End-of-Waste Decisions

Material	Organisation
Recycled plastics (LDPE)	Irish Packaging Recycling
Recycled Aggregate	IMS
Recycled Aggregate	Starrus Eco Holdings Limited, Panda
Pulverised fuel ash and furnace bottom ash	ESB
Recycled plastics (PET)	Shabra Recycling Limited
Ammonium Sulphate	Enva Ireland Limited
Recycled plastics (PP & PE)	ADN Materials Ltd.
Graded Wood Briquettes	Conroy Group
Calcium Fluoride Additive	John Gannon Concrete Limited
Woodchip	Tiger Woodchip Limited
Recycled plastics (mixed plastics)	Green Generation Limited
Recycled Aggregate	Shannon Valley Plant Hire
Recycled Aggregate	Enva Ireland Limited

¹³⁹ Includes a further 25,000 tonnes C&D for recovery.

¹⁴⁰ Includes a further 28,000 tonnes C&D for recovery, restoration and site development works.

¹⁴¹ Link: https://ec.europa.eu/environment/topics/waste-and-recycling/waste-framework-directive_en

¹⁴² Link: <https://www.epa.ie/our-services/licensing/waste/end-of-waste-art-28/>

The EPA has developed national Regulation 28 EoW criteria for recycled aggregates¹⁴³. In order to produce recycled aggregates in accordance with the National End-of-Waste Criteria-Recycled Aggregates (EoW-N001/2023) a registration must be made by the producer in advance of production.

This mechanism is a key waste prevention measure and is supported through Priority Action PA8.3 in **Volume II**.

5.5.2 Soil Recovery

Soil recovery facilities accept uncontaminated soil waste for recovery, primarily sourced from greenfield sites. These unlined facilities use the materials accepted for backfilling, replacing soil and stone removed during previous excavations often from quarry works. The facilities operate in accordance with the waste authorisation issued, i.e. waste licence, permit or certificate of registration.

Licensed facilities are authorised by the EPA to accept large quantities (>200,000 tonnes) of soil and stone material annually. The local authorities regulate permitted and registered sites which can accept up to 200,000 and 25,000 tonnes respectively. The permitted and registered sites operate under a lifetime capacity (lifetime of 5 years) and **Table 5.10** details the scale of the authorised capacity in the market.

There has been a large increase in the amount of soil and stone waste generated in recent years, increasing from 6.2 million tonnes in 2018 to 7.7 million tonnes in 2021. Sufficient capacity is needed in the market to manage such increases and prevent leakage out of the system through unauthorised activities. With increasing volumes of soil and stone forecast, a network of secure long-term soil recovery facilities is required to meet future market demands.

To date, the highest incoming by-product notification type received by the EPA relates to the notification of soil and stone sourced from greenfield sites for lawful use in developments. The EPA has developed national By-Product criteria greenfield Soil & Stone used in developments with planning permission or an exemption from the need for planning permission which provides for the use of this by-product material. Draft Criteria and Explanatory Note¹⁴⁴ are published and this decision is expected to be implemented in early 2024. This national decision may significantly reduce the volume of this material reported as waste and consequently may reduce the demand for future facilities in the longer-term.



¹⁴³ Link: <https://www.epa.ie/publications/licensing--permitting/waste/-national-end-of-waste-criteria-recycled-aggregates.php>

¹⁴⁴ Link: <https://www.epa.ie/publications/licensing--permitting/waste/draft-national-by-product-criteria-greenfield-soil-and-stone-ph>

Table 5.10: Soil Recovery Facilities in Ireland 2021

Type of Authorisation	No. of Facilities	Available Treatment Capacity for Soil Waste	Soil Waste Accepted in 2020 (tonnes)	Remaining Available Treatment Capacity for Soil Waste from 2022 (tonnes)
Licensed	16	4,746,400 (annual)	2,773,687	25,272,206 (lifetime)
Permitted ¹³¹	230	9,939,156 (lifetime)	2,436,586	6,686,156 (lifetime)
Registered	228	3,598,291 (lifetime)	578,470	906,948 (lifetime)
Total	474	-	5,788,746	32,865,310

The 2020 National Report on C&D Waste¹⁴⁵ highlighted that a better geographical spread of licensed facilities was required as currently 80% of available capacity is located in the Eastern-Midlands Region. More long-term licensed facilities will be necessary to service the current and planned infrastructure development across the country. Target Policy TP14.3 in **Volume II** endorses the need for a better geographical spread of soil recovery facilities within the State.

5.5.3 Inert Waste Landfills

Inert landfill facilities accept wastes which comply with the waste acceptance criteria limits for inert landfills as described in the EU Landfill Directive.

Table 5.11 shows the currently licensed inert landfill facilities and associated intake from 2019 to 2022. The list includes the Tara Mines operation (now closed), which is not an inert landfill, but is included in this section given that the site's waste acceptance

criteria, as per the IE Licence for Tara Mines, includes waste acceptance of greenfield and non-greenfield soil and stone for backfill. This data highlights that the active inert facilities in the State are all located in the Eastern-Midlands Region with no inert landfills in the Southern or Connacht-Ulster Regions.

5.5.4 Landfills Accepting Non-hazardous Soil and Stone

Non-hazardous soil and stone is material that does not meet the hazardous or inert waste acceptance criteria limits, as described in the EU Landfill Directive. There is only one landfill currently accepting non-hazardous soil and stone, i.e. Corranure Landfill (W0077-04), located in County Cavan. Corranure accepted 22,283 tonnes of soil and stone in 2022 and this material is accepted for engineering purposes for capping and cell profiling. No soil and stone waste is accepted at the site for disposal.

Table 5.11: Operational Facilities accepting Inert Waste in Ireland

Facility	Location	Annual Licensed Capacity (tonnes)	Accepted 2019 (tonnes)	Accepted 2020 (tonnes)	Accepted 2021 (tonnes)	Accepted 2022 (tonnes)
Integrated Materials Solution (W0129-02)	Dublin	500,000	420,392	487,131	421,520	324,083
Walshestown Restoration Ltd. (W0254-01)	Kildare	330,000	229,650	283,986	329,572	271,743
Kyletalesha Landfill (W0026-03)	Laois	47,100	25,085	28,597	2,218	71,554
Boliden Tara Mines Limited (P0516-04)	Meath	-	509,235	417,573	15,555	334,632
Total (excluding Tara Mines)		877,100	675,127	799,714	753,310	667,380
Total (Including Tara Mines)		N/A	1,184,362	1,217,286	768,865	1,002,012

¹⁴⁵ Link: <https://www.gov.ie/en/publication/c305a-construction-and-demolition-cd-waste/>

¹⁴⁶ Intake and remaining capacity figures for permitted and registered facilities are subject to under estimation due to incomplete rates of reporting.

5.6 HISTORIC LANDFILLS

Regulation of waste recovery and disposal activities became embedded in Ireland after the enactment of the Waste Management Act 1996. Historic Landfills (or unregulated landfills) are typically considered to be those landfills that operated in the period prior to the 1996 Waste Management Act, when waste disposal activities proceeded without the benefit of rigorous regulatory controls that serve to protect the environment. Ireland has adopted a systematic approach to addressing the legacy of environmental impacts posed by these historic landfills. This work has been ongoing for several years with over €65 million in funding provided by the DECC to the programme since 2015.

A Historic Landfill register, hosted by NWCPO, contains details of closed (landfills operated by local authorities between 1977 and 1997), illegal, private and pre 1977 landfill sites. There are currently 499 landfill sites on the register. A description of the work undertaken to date is presented in **Appendix 8 of Volume IV (Supporting Documentation)**.

The continued remediation of historic landfills is supported through Target Policy TP15.3 in **Volume II**.

5.7 EXPORTS

5.7.1 Municipal Waste Exports

Ireland continues to heavily rely on the export of certain waste streams such as recyclables, residual municipal solid waste and hazardous wastes. Many overseas facilities treating Irish waste operate to comparable standards under the same legislative framework, specifically destinations in other EU Member States. However, the standard of treatment in destinations outside of the EU is not as certain.

Understanding the material flows overseas is important in the context of securing appropriate outlets for Irish waste and identifying opportunities which may exist to develop national capacity. The scale of waste quantities generated in Ireland are small, compared to many Member States, which can make indigenous facilities for final treatment unviable. However, there are opportunities to develop a more diverse range of indigenous waste treatment capacity options.

With limited indigenous thermal treatment and landfill capacity available, the State is currently reliant on the export market for treatment of a proportion of residual municipal waste. EPA waste statistics for 2021 show that 1,191,086 tonnes were exported for final treatment. This current situation carries inherent risk which could escalate if international markets or facilities were interrupted or became unavailable.

Table 5.12 shows a breakdown of municipal waste managed by treatment type for 2021 and the quantities exported. Approximately 38% of total municipal waste was exported for treatment outside the State. Of the municipal waste recycled, 80% was recycled outside the State.

The quantity of municipal waste exported for energy recovery by thermal treatment was 382,042 tonnes in 2021 (a 7% decrease from 2020). The continuing volumes of municipal waste exported highlights the shortfall of indigenous thermal treatment capacity available within the State.

Table 5.12: Municipal Waste Managed, Treated and Exported in 2021 (source: EPA and NTFSO)

Parameter	Total (tonnes)	Recycled (tonnes)	Composting/AD (tonnes)	Thermal Treatment with Energy Recovery (R1) (tonnes)	Landfill (D1-7, D12) (tonnes)	Thermal Treatment on Land (D10) (tonnes)
Total Managed	3,170,388	824,969	487,594	1,312,957	504,305	79
Exported	1,191,086	662,554	135,502	382,042	10,908	79
% Reliance on Export	38%	80%	28%	29%	2%	100%

¹³² This is total managed municipal waste, the EPA use a different figure for municipal waste generated (generated = managed + estimate household unmanaged waste).

Table 5.13: Destinations for Residual Waste Exported from Ireland in 2021 (source: NTFSO)

Country of Destination	LoW Code 19 12 10 (Solid Recovered Fuel) (tonnes)	LoW Code 19 12 12 (Mechanically Treated Waste) (tonnes)	LoW Code 20 03 01 (Residual MSW) (tonnes)	Total (tonnes)
Cyprus	3,093	-	-	3,093
Denmark	2,714	44,169	-	46,883
Germany	-	40,452	-	40,452
The Netherlands	-	8,919	18,101	27,020
Northern Ireland	-	85,830	-	85,830
Sweden	35,451	116,798	42,481	194,730
Total	41,258	296,168	60,582	398,008

In addition, the recent access to low cost thermal treatment markets in other EU Member States has been driving the recent levels of waste export for residual municipal waste. However, more recent challenges for waste exports include increasing shipping costs, the introduction of import levies to some countries and the requirement for the removal of organic fines in some States.

Current treatment capacity is fully utilised and with a further 261,000 tonnes of thermal treatment capacity pending consents and development, this additional national capacity would be fully utilised to reduce reliance on export.

The destinations for a proportion of residual waste (assumed to be largely municipal solid waste) exported in 2021 are shown in **Table 5.13**. Denmark,

Sweden, Germany and Northern Ireland are the destinations currently treating the greatest volumes of residual waste generated from Ireland (circa 92% of these exports). There are climate and economic costs in terms of the transportation and treatment of residual waste overseas as well as the loss of materials and indigenous energy recovered through the thermal treatment processes.

The breakdown of Green List material exported in 2021 by destination is presented in **Table 5.14**. It is evident that Great Britain and Northern Ireland are significant outlets for recyclables, accounting for acceptance of 47% of this material. The third highest export country is India at 15% in 2021 (including a large fraction of tyres) and a large proportion of the 'Other' category consists of non-OECD countries in Asia such as China, Indonesia, Malaysia, Taiwan,

Table 5.14: Breakdown of Green List Material Exported from Ireland in 2021 by Destination (source: NTFSO)

Country of Destination	ELVs (tonnes)	Glass (tonnes)	Metal (tonnes)	Tyres/Rubber Granules (tonnes)	Paper (tonnes)	Plastic (tonnes)	Other (tonnes)	Total (tonnes)
Great Britain	25,384	6,234	110,994	1,316	46,033	32,048	13,763	235,772
Northern Ireland	15,215	22,269	64,125	18,610	22,408	19,091	104,515	266,233
The Netherlands	-	-	1033	108	63,675	16,273	31,321	112,410
India	-	-	19,461	12,291	125,610	-	411	157,773
Spain	1135	11418	22,308	-	8,859	1,675	630	46,025
Turkey	-	-	-	9,413	79,802	11,547	0	100,762
Other	-	-	45,722	1,965	87,145	15,862	4,511	155,205
Total	41,734	39,921	263,643	43,703	433,532	96,496	155,151	1,074,180

Thailand, and Vietnam, as well as South Africa. The carbon impact of exporting waste over these distances is unsustainable and at odds with the proximity principle.

In November 2021, the EU published a proposal for the revision of the Waste Shipments Regulation¹⁴⁹ which will seek to limit the export of waste to non-OECD countries by making such exports conditional on a demonstration that these countries can recover waste in a sound manner. There is a risk that a number of the current export markets used may not be viable in the longer term subject to the implementation of these revised EU rules. However, this presents the opportunity to explore options in Ireland and other nearby locations.

5.7.2 Construction Waste Exports

In 2020, 4% of construction and demolition waste (equating to 3% of total generated in 2020) was exported for final treatment outside the State. Hazardous and non-hazardous soil and stone material are two of the main construction waste streams that make up these exports. This indicates the need for additional indigenous disposal capacity to treat these waste streams as current capacity is limited. Waste metals are the other main constituent of construction waste exports with this material exported for recycling outside the State given the absence of any significant metal recycling capacity within the State.

5.7.3 Hazardous Waste Exports

The recently published EPA 'National Hazardous Waste Management Plan 2021-2027'¹⁵⁰ (NHWMP) reported that in 2020, 59% of Ireland's hazardous waste (304,845 tonnes) was exported for treatment primarily to the Netherlands, United Kingdom and Norway (by order of tonnes accepted). The NHWMP has included a number of key recommendations to attempt to address the balance between exports and national infrastructure for hazardous waste as follows:

- Establish a working group with Northern Ireland authorities to maximise opportunities for coordinated management and enforcement of hazardous waste activities.
- Conduct a business continuity assessment for Ireland's hazardous waste management system to identify at-risk waste streams and associated infrastructure.

While the responsibility for the authorisation of the management of hazardous waste lies with the EPA, the LGS will provide support and information to ensure the EPA can deliver the above recommendations.

5.8 CONTINGENCY CAPACITY FOR WASTE

The National Waste Contingency Strategy Feasibility Study carried out by the RWMPO describes contingency as 'a future event or circumstance which is possible but cannot be predicted with certainty'. The LGS therefore recognises the need for contingency capacity for waste for a future event or circumstance which is possible but cannot be predicted with certainty.

These circumstances may arise in the event of a disruption to established waste treatment operations, which cannot be managed by the remaining uninterrupted operations, or in the event of a waste management issue that presents a risk to the environment and human health which cannot be managed by established waste treatment operations.

A disruption to established waste treatment options, which cannot be managed by remaining uninterrupted operations, and which requires contingency capacity, is a shared responsibility between government, the LGS and waste treatment operators.

In the event of a waste management issue that presents a risk to the environment and human health which cannot be managed by established waste treatment operations and requires contingency this is the responsibility of government and local government.

The lack of licenced annual waste treatment capacity in the State is not grounds for the provision or utilisation of contingency capacity in the absence of demonstrable and consistent utilisation of all other options available. Specifically, Policy E10 of the RWMP states that:

The waste plan recognises the need for ongoing disposal capacity to be available in response to events which pose a risk to the environment and/or health of humans and livestock. The local authorities of each region will monitor available contingent capacity annually.

¹⁴⁹ Link: https://ec.europa.eu/environment/publications/proposal-new-regulation-waste-shipments_en

¹⁵⁰ Link: <https://www.epa.ie/publications/circular-economy/resources/national-hazardous-waste-management-plan-2021---2027.php>

When the RWMP were drafted in 2015, there had been incidents such as the 'foot and mouth' crisis that caused market disruptions as well as ongoing MSW capacity issues that resulted in the drafting of this policy. Since publication of the RWMP, there have been a number of such 'events' that have triggered a review of capacity and the need for some level of contingency including the following:

- In 2016, the disposal capacity for residual MSW was reached earlier in the calendar year than planned and local authorities used Section 56 of the Waste Management Act to permit emergency capacity at existing landfills - this remains an ongoing risk; and
- In 2021, during the Covid-19 pandemic, restrictions on construction activity negatively impacted cement plant operations in Ireland resulting in reduced treatment capacity for Solvent Liquid Fuel (SLF) and SRF, which caused waste supply chain disruption (e.g. for the pharma industry). The availability of this treatment capacity remains dependent on consistent demand for cement.

Looking forward, the EU's proposed tighter rules on the export of certain waste streams to non-OECD countries may further impact treatment capacity options.

To manage these risks, the RWMPO prepared a National Waste Contingency Strategy in 2017 to prevent environmental pollution or risks to human health. To help manage and predict capacity deficits, the RWMPO also developed and maintain the Irish Residual Waste Capacity Model and based on projections, it is anticipated that waste capacity will continue to be a challenge over the coming years. There is no significant contingency in the system to cater for unforeseen events or disruptions to the other final waste treatment options being utilised (i.e. export and thermal treatment).

The RWMPO have undertaken a Feasibility Study to identify the location, nature, and scale of a suitable national waste contingency facility within the State and this study has identified the following:

- The likely waste streams potentially impacted by an event;
- The anticipated volumes of wastes that may be generated in such an event; and
- The location of a local authority controlled licensed waste facility that is suitable to host a National Contingency Facility for Waste.

The analysis determined that the minimum contingency capacity required is 150,000 tonnes and in conjunction with the preparation of this Plan, the next phase of feasibility studies on the national contingency facility for waste will be undertaken. These studies will review and update the assessments to date in light of the circular economy framework, the evolving waste market and will help to devise the feasibility for the provision of the requisite contingency infrastructure on the preferred candidate site.

The RWMPO are working with the private waste industry to develop contingency capacity at existing landfills and the current planning consent at Knockharley landfill includes a condition (sought by the RWMPO) for 44,000 tonnes of capacity to be retained as contingency capacity for the duration of operations.

The need for further contingency capacity is supported through Target Policy TP15.2 in **Volume II** and Key Deliverable 21 in **Volume III**.

5.9 NATIONALLY AND REGIONALLY IMPORTANT INFRASTRUCTURE

Volume II includes a policy and an associated set of criteria relating to existing and future nationally and regionally important waste infrastructure. Nationally and regionally important infrastructure is of the type and scale deemed essential to maintain a functioning waste market within the regions and State. There is a lack of such infrastructure in key areas resulting in an ongoing dependence on export to manage waste generated.

Key current treatment capacity deficits include:

- MSW pre and final treatment capacity given the ongoing requirement for emergency measures for this waste stream; and
- Treatment capacity for soil and stone to maintain current supply chains for the growing construction market.

These waste streams are prioritised in this Plan as nationally and regionally important infrastructure, but this list may be revised as required to respond to changing market conditions. The criteria¹⁵¹ and thresholds used to determine what is nationally important infrastructure are listed in **Volume II**.

Nationally Important Infrastructure is supported through Core Policy CP12 in **Volume II** and Key Deliverable 19 in **Volume III**.

¹⁵¹ Criteria for Nationally and Regionally Important Infrastructure developed by RWMPO.



6 PROJECTED WASTE GENERATION

To inform policy development for **Volume II**, predicted waste generation rates for the lifetime of the Plan have been prepared for the larger waste streams, namely MSW and C&D waste. Projections are presented based on historic trends and with existing implemented policy measures in place.

Future interventions, such as the recovery levy and incentivised charging for commercial waste, which have been legislated for but have yet to show an impact on generation rates, have not been factored into the projections but are addressed in the regulatory analysis presented in **Part A of Volume III**.

6.1 PROJECTIONS OF MSW GENERATION

The principle drivers of MSW generation are population growth and personal consumption for household waste and economic activity for commercial waste. These drivers are projected to grow in the lifetime of this Plan (refer **Chapter 3**) and are used to predict future waste generation levels. The assumptions and input factors used to inform the MSW projections are listed in **Table 6.1**. These projections represent a 'business-as-usual' scenario, and do not take into account any of the pending measures to mitigate waste generation either under the WAPCE, the Circular Economy Act or this Plan.

Volume III provides projections which incorporate planned interventions.

Table 6.1: Assumptions and Input Factors for MSW Projections

Source	Parameter	Input Factor
Household	Baseline	Household waste generated per person using the latest population estimates and the 2019 validated waste data from the EPA at 1,619,102 tonnes (managed and unmanaged). Note: For 2020 and 2021, the EPA reported that the State generated 1,829,825 and 1,804,553 tonnes of household waste, respectively. These significant increases in 2020 and 2021 relative to 2019 may be heavily influenced by restrictions imposed during the Covid-19 pandemic and are not considered representative of a robust baseline for this analysis.
	Population Growth	The CSO report a preliminary population estimate for 2022 (5,149,139 inhabitants) and also forecast data for 2036 with linear growth assumed in the interim for the following low and high growth CSO population scenarios: <ul style="list-style-type: none"> • M3F2 for the 'Dublin Inflow' internal migration scenario (low population growth) to 5,330,800 in 2036; and • M1F2 for the 'Dublin Outflow' internal migration scenario (high population growth) to 5,812,500 in 2036.
	Generation Rates	Household waste generated per person based on 2019 data and a population of 4.92 million equating to 0.33 tonnes per person in 2019. Note: The 2020 and 2021 estimates reported by the EPA are 0.37 and 0.36 tonnes per person, respectively, but again these are not used as a reliable baseline.

Table 6.1: Assumptions and Input Factors for MSW Projections (Cont'd)

Source	Parameter	Input Factor
Commercial	Baseline	Commercial waste baseline at 1,467,103 tonnes for 2019. 2020 and 2021 data for the commercial sector reported by the EPA are 1,380,395 tonnes and 1,365,835 tonnes, respectively. These levels show a corresponding reduction to the household increases in these years as a result of Covid-19 restrictions.
	Economic Growth	Projected short term economic growth (2022 to 2026) is based on the predicted GNI increases shown in Budget 2024 Economic and Fiscal Outlook ⁴⁵³ and an assumed 2% growth thereafter in the absence of longer term GNI projections.

The historic and predicted trends in total MSW generation are presented in **Figure 6.1** which shows the historic measured trend (in red) and the projected levels (green is the CSO low population growth scenario and blue is the high population growth scenario). The historic trend shows a general increase since 2012 and this growing trend is projected to continue over the Plan period (with the exception of the anticipated impact of Covid-19 in 2020/2021 where generation rates have somewhat levelled off).

By the end of the Plan period in 2030, the levels of MSW generation are anticipated to reach up to 3.7 to 3.8 million tonnes equating to a circa 16-19% increase over the 2019 levels. These projections are used in this analysis for the following dual purposes:

- Informing the broader policy framework and the development of targets, policies and actions to prevent MSW generation as presented in **Volume II**; and

- Informing the capacity gap analysis to identify any need for additional capacity to manage MSW to reduce the reliance on exports and these treatment policies are also presented in **Volume II**.

In summary, the presented business-as-usual scenario indicates continued unsustainable growth in MSW generation in the short term. This highlights the need for interventions to reverse this trend and decouple MSW generation from economic and population growth. Further analysis of these interventions are presented in **Volume III**.

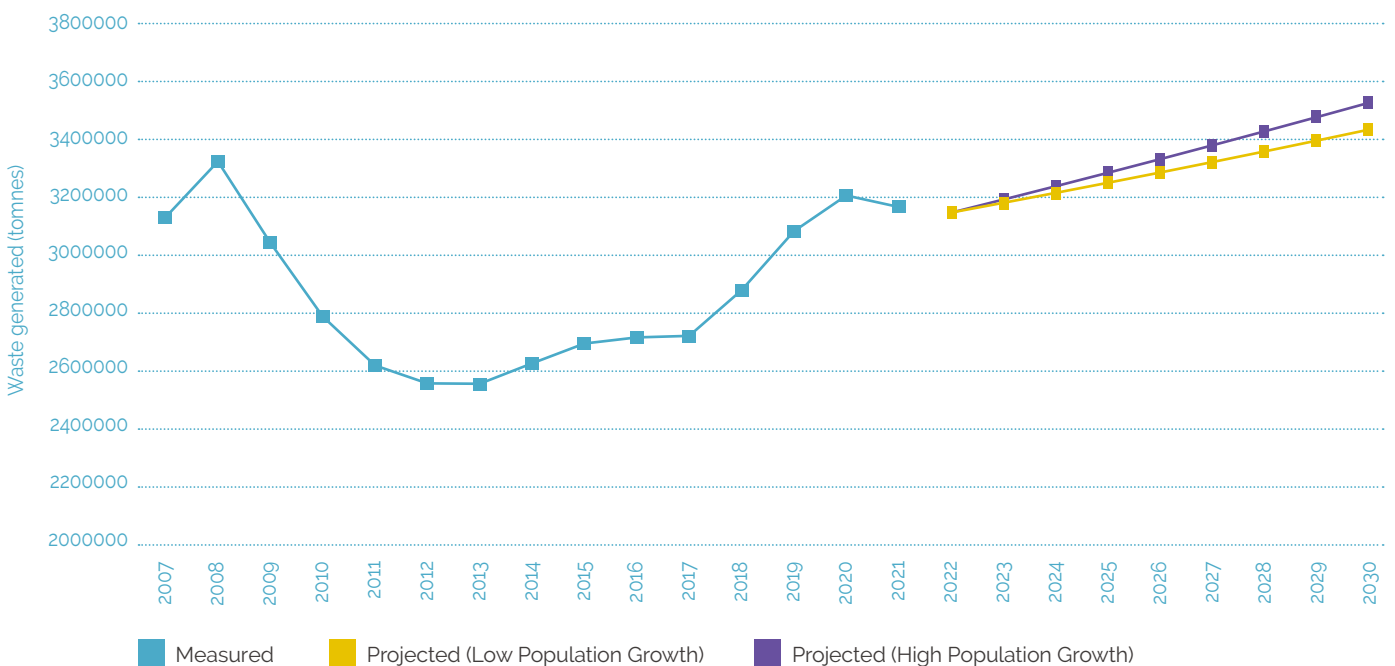


Figure 6.1: Projected MSW Generation (Business as Usual) (source: Internal)

⁴⁵³ Link: <https://assets.gov.ie/273320/7da13749-b1d2-4f12-a6cd-6e705b0b11d3.pdf>

6.2 PROJECTIONS OF C&D WASTE GENERATION

As noted in **Chapter 4**, C&D waste accounted for 60% of all waste generated in Ireland in 2021 which is well above the EU average of 35%. The volume of C&D waste generated is directly related to the scale of the construction market within the State and the correlation between the CSO Volume of Production for the sector and C&D waste generation is at 84% over the past decade. The assumptions and input factors used to inform the C&D projections in this Plan are listed in **Table 6.2**. Like MSW these projections represent a 'business-as-usual' growth and do not take into account any future interventions.

Volume III provides projections which incorporate planned interventions.

Predictions of construction waste generation are based on the output of the construction sector and the primary reference for this output is the 92nd Euroconstruct Report for Ireland (Winter 2021). The data includes development planned under the NDP (including housing). Rates are presented based on growth from the previous year and show strong growth in the short term to 2024. Euroconstruct does not project post 2024 and an assumed growth rate of 5.5% per annum is projected to the end of the Plan period.

The historic and predicted trend in total construction and demolition waste is shown in **Figure 6.2**. Also shown in the figure is the historic and projected trend in waste soil and stone which is the largest

fraction of the construction waste stream at 80-90%. The predictions suggest that total C&D waste will increase to circa 15 million tonnes by 2030 representing an increase of 73% from the 2021 baseline.

A disruption to the market is shown for 2020 due to the Covid-19 pandemic and temporary closure of construction sites but the data shows a strong rebound to the increasing annual trends in 2021 and up to 2030.

There are a number of planned interventions to prevent total C&D and soil and stone and a more detailed analysis of the impact of these interventions is presented in **Volume III**.

Key Challenges arising from Part B: The Landscape

Volume I, Part B identifies a range of challenges for material streams and infrastructure which must be addressed in the policy and action response presented in **Volume II** of this Plan and the key challenges to be addressed as listed as follows:

- This Plan needs to focus on accelerating the continued establishment of the circular economy sector in Ireland and supporting circular infrastructure and initiatives.
- The Plan needs to include measures to support behaviour change to both prevent the generation of waste and improve the segregation of waste from commercial and household settings.
- Increasing the national recycling rate in line with next generation targets will be a priority for the sector.

Table 6.2: Assumptions and Input Factors for C&D Projections

Parameter	Input Factor		
Baseline	The quantity of C&D waste generated was 9 million tonnes based on 2021 validated data from the EPA.		
Growth Factor	Year	Growth on Previous Year	Adjustments (if any)
	2021	102.7%	Revised to 96% based on CSO
	2022	108.4%	As per Euroconstruct
	2023	109.0%	As per Euroconstruct
	2024	106.3%	As per Euroconstruct
	2025	105.5%	In the absence of longer term Euroconstruct projections a conservative estimate of 5.5% annual growth for the Plan period to 2030 has been applied.
	2026	105.5%	
	2027	105.5%	
	2028	105.5%	
	2029	105.5%	
2030	105.5%		

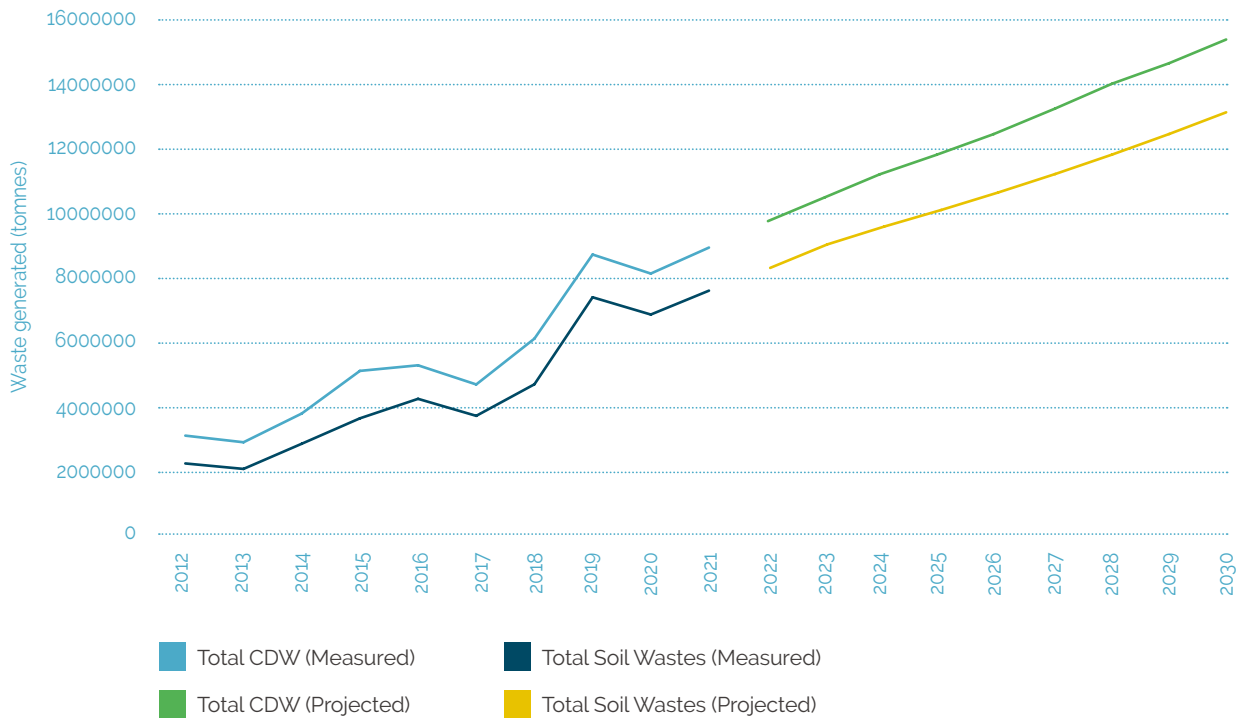


Figure 6.2: Projected C&D Generation (Business as Usual) (source: Internal)

- New and evolving policy for material streams such as Food, Textiles and Single Use Plastics will be implemented within the Plan period and will require the necessary supports.
- Key prevention mechanisms for C&D waste including Regulation 27 By-Products and Regulation 28 End-of-Waste must be supported by the Plan and have the greatest potential to curb the generation of these waste streams.
- Continued promotion of effective kerbside collection systems is essential to maximise the quantity and quality of materials collected.
- Indigenous recycling infrastructure for selected waste streams is established and growing and this Plan should support the further growth of the sector and the reliability of clean feedstock to these plants.
- Dedicated thermal treatment capacity within the State is maximised and cannot currently manage the volumes of waste generated - this Plan must ensure that supports for the required additional thermal treatment do not compromise the prevention ambition or the circular ambitions for reuse, repair and recycling.
- While there is a current reliance of landfill for municipal waste, the Plan needs to ensure that the fraction of waste disposed to landfills continues to reduce in line with the EU target for 2035.
- The current capacity to treat non-hazardous soil and stone within the State is limited and this stream cannot compete with municipal waste for treatment capacity - this Plan needs to support additional treatment capacity.
- Ireland continues to heavily rely on the export of certain waste streams such as recyclables, residual municipal solid waste and hazardous wastes and this Plan needs to tackle both generation levels as well as the need for supporting indigenous treatment.
- The Plan must address the need for infrastructure in the event of an interruption to established waste treatment options which cannot be managed and which requires contingency capacity.
- This Plan needs to support the need for nationally important infrastructure which is of the type and scale deemed essential to maintain a functioning waste market within the State.
- The projected growth in MSW and C&D generation rates over the lifetime of the Plan is unsustainable and this Plan needs to support or implement the necessary interventions to curb this growth in generation.



PART C: **THE RESOURCES**



7 ORGANISATIONAL ASPECTS

This chapter describes the current roles and responsibilities of the key public and private stakeholders in the waste and circular economy sector. Existing organisational arrangements are presented to provide context for proposed organisational enhancements presented in **Volume III Chapter 4**.

7.1 LOCAL GOVERNMENT STAKEHOLDERS

7.1.1 County and City Management Association (CCMA)

The CCMA is the 'representative voice' of the local government management network. CCMA members are chief executives of the county and city councils and the assistant chief executives of Dublin City Council. The committee interfaces with senior management of government departments and other relevant organisations. The CCMA represents its members on external committees, steering groups, and organisations, develops evidence-based positions and makes submissions on relevant issues.

The role of the CCMA is to:

- Influence and shape emerging and future policy affecting local government through direct engagement with key stakeholders on a range of diverse subjects;
- Advocate on behalf of the system for necessary resources, identify strategic choices to be made in the allocations of resources and demonstrate the system's capability to ensure the provision of value for money;
- Develop and present an accurate and positive view of the worth of local authorities in the public domain by building an understanding of the broad range of work that local authorities are involved in and the issues that drive and influence the sector;
- Demonstrate evidence of best practice and innovation within the sector for the purpose of supporting the wider development of such practices, for example in the areas of shared service and procurement;

- Support the Climate Action, Transport, Circular Economy and Networks Committee (CATCEN) and individual members of the CCMA; and
- Ensure that the public sector reform agenda is pursued and has a measurable positive impact.

Local authority waste functions are delivered through a combination of shared services and directly through individual local authority activities. The Local Government Management Agency (LGMA) provides support to and acts as point of contact for the CCMA.

A new Local Authority Waste Programme Coordinator (LAWPC) was appointed in 2021 by the LGMA to support the coordinating activities of the local government waste shared services. This approach to meeting statutory obligations is in the context of the continuing evolution of the delivery of waste functions and reflects the transition from total LGS control of the market to the almost total control of the market by the private sector.

This Plan, the transition to a circular economy and the continued consolidation in the waste market requires a commensurate organisational response from the LGS to respond to the challenges ahead and **Volume III** sets out potential further organisational improvements in this regard.

7.1.2 Regional Waste Management Planning Offices (RWMPO)

The RWMPO, set up during the preparation of the RWMP, have become key stakeholders in the wider waste sector and have expanded resources and activities through the implementation of the RWMP. The offices are managed by a designated lead local authority for each of the three waste regions and are responsible for leading the coordination and delivery of waste plan activities on behalf of the local authorities.

The three authorities assigned to lead the regional waste management planning are:

- Mayo County Council for the Connacht-Ulster Region;
- Dublin City Council for the Eastern-Midlands Region; and
- Limerick City and County Council and Tipperary County Council for the Southern Region.

The role of the RWMPO is broad with responsibilities including:

- To work with the lead authorities within the established structures on the regional implementation of the Plan;
- Facilitate and service the regional waste steering committee in the implementation of the objectives set out in the previous RWMP and this Plan;
- Develop a prioritised programme of targets, policies and actions to ensure that the ambition and goal of this Plan are delivered;
- Collaborate with the National Coordination Committee for Waste Management Planning (NCCWMP) and share the implementation of this Plan on as many issues as possible;
- Assist, facilitate and coordinate, in partnership with member local authorities, the implementation of the objectives, policies, actions and targets of this Plan;
- Work with business to shift to a circular economy mindset, reconsidering the approach to waste management, by viewing waste as valuable material resources;
- Monitor capacity needs for municipal and C&D waste streams on a quarterly basis;
- Collate waste data statistics and key performance statistics for the Regions;
- Roll out the historic landfills roadmap;
- Prepare annual reports as required for the region, reporting on performance under each of the policy headings contained within this Plan;
- Maintain and establish task groups on specific issues when required;
- Prepare applications for grant assistance for regional projects;
- Identify, coordinate and facilitate the training needs of the region to ensure effective implementation of the Plan;
- Prepare, procure, design and run National Campaigns in conjunction with other stakeholders – funded by DECC, such as the development and roll out of the mywaste.ie portal;

- Proactively promote prevention, minimisation, reuse and recycling of waste in accordance with the waste hierarchy and in association with industries, businesses, other statutory and non-statutory agencies;
- Foster community awareness of waste and Circular Economy issues in association with the Environmental Awareness Officers (EAO) in each of the member local authorities; and
- To respond to waste management planning challenges foreseen and unforeseen on behalf of the LGS.

Designated lead authorities and associated RWMPO's will be retained for the implementation of this Plan.

Designated lead authorities and associated RWMPO's will be retained for the implementation of this Plan.

7.1.3 Waste Enforcement Regional Lead Authorities (WERLA)

The three Waste Enforcement Regional Lead Authorities (WERLA) offices, aligned with the three waste regions, were established in 2015. The WERLA are responsible for coordinating the waste enforcement actions of local authorities and for working with other state agencies on enforcement activities.

The three authorities assigned to lead the local authority enforcement role are listed as follows:

- Leitrim and Donegal County Councils for the Connacht-Ulster Region;
- Dublin City Council for the Eastern-Midlands Region; and
- Cork County Council for the Southern Region.

The WERLA have responsibility for coordinating waste enforcement actions within regions, setting priorities and common objectives for waste enforcement. The WERLA are tasked with ensuring consistent enforcement of waste legislation across the three existing waste management planning regions, while local authority personnel act as the first responders on the ground to specific breaches of waste legislation. The WERLA facilitate greater streamlining of waste enforcement tasks.

The WAPCE notes that the role, capacity, and responsibilities of the WERLA will be enhanced to better position the LGS to respond to emerging and priority enforcement challenges. The WERLA work closely with the RWMPO to align enforcement activities with the requirements of the previous

RWMP and this Plan and to align awareness programmes with the national waste enforcement priorities.

The work of the WERLA is overseen by a National Waste Enforcement Steering Committee (NWESC) jointly chaired by DECC and the EPA which includes other national enforcement authorities. National waste enforcement priorities are set by DECC with input from members of the NWESC and drive consistency at a central level.

The WERLAs are also members of the Industry Contact Group along with DECC and other regulatory authorities.

7.1.4 National Waste Collection Permit Office (NWCPO)

In February 2012, Offaly County Council was designated as the Nominated Authority for the processing of all new Waste Collection Permit (WCP) applications and the review of applications received on, or after, that date, on behalf of all local authorities. This single nominated authority is known as the National Waste Collection Permit Office (NWCPO) and the responsibilities include the participation in the National Coordination Committee for Waste Management Planning (NCCWMP) and working with the three regions and local authorities within each region to develop standard mandatory conditions and local discretionary conditions.

The primary role of the NWCPO is to process all new and reviewed WCP applications and the annual reporting of waste statistics from waste collections in all regions. The NWCPO responsibilities have increased during the period 2015-2021 with extended regulatory roles including the compilation and quality control of data reported by facilities holding a waste permit or certificate of registration.

The NWCPO also maintains the national register for Waste Facility Permits (WFP) and Certificates of Registration (CoR) issued by all Local Authorities. The office hosts the National Annual Returns database for all WCPs, WFPs and CoRs within the State. In addition, the Historic Landfill Register (previously the Section 22 register) of Unregulated Landfills, which was formerly hosted by the EPA, is now hosted by the NWCPO on the Environmental Data Exchange Network (EDEN).

Under the WAPCE, the NWCPO role is to be enhanced to become a collection market oversight body. This role will include data analysis on the operation of the market, oversight of charging

structures penalties and service provision, the management of consumer rights, complaints escalation and responsibility for data protection.

7.1.5 National TransFrontier Shipment Office (NTFSO)

In 2007, Dublin City Council (DCC) was designated as the single Competent Authority in Ireland for trans-frontier shipments of waste into and out of Ireland. In order to meet obligations under the Waste Shipment Regulations, DCC established the National Trans-Frontier Shipments Office (NTFSO) to carry out both administrative and enforcement functions.

In 2011, DCC was designated as the single Competent Authority for hazardous waste movements exclusively within Ireland, and responsibility for such movements also falls under the remit of the NTFSO.

The NTFSO reports to the Assistant Chief Executive and City Engineer for the Environment and Transportation Department, Dublin City Council and works collaboratively with the Department of the Environment Climate and Communications (DECC) on matters relating to the Waste Shipment Regulations and movements of hazardous waste within Ireland. The NTFSO is also a leading member of the European Union Network for the implementation and enforcement of environmental law (IMPEL).

7.2 KEY PARTNERS

7.2.1 Department of Environment, Climate and Communications (DECC)

The role of the Department of Environment, Climate and Communications (DECC) is to provide the policy and legislative framework within which the objectives, policies, actions, and targets of the WAPCE are set. The role of the DECC in the waste and circular economy sector also includes:

- Preparation of the Circular Economy Strategy (CES) and coordinating implementation of activities across government departments;
- Preparation and implementation of the National Food Waste Prevention Roadmap;
- Participate in the NCCWMP;
- Monitor, review and modify legislation as required over the period of the waste action plans;
- Monitor existing compliance schemes and facilitate the development of new schemes as required;

- Advise and guide lead and local authorities with regard to the implementation of the WAPCE;
- Support regional structures for the implementation of the WAPCE;
- Support national, regional, and local waste enforcement arrangements as agreed by the CCMA and the regions;
- Support the operation of local waste infrastructure as operated by individual local authorities; and
- Administer the Landfill Remediation Programme which is coordinated regionally through the RWMPO.

7.2.2 Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) is an independent public body established under the Environmental Protection Agency Act 1992. Other legal instruments from which the EPA derives a mandate include the Waste Management Act 1996, the Protection of the Environment Act 2003, and Radiological Protection (Miscellaneous Provisions) Act 2014. Responsibilities of the EPA in relation to waste management include:

- Participate in the NCCWMP;
- Management of the CEP (previously the National Waste Prevention Programme, NWPP), delivery and coordination of programme activities and reporting on implementation;
- Operation of Local Authority Prevention Network;
- Management of the NHWMP;
- Collation, analysis and reporting of national waste statistics;
- Publication of the National Waste Statistics Summary Report;
- Licensing of large waste management facilities;
- Waste enforcement functions;
- Promotion of environmental best practice and circular economy developments;
- Auditing and reporting on the performance of local authorities in respect of waste management responsibilities;
- Protecting and improving the environment as a valuable asset for the people of Ireland;
- Commitment to protecting people and the environment from the harmful effects of radiation and pollution;
- Playing a key role in environmental regulation, provision of knowledge and advocacy for the environment; and
- Assistance to local authorities in respect of enforcement.

7.3 INDUSTRY

The waste industry in Ireland operates in an open market structure dominated by private waste companies with side by side competition, limited competitive tendering and public-private partnerships. It is comprised of many small to medium sized operators with a smaller number of larger operators. The industry provides collection, processing, reprocessing, recycling, recovery, and disposal services for household, commercial, industrial, and hazardous waste.

During the course of the RWMP 2015-2021 the industry has continued to evolve and consolidate with the acquisition of the largest private waste operator by an international investment company the most significant transaction in the period. There have also been entrants into the market offering new services for the management of construction and contaminated wastes.

The Irish Waste Management Association (IWMA) is a trade association for waste management companies in Ireland. The member companies employ more than 5,000 people directly and have a combined annual financial turnover of approximately €1 billion. Members collect 75% of the household waste currently managed in Ireland and significant quantities of commercial, industrial, and hazardous wastes. Members' facilities are either licensed by the EPA or operated under a local authority permit.

Members sign up to the rules of the IWMA to ensure that each operator provides waste management services to businesses and to the public in a professional and ethical manner, although it should be noted that not all waste operators are members of the IWMA and other representation organisations include the Confederation of European Waste-to-Energy Plants, the Chartered Institution of Wastes Management, Cré, Irbea, the Construction Industry Federation and Cement Manufacturers Ireland.

A more detailed breakdown of the private sector collection and treatment infrastructure and operations is presented in **Chapter 5**.

7.4 COMPLIANCE SCHEMES

Ireland has several producer responsibility compliance scheme operators who work on behalf of producers taking back goods at the post-consumer stage for recycling and recovery. These compliance schemes are well established and operate successfully enabling Ireland to achieve national and European performance targets. The current compliance scheme operators and the waste streams managed include:

- REPAK – packaging waste;
- Circol ELT – waste tyres;
- WEEE Ireland – electrical and electronic, and battery waste;
- European Recycling Platform – electrical and electronic, and battery waste;
- ELVES – end-of-life vehicles; and
- IFFPG – farm (film) plastics.

In addition, the Deposit Return Schemes (DRS) for aluminium cans and plastic bottles will be effective from February 2024 and will be operated by Deposit Return Scheme Ireland CLG, trading as Re-turn.

Under the WAPCE, there are commitments for the consideration of additional compliance schemes for textiles, hazardous waste, farm plastics and medicines. Further compliance schemes have been or will be introduced through the SUP Directive as follows:

- Since January 2023, producers of packaging are required to cover the costs of litter clean-up, in addition to existing EPR obligations associated with the following SUP items – food containers, packets, wrappers, beverage containers, cups and light weight carrier bags;
- Since January 2023, producers of tobacco products which contain plastic are subject to an EPR scheme; and
- By 31 December 2024, producers of balloons, wet wipes and fishing gear will also be subject to an EPR scheme.

7.5 NON-GOVERNMENTAL ORGANISATIONS AND OTHER ASSOCIATIONS

Community Resources Network Ireland (CRNI)¹⁵⁵ is the only community reuse, preparation for reuse, repair, and recycling network in Ireland. Its members deliver resource efficiency and circular economy initiatives at both local and national levels. CRNI facilitates social inclusion by supporting inclusive employment and increased access to the benefits of reuse, preparation for reuse, repair, and recycling. The CRNI works in collaboration with a range of partners supporting members to grow, developing, piloting innovative environmental solutions, and strengthening community reuse, preparation for reuse, repair, and recycling programmes throughout Ireland.

Charity Retail Ireland (formerly Irish Charity Shops Association)¹⁵⁶ is the umbrella group for charities that operate shops to fundraise for various causes. Charity Retail Ireland operates over 500 shops nationwide with a vision for a thriving and diverse charity retail sector in Ireland which supports both individual charities, Charity Retail Ireland and adds value to local communities.

The Rediscovery Centre¹⁵⁷ is the National Centre for the Circular Economy in Ireland, a creative movement connecting people, ideas, and resources to support greener low-carbon living. It supports four reuse social enterprises; Rediscover Cycling, Rediscover Fashion, Rediscover Furniture and Rediscover Paint. The Rediscovery Centre actively participates in research, particularly in the fields of sustainability, behavioural change, resource efficiency and waste management, provides a variety of educational workshops for all levels, and aims to review, analyse, and inform circular economy policy on a regional, national and international scale.

VOICE¹⁵⁸ is a member-based Irish environmental charity that empowers individuals and local communities to take positive action to conserve our natural resources for a sustainable future. It advocates for government and corporate organisations to adopt environmentally responsible behaviours and for the development of strong national policies on waste and water issues.

¹⁵⁵ Link: <https://crni.ie/>

¹⁵⁶ Link: <https://charityretail.ie/>

¹⁵⁷ Link: <http://www.rediscoverycentre.ie/>

¹⁵⁸ Link: <https://www.voiceireland.org/>

7.6 GOVERNANCE

The waste management planning regulations identify the local authority as the lead for the preparation and delivery of the waste plans. Governance of the previous regional waste management plans resides with the RWMPO who take lead responsibility in coordinating and delivering on actions and overseeing progress in the RWMP. Regional Steering Committees were established in each region to provide oversight and approval for RWMP activities and to make strategic decisions and the role of the committees includes the following:

- Supporting the lead authority in the implementation of the objectives set out in the RWMP;
- Monitoring and reviewing the performance of each individual local authority in the region against RWMP actions; and
- Reviewing, allocating and approving budgets for the RWMPO annually.

The three RWMPO interact regularly with a high frequency of engagement and a collective responsibility taken to implementing the RWMP. There is a transparent and collaborative approach to key sectoral issues between the three offices with collective agreement on actions to address priority areas. A nominated regional officer is assigned to lead on priority actions identified in the RWMP. Annual work programme activities are underpinned by the policy actions in the RWMP. The successful regional governance model adopted for the previous RWMP will be continued for the delivery of this Plan and will be strengthened by the development of enhanced coordination and collaboration across local authorities and the wider waste sector. Further details on the implementation of this Plan are presented in **Volume III Chapter 7**.

7.7 INTERACTIONS

As part of the governance of the RWMP, the RWMPO interact with many other public and private stakeholders, from high-level governmental and national groups to regional and local governmental bodies. These interactions are summarised in **Figure 7.1** and proposed enhancements to engagement are presented in **Volume III Chapter 5**.

National Committees

Interactions between significant stakeholders, public and private, in the waste sector are organised through national committee forums. These regular meetings occur three or four times each year. These

committees are focused on specific topics such as communications, waste planning, enforcement, and treatment capacity. These meetings are generally chaired by DECC with the local authority regional waste offices (e.g., RWMPO and WERLA) taking a lead role in updating stakeholders on progress or issues as well as implementing future actions.

Local Authority Regional Committees

Local authorities in each region interact with each other through designated regional committees and meetings such as:

- Regional Steering Groups comprise Directors of Service in each Local Authority;
- Regional Operational Groups consist of the Senior Engineers and/or Senior Executive Engineers;
- Joint Steering Group and Operational Group meetings are quarterly; and
- Regional Prevention, Education, Green Business Task Force – a regular meeting between the Environmental Awareness Officers (EAOs) and Resource Efficiency Officers (REOs) in each local authority on a regional basis.

These meetings are valuable interactions with updates provided, tasks and resources assigned. Industry and Compliance Schemes Communication with industry and compliance schemes, outside of the national committee, tends to be intermittent, rather than a regular set schedule, where there is ongoing interaction on specific projects or programmes.

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Local Government

The RWMPO and WERLA offices collaborate closely to bring a consistent national approach to waste planning and enforcement. Typically, regional steering group meetings are held jointly with the RWMPO and WERLA. There are strong working relations with the NWCPO, NTFISO, and CCMA and while there is no structured schedule of meetings, these groups interact regularly on projects, current issues, and policy submissions.

The local government waste sector interacts with the CCMA formally on a regular basis (typically every six weeks). This forum is used to update the group



Figure 7.1: RWMPO Interactions

on waste planning matters (such as residual waste capacity) and to address sectoral issues impacting local authorities. The CCMA organises working groups to address specific issues (such as end-of-waste) as needed. National reports and policy submissions prepared by RWMPO on behalf of the local government waste sector are issued through the CCMA.

7.8 ORGANISATIONAL RESILIENCE

Following the government's response to the Covid-19 pandemic during 2020 and 2021, a list of essential services that would be allowed to continue was announced. This list of essential services included waste collection, remediation activities and other waste management treatment and disposal activities. Waste collection and processing services continued to operate as normal throughout the restrictions period and recycling facilities and waste recovery (at waste to energy plants) maintained normal operation. In response to the Covid-19 pandemic, a number of key actions were taken to maintain normal operation of the waste sector, despite the challenges incurred as a result of the crisis, including:

- Establishment of the High Level Covid-19 Waste Management Advisory Group, which consisted of key stakeholders representing the waste sector, to determine the sector's response to the pandemic;
- Designation of the RWMPO as the sector's lead in response to the pandemic, where the RWMPO:

- Developed a risk based Monitoring and Early Warning System;
- Coordinated weekly updates;
- Monitored capacity;
- Developed a Waste Collection Strategy; and
- Produced an Interim Waste Capacity Report on 20 March 2020.
- Establishment of the Local Authority Business Continuity Group to ensure business continuity across the LGS – this group included waste activities such as CAS, bring centres and waste enforcement.

These groups worked closely with key stakeholders to ensure normal operations across the sector were maintained. The waste sector proved to be resilient in the crisis, while supported by the key actions outlined above. However, some vulnerabilities at a national level were also highlighted including:

- Dependence on waste export;
- Limited ability to manage healthcare waste due to a lack of facilities, and
- An increase in illegal dumping during the restriction period.

A series of organisational policies and actions to maintain and enhance established working relationships are included in **Volume II** along with implementation details presented in **Volume III Chapter 7**.



8 FINANCE

8.1 WASTE SECTOR

Ireland's waste sector has evolved significantly since the publication of the RWMPs in 2015 with a move away from residual waste disposal to landfill to waste to energy and recycling. This Plan requires a further shift in focus to incentivise greater waste prevention, reuse, preparation for reuse and repair in line with both economic and circular economy principles.

Waste collection, pre-treatment and final treatment services in Ireland are largely undertaken by the private sector with the role of the public sector being primarily regulation with some operational activities. Further details on the scale of the collection and treatment infrastructure within the State is provided in **Chapter 5**.

There has been significant consolidation in the waste collection market in Ireland in recent years with the number of authorised waste collectors reduced from 3,828 operators in 2008 to 1,861 operators in 2020. The market is characterised by a small number of large-scale operators with the top ten municipal waste collection service providers collecting 90% of the waste within the State.

Private operators also own and operate significant final treatment facilities in the State including three municipal landfills, two waste to energy plants (one is a public private partnership with the Dublin local authorities) and the four cement plants licensed for co-incineration.

Local authorities continue to collect waste through the national network of civic amenity sites (CAS) and bring banks and have a continuing role in some pre-treatment and Waste to Energy activities.

Regulations to enable the introduction of a recovery levy were published in August 2023¹⁵⁹ and the levy is specified as €10 per tonne of municipal waste accepted for recovery. The purpose of the levy is to incentivise reuse, preparation for reuse, repair, and recycling. The Circular Economy Act 2022 re-designates the Environment Fund as the Circular Economy Fund and all proceeds of the recovery levy will be ringfenced into the Circular Economy Fund.

An overview of the economic scale of the waste market is presented in **Table 8.1** based on CSO published data¹⁶⁰ which indicates that the value of the waste market was circa €1.5bn in 2020 and that employment stood at 10,500 persons.

The table also shows the Environment Fund¹⁶¹ incomes reducing in recent years as the landfill and plastic bag levies have successfully changed behaviours. The combined national expenditure from the Environment Fund was €11M in 2021 on managing waste and litter, including enforcement, awareness campaigns and planning (in addition to non-waste expenditure).

Central Government Environment Fund expenditure in 2021 illustrates the distribution and emphasis of expenditure in key areas as shown in **Figure 8.1**. The breakdown presented for 2021 demonstrates that the bulk of expenditure continues to go to enforcing the rules and maintaining compliance with waste legislation and regulation, while a relatively small amount is dedicated to prevention, awareness, and planning.

¹⁵⁹ S.I. No. 406 of 2023 Circular Economy (Waste Recovery Levy) Regulations 2023

¹⁶⁰ CSO Environment Goods and Services Sector 2020. Link: <https://www.cso.ie/en/releasesandpublications/ep/p-egss/environmentgoodsandservicessector2020/keyfindings/>

¹⁶¹ Environment Fund Accounts. Link: <https://www.gov.ie/en/publication/f6b84-environment-fund-accounts/>

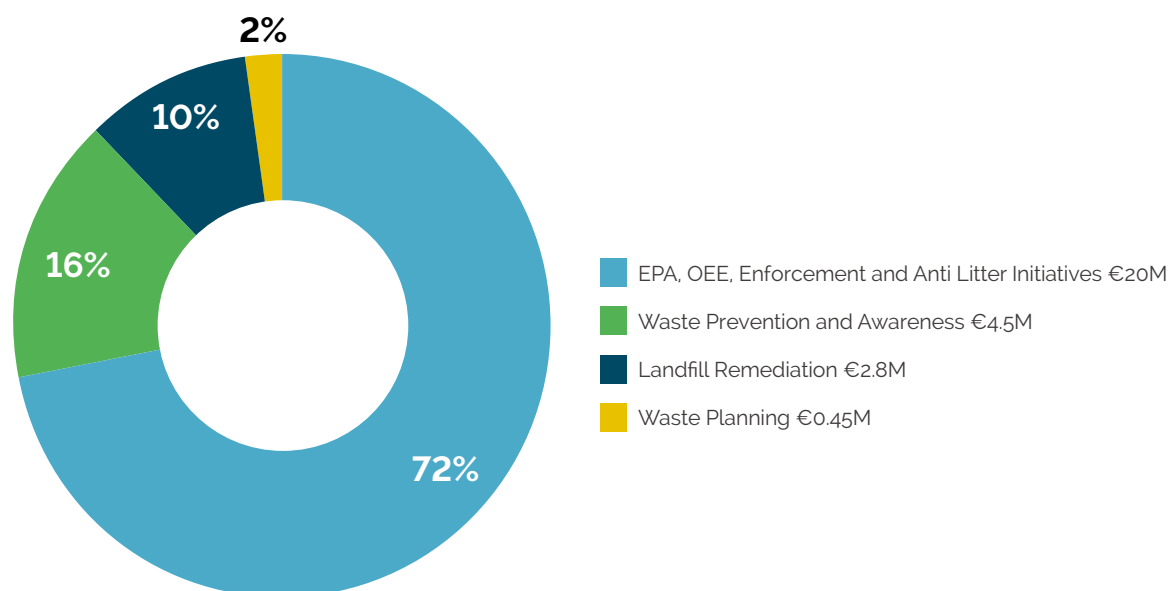


Figure 8.1: Central Government Environment Fund Expenditure in 2021

Table 8.1: Economic Value of the Waste Industry in Ireland (source: CSO and DECC)

Area	Parameter	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Macro Economics	Waste Management – Gross Output (€m)	1,263	1,321	1,198	1,237	1,362	1,342	1,341	1,429	1,267	1,405	1,478	-	
	Gross Value Added (GVA) (€m)	596	496	549	589	444	462	470	535	493	674	522	-	
	Employment ('000 full-time equivalents)	9.7	8.3	7.9	9.0	9.1	8.8	8.8	9.5	10.5	9.7	10.5	-	
Environment Fund Incomes (€'000)	Landfill Levy	42,661	46,422	51,809	43,399	33,717	34,340	48,400	37,106	18,611	12,151	6,492	8,488	
	Plastic Bag Levy	17,458	15,725	13,863	14,768	12,714	11,728	8,734	7,280	6,470	5,128	3,886	3,355	
	Total Income	60,384	62,573	65,714	58,184	46,471	46,091	57,155	44,408	25,102	17,280	10,378	11,844	
Environment Fund Expenditure (€'000)	EPA Administration	10,514	13,004	12,100	13,896	13,980	11,900	8,502	4,900	4,600	5,000	-	-	
	Enforcement Initiatives	12,341	13,538	11,352	9,334	6,552	11,329	8,706	9,651	10,934	11,831	6,304	4,215	
	Waste Prevention	4,900	5,200	4,322	3,491	2,704	2,344	2,562	2,899	2,524	2,668	1,638	-	
	OEE	2,200	2,200	2,100	2,022	2,000	2,000	2,200	2,005	2,029	2,000	1,355	-	
	Environment Awareness	2,417	2,593	1,637	1,659	1,611	1,555	1,860	1,671	1,922	1,862	1,294	2,167	
	Landfill Closure and Aftercare	-	6,110	4,120	-	-	-	-	-	-	1,953	2,802	540	-
	Recycling Operational Costs	14,363	12,000	7,250	4,956	3,275	1,499	-	-	-	-	-	-	-
	Anti-litter Initiatives	1,966	1,946	1,836	1,298	1,192	1,024	1,031	1,291	1,301	1,184	397	1,719	
	Waste Management Planning	8,189	9,273	1,480	2,351	533	722	374	400	563	450	400	400	
	Hazardous Waste	1,800	-	-	-	-	-	-	-	-	-	-	-	-
	Environmental levy collection costs	-	-	-	-	-	-	-	-	-	-	-	407	401
	Non-Waste Expenditure Note 1	5,766	18,607	24,534	16,554	14,373	13,918	10,790	10,593	11,139	9,241	4,095	2,057	
	Total Expenditure	64,456	84,471	70,731	55,561	46,220	46,291	36,025	33,410	36,965	37,038	16,430	10,959	

Note 1: Non waste expenditure includes spend on heritage, biodiversity, water, air, climate, nuclear as well as levy collection costs and contributions to organisations.

8.2 LOCAL AUTHORITY INCOME AND EXPENDITURE

The budgeted expenditure and incomes of each of the 31 local authorities under the heading 'Waste Collection and Disposal' have been compiled and reviewed from local authority adopted budgets for 2021. This dataset includes human resource costs, in addition to wider operational costs, of the local authorities in the delivery of waste functions.

Table 8.2 summarises the financial information for all local authorities on a regional and national basis. Data is presented across all waste and litter functions and shows the regional and national levels of income and expenditure (in €'000) and the net deficit between income and expenditure.

The data shows that there is a substantial variation in expenditure profiles across the three waste management regions. For example, the Eastern Midlands Region has a lower expenditure on landfill operations than the Southern Region but has a significantly greater spend on street cleaning. The Southern Region has a proportionally higher spend on recovery and recycling activities than the other regions. The Connacht-Ulster Region spends significantly higher fraction (20.7%) of expenditure on litter management relative to the other regions (circa 10%).

Some of the variations in expenditure observed in **Table 8.2** may be explained by local factors such as:

- The centralising of some operations such as the RWMPO, WERLA, NTFSO and NWCPO;
- The location of recycling infrastructure, for example Cork County Council shows twice the expenditure of any other county under 'Recovery and Recycling'; and
- The numbers and locations of closed landfills and landfills which are not active which require expenditure but provide no income. For example, Cork and Fingal County Councils show very high relative expenditures on landfill operations but have no compensating incomes.

Table 8.2 shows the breakdown of the €217 million national deficit across all waste functions for 2021 after user charges and specific government grants have been taken into consideration. The major portion of the deficit is attributable to street cleaning, which if combined with litter management, accounts for 67% of the total deficit in 2021. This deficit is currently financed from local authority own resources such as commercial rates and local property tax.

Any widening of the income/expenditure gap would have to rely on increases in local taxation yields and/or levies if local authority services and environmental obligations are to be maintained. A key consideration for the LGS will be the impact of the policies and actions of this Plan on incomes and expenditures.

Figure 8.2 illustrates the distribution and emphasis of expenditure in key areas including Street Cleaning/Litter Management, Landfill Aftercare, Recovery/Recycling and Enforcement. The breakdown presented demonstrates that the bulk of expenditure, 84%, funds litter management, street cleaning, landfill aftercare, recovery and recycling and other operations.

The balance of expenditure, 16%, is attributable to enforcement and planning activities. However, expenditure on these functions is somewhat offset by a 2021 income of €27 million which equates to 61% of the total expenditure on these functions. The unfunded portion of enforcement / planning expenditure equates to €18 million nationally or €579K, on average, per local authority.

OPERATING DEFICIT:

Total expenditure across all waste functions is €281 million while total income is €64 million leading to an overall deficit of €217 million.

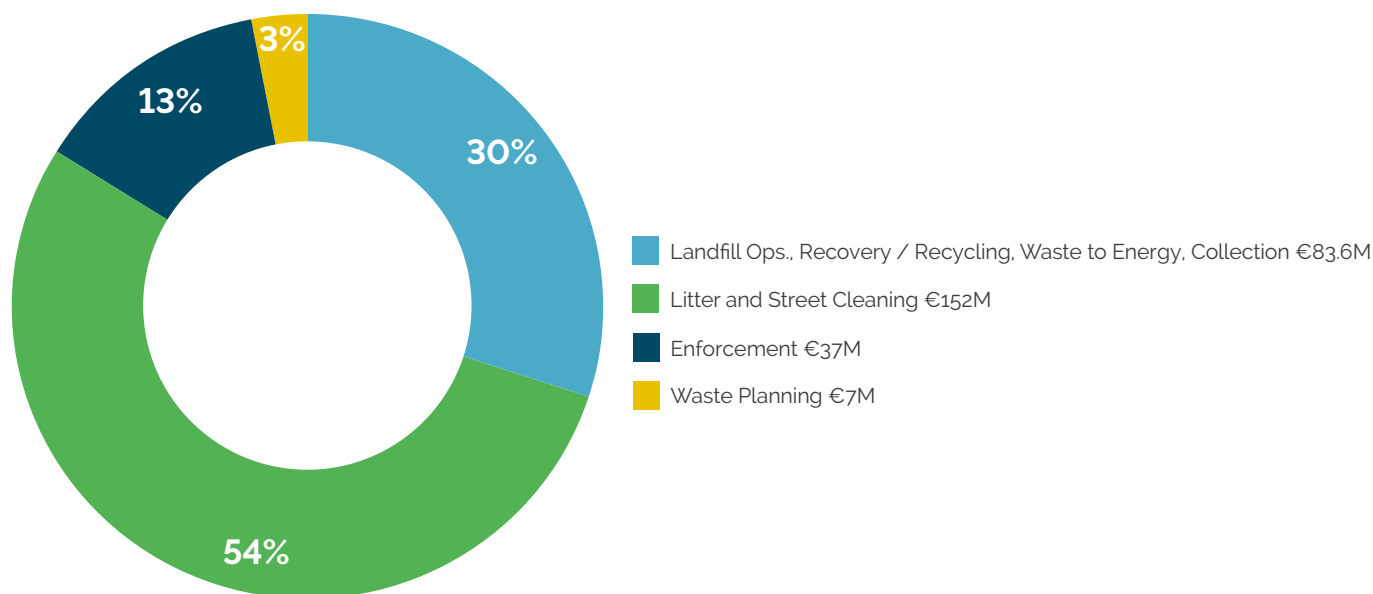


Figure 8.2: Local Authority Expenditure on 'Waste Collection and Disposal' in 2021

Table 8.2: Local Authority 2021 budgeted expenditure and incomes on Waste Collection and Treatment¹⁶²

Expenditure (€'000)	Landfill Operation and Aftercare	Recovery & Recycling Operations	Waste to Energy Operations	Provision of Waste Collection	Litter Management	Street Cleaning	Waste Enforcement	Waste Management Planning	Total
Connacht-Ulster Region	6,332	3,872	0	455	6,672	8,332	5,585	978	32,226
Eastern-Midlands Region	11,036	14,027	3,192	3,701	16,113	80,844	24,351	2,579	155,843
Southern Region	18,094	20,749	293	2,115	9,401	31,556	7,858	3,521	93,587
National Expenditure	35,462	38,648	3,485	6,271	32,186	120,732	37,794	7,078	281,656
Expenditure (%)	Landfill Operations	Recovery & Recycling	Waste to Energy	Waste Collection	Litter Management	Street Cleaning	Waste Enforcement	Waste Management Planning	Total
Connacht-Ulster Region	19.6%	12.0%	0.0%	1.4%	20.7%	25.9%	17.3%	3.0%	100.0%
Eastern-Midlands Region	7.1%	9.0%	2.0%	2.4%	10.3%	51.9%	15.6%	1.7%	100.0%
Southern Region	19.3%	22.2%	0.3%	2.3%	10.0%	33.7%	8.4%	3.8%	100.0%
National Expenditure	12.6%	13.7%	1.2%	2.2%	11.4%	42.9%	13.4%	2.5%	100.0%
Income (€'000)	Landfill Operations	Recovery & Recycling	Waste to Energy	Waste Collection	Litter Management	Street Cleaning	Waste Enforcement	Waste Management Planning	Total
National Income	9,873	14,710	3,291	3,201	3,915	2,378	23,887	3,049	64,304
Deficit	25,589	23,938	194	3,070	28,271	118,354	13,907	4,029	217,352

¹⁶² Link: <https://assets.gov.ie/139273/8554c7e7-d87c-4185-8cc1-32c8bf51c5c3.pdf>

8.3 DEFICIT ANALYSIS

The breakdown of LGS Income and Expenditure presented in **Table 8.2** indicates a deficit between income and expenditure of €217 million across all waste functions. **Figure 8.3** illustrates the scale of the financial deficit for each waste function:

WASTE FUNCTION WITH THE GREATEST DEFICIT:

The waste functions which have the largest deficits include street cleaning (€118 million), litter management (€28 million), landfill aftercare (€25 million), recovery/recycling (€24 million) and enforcement (€14 million).

Street Cleaning

Street cleaning includes the daily routine of mechanically and manually cleaning the streets of urban areas nationally. This is a highly labour-intensive process and requires the mobilisation of staff outside of normal working hours including early mornings and late nights. Over 50% of total waste expenditure in the Eastern-Midlands Region is attributable to street cleaning while the comparable figure in the Southern Region is 33% and 25% in the Connacht-Ulster Region.

The overall national deficit for street cleaning in 2021 was €118 million and this was funded from local authority own resources. While it is accepted that street cleaning will continue to be largely

funded from local authority own resources, there are potential deficit mitigation measures which could be implemented to reduce costs such as the requirement for producers of packaging and tobacco products to contribute to the costs of litter clean-up under the SUP Directive (refer **Section 4.5**).

Litter Management

Litter management also includes the daily routine of picking, collecting, and handling litter and extends to all areas including urban and rural. Litter management presents unique seasonal challenges for rural and coastal communities and requires a significant resource response from the LGS to meet this challenge. This is illustrated by the fact that 20% of total waste expenditure in the Connacht-Ulster Region is attributable to litter management while the comparable figure in the Eastern-Midlands and Southern Regions is 10%. The overall national deficit for litter management in 2021 was €28 million and this was funded from local authority own resources. While it is accepted that litter management will continue to be largely funded from local authority own resources, there are potential deficit mitigation measures which could be implemented to reduce costs.

Given the combined relative scale of the financial deficit associated with street cleaning and litter management (54% of total waste expenditure) a strategic review of potential efficiencies in this area should be carried out with particular emphasis on circular potential of materials and the potential to contribute to national recycling rates.

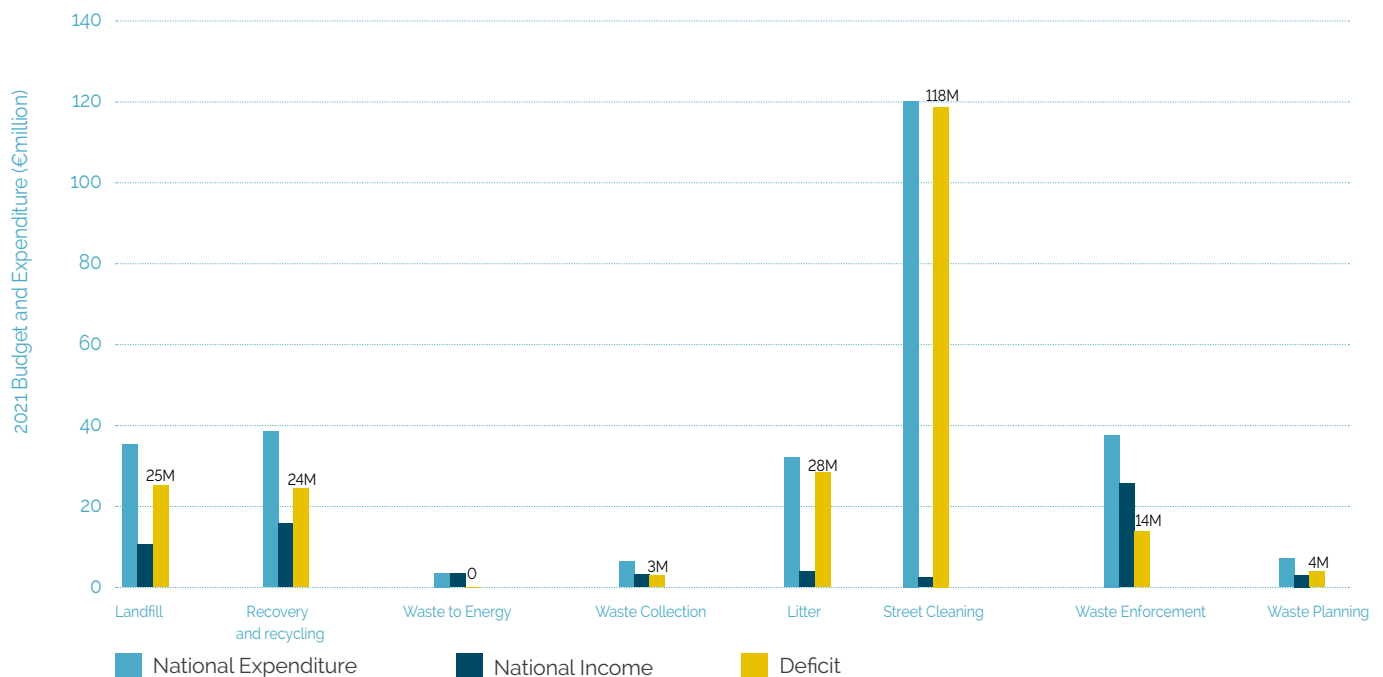


Figure 8.3: Waste Function Deficits

Landfill Aftercare

Landfill aftercare extends to the management and monitoring of landfills closed after 1997. Landfills operated by the LGS between 1977 and 1997 are designated Historic Sites and the remediation of these sites is being progressed through the Historic Sites Programme, based on a risk-based approach included in the existing RWMP.

Landfill aftercare costs include the management of leachate, landfill gas, drainage and monitoring in accordance with EPA Licence Conditions. The cumulative costs of landfill aftercare are significant giving rise to a national deficit of €25 million. Landfill aftercare costs represent 20% of total waste expenditure in the Southern and Connacht-Ulster Regions while the Eastern-Midlands Region spend is 7% of total waste expenditure.

While the LGS is responsible for the long term environmental liability associated with closed landfills, there are potential interventions which could be made by the affected authorities to reduce costs and mitigate climate impacts. The development of a national landfill aftercare strategy with a particular focus on a sectoral approach to leachate and gas management costs could contribute to costs savings and climate action.

Recovery / Recycling

Local authority expenditure in this area relates principally to the operation of CAS and bring centres. The CAS / bring network underpins the recycling of glass and provides an alternative to households for the management of a range of waste materials. The operation of these sites accounts for nearly 14% of total waste expenditure nationally with the Southern Region spending 22% of total waste expenditure and the Connacht-Ulster and Eastern-Midlands Regions at 12 and 9% respectively.

The CAS Review carried out by the LGS calls for a consolidated, integrated, and coordinated national public waste infrastructure network and the implementation of the recommendations of the review are being considered by a working group established by the CCMA. It is anticipated that deficit reduction will be a key consideration for this group through more integrated systems, improved procurement, and standardisation of charges. The network of civic amenity sites has been developed by the LGS over many years and a baseline standard of service with associated infrastructure must be established. This will be a key aspect of the work of the working group established by the CCMA.

It is anticipated that significant investment will be required across the network to achieve the baseline standard required to maintain an alternative public offering for household waste management and to provide a platform for enhanced service provision for specific material streams including addressing circularity and activities not currently provided.

Enforcement

The LGS has a key role in the enforcement of waste and environmental legislation at local level. The sector is supported by the WERLAs who provide a coordinating role for enforcement activities. LGS enforcement activities are supported by Government through the Local Authority Waste Enforcement Funding Model while the WERLAs are also funded by government.

Notwithstanding the support from government, local authority enforcement activities still give rise to a significant national deficit of €14 million with the Connacht- Ulster and Eastern-Midlands Regions spending 16/17% of total waste expenditure in this area while the Southern Region spends 8% of total waste expenditure on enforcement.

While it is acknowledged that the establishment and funding of the regional waste enforcement offices has been instrumental in the coordination of waste enforcement activities, the enforcement deficit identified indicates that more support is required at local level in this area. In particular, as increased enforcement and engagement will be required in support of the transition to a circular economy and the achievement of the EU average circularity rate.

A further review of the local authority waste enforcement funding model and the totality of funding available is required to identify resources required to drive changes needed in relation to material use and reuse.

To maintain existing services and business continuity for waste functions the deficits identified must be managed and reduced where possible. A series of deficit mitigation measures have been identified for each of the key deficit areas described above and these are summarised in **Figure 8.4**



Figure 8.4: Business Continuity Deficit Mitigation Measures

Summary

The total financial commitment of the LGS across all waste functions annually is €280 million with total income amounting to €64 million giving rise to an annual deficit of €217 million.

To maintain business continuity, to continue to protect the environment and provide critical services current and established supports from government are essential. To address existing financial deficits a strategic response is required, as illustrated in **Figure 8.5**, and where interventions are identified that support the achievement of targets, enhance

circularity and support climate action additional government support will be required.

Volume III Chapter 6 commits the LGS to a series of key deliverables to address budget deficits and key deliverables for government to maintain the required business continuity investment and support for the LGS.

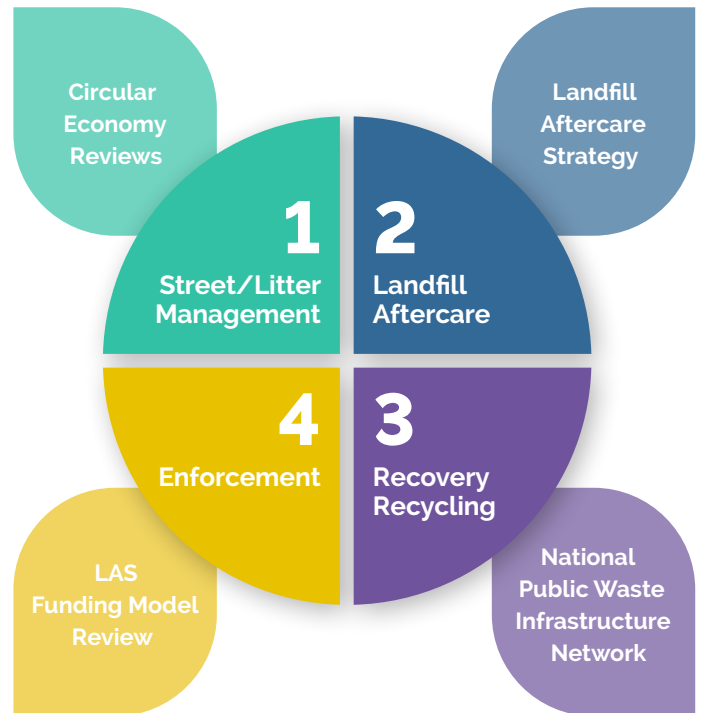


Figure 8.5: Illustration of Potential Strategic Responses to the Financial Deficits Identified

8.4 LOCAL AUTHORITY HUMAN RESOURCES

In addition to the expenditure profiles presented in **Table 8.2**, a detailed analysis of baseline levels of local authority waste function human resourcing has been undertaken. This included a survey of all local authorities to determine current staffing levels at all grades involved in the delivery of waste services. Where a resource combines a waste function with another function (such as climate, water, planning, management, etc.) only the waste role is counted in this data to generate a 'full time resource' (FTR) count for the delivery of waste services in 2022.

The total number of resources engaged in local authority waste functions is summarised in **Table 8.3**. This table shows both the cumulative total of direct local authority resources as well as the numbers in shared services such as the RWMPO, WERLA, NTFISO and NWCPO. Data for direct resources is rounded

to represent the aggregated nature of this dataset, whereas the shared services data is presented in more definitive detail.

The results indicate that 1,633 FTRs are engaged directly by local authorities to deliver waste functions. The largest fraction of these FTRs are engaged in street cleaning and litter management including litter wardens (1,117 FTRs representing 70% of the total). The next highest categories are enforcement at 225 FTRs (14%) and civic amenity sites at 198 FTRs (12%). Combined these three activities/services represent 94% of all staff directly engaged by the local authorities. For the shared services there are 55.4 FTRs available between the four groups with the NTFSO and NWCPO at 17 FTRs each (31%) and the RWMPO and the enhanced WERLA as the lowest allocations at 11.3 FTRs (14%) and 10 FTRs (18%), respectively.

The cost of human resources has also been estimated and the expenditure required to fund this local authority waste function is shown in Table 8.4. Again, the data is presented for each of the local authority grades for each of the functions delivered both directly and shared services. Data is approximated and therefore rounded to reflect this uncertainty. Median pay scales have been used to determine the cost of resources engaged directly by the local authorities which equates to circa €67 million, of which street cleaning and litter management account for €43 million (64% of the total budget). Enforcement is the second highest expenditure at circa €12 million (17%) followed by

civic amenity sites at circa €8 million (12%) as these largely follow the resource numbers presented in **Table 8.3**. For shared services the annual costs are estimated at circa €3 million. The analysis of human resources across the LGS for 2022 illustrates the distribution and emphasis of resources in key areas as shown in **Figure 8.6**.

The breakdown presented demonstrates that the bulk of resources, 70%, are dedicated to litter management and street cleaning while 12% of resources are delivering frontline services at CAS. Direct enforcement resources at local level represent 14% while the combined shared services represent less than 3% with Waste Planning less than 1% of the total. This baseline resource analysis is presented to inform the resource requirement for this Plan and the additional resources required to implement this Plan are provided in **Volume III Chapter 6**.

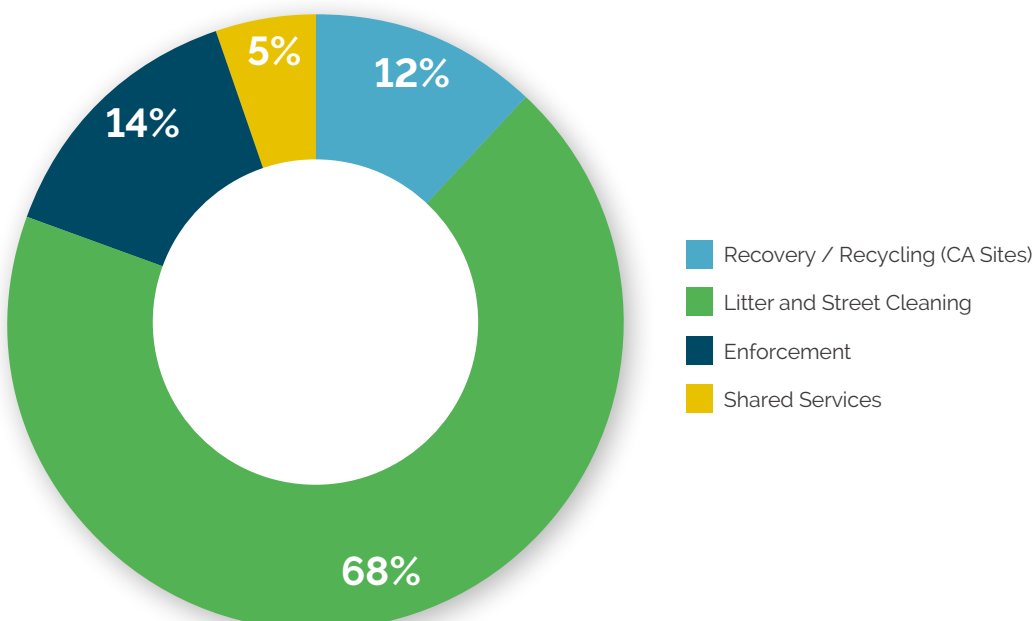


Figure 8.6: Local Authority Human Resource Allocation 2022

Table 8.3: 2022 Human Resource input for Local Authority Waste Function

Local Authority Function	Current Resource Requirement (Full Time Equivalents)				
	Management	Administration	Technical	Operational	Total
Direct Engagement					
Enforcement	8	62	81	74	225
Awareness/Green Business/Green Schools	2	30	8	1	41
Civic Amenity Sites/Bring Banks Operations	5	20	27	146	198
Historic Landfills/Illegal Sites	3	2	20	7	32
Street Cleaning/Litter	6	77	25	1,009	1,117
Other	2	2	16	0	20
Total	26	193	177	1,237	1,633
Shared Services					
Regional Waste Management Planning Offices (RWMPO)	3.0	2.3	6.0	0.0	11.3
National TransFrontier Shipment Office (NTFSO)	1.0	8.0	1.0	7.0	17.0
National Waste Collection Permit Office (NWCPO)	0.1	14.0	3.0	0.0	17.1
Waste Enforcement Regional Lead Authorities (WERLA)	6.0	1.0	3.0	0.0	10.0
Total	10.1	25.3	13.0	7.0	55.4

Table 8.4: 2022 Financial Resources for the Local Authority Waste Function

Local Authority Function	Expenditure (€'000)				
	Management	Administration	Technical	Operational	Total
Direct Engagement					
Enforcement	€629	€2,922	€5,628	€2,380	€11,560
Awareness/Green Business/Green Schools	€146	€1,246	€538	€27	€1,958
Civic Amenity Sites/Bring Banks Operations	€345	€895	€1,910	€4,635	€7,785
Historic Landfills/Illegal Sites	€187	€94	€1,154	€179	€1,614
Street Cleaning/Litter	€453	€3,977	€1,619	€36,911	€42,959
Other	€154	€85	€1,244	€7	€1,490
Total	€1,915	€9,219	€12,093	€44,138	€67,365
Shared Services					
Regional Waste Management Planning Offices (RWMPO)	€244	€106	€401	€0	€751
National TransFrontier Shipment Office (NTFSO)	€81	€377	€67	€239	€764
National Waste Collection Permit Office (NWCPO)	€8	€660	€201	€0	€869
Waste Enforcement Regional Lead Authorities (WERLA)	€487	€47	€201	€0	€735
Total	€820	€1,190	€870	€239	€3,119

8.5 LOCAL AUTHORITY WASTE FUNDING MODEL

The delivery of local authority waste functions, the maintenance of essential waste services and environmental obligations is achieved with support from both local and central government. Funding is provided by government and local government at national, regional and local levels and a matrix of this funding model is summarised in **Table 8.5**.

The data presented is sourced from central government supports provided through the Environment Fund (2020 data, **Table 8.1**) as well as the local government budgets (2021 budget data, **Table 8.2**).

Local authority litter and street cleaning expenditure is excluded from this analysis to provide a more focused summary of pure waste functions.

The funding model shows that delivery of the current local authority waste functions (excluding litter and street cleaning) requires investment of circa €154 million per annum with circa €24 million (15%) funded directly by central government and the remaining €130 million (85%) provided by local government. Local authority budgets indicate that the largest expenditure relates to the following functions:

- Recovery and Recycling Operations (€38.65 million) which includes the operation of the civic amenity sites (CAS);
- Landfill Operation and Aftercare (€35.46 million) including the remediation of historic landfills; and
- Enforcement (€37.79 million).

Maintaining this level of funding is essential to the continued delivery of waste services and maintaining the sectors obligations with regard to environmental protection, regulation and enforcement. Ongoing investment will be required to maintain the 'business as usual' level of service, however, this Plan recognises that additional resources will be required to accelerate the transition to a circular economy and these details are presented in **Volume III Chapter 6**.

8.6 MARKET RESOURCES

Significant funding for waste operations and activities comes directly from the wider waste sector including industry. The capital cost of developing existing dedicated waste collection and treatment infrastructure has been borne by the private sector and annual operational expenditure is significant.

However, the level of expenditure and incomes for these operators is not publicly available and this information is not included in **Table 8.5**. Operational costs borne by the private sector are typically recouped through collection charges and gate fees for customers (including the LGS).

In addition to the current cost model presented, there are outstanding infrastructure requirements that were committed to in the RWMP. These requirements are restated in this Plan relating to:

- The development of a 200,000 to 300,000 tonnes of dedicated additional thermal recovery capacity (Policy TP14.2 and estimated at a cost of €200 million in the RWMP to develop and operate this infrastructure by the private sector); and
- The provision of appropriate waste treatment contingency capacity in response to market disruption and/or events which pose a risk to the environment and/or health of humans and livestock (Policy TP15.2 and estimated at circa €10-12 million to develop and operate this infrastructure by the LGS) and a further €2 million annual operational cost.

In terms of funding, these requirements are considered essential to ensure business continuity, however, these items remain outstanding for delivery.

Table 8.5: Funding Model for the Local Authority Waste Function (€million)

Source	National		National		Local	
Central Government	Waste Prevention	€2.67	Waste Enforcement Regional Lead Authorities (WERLA)	€2.37	Enforcement Initiatives	€11.83
	Environmental Awareness	€1.86	Regional Waste Management Planning Offices (RWMPO)	€0.75	Landfill Closure and Aftercare	€2.80
	Anti-Litter Initiatives	€1.18				
	Waste Management Planning	€0.45				
	Total	€6.16	Total	€3.12	Total	€14.63
Local Government	National TransFrontier Shipment Office (NTFSO)	€0.76			Landfill Operation and Aftercare	€35.46
	National Waste Collection Permit Office (NWCPO)	€0.87			Recovery and Recycling Operations	€38.65
					Waste to Energy Operations	€3.49
					Provision of Waste Collection	€6.27
					Waste Enforcement	€37.79
					Waste Management Planning	€7.08
	Total	€1.63	Total	€0	Total	€128.74

8.7 SUMMARY

This chapter has considered the current status of the waste sector and the level of support for waste activities provided by government from a reducing Circular Economy Fund (formerly Environment Fund).

An analysis of local authority income and expenditure across waste functions demonstrates that there is a disproportionate amount of expenditure attributable to Litter Management and Street Cleaning while other operations are also a major strain on local authority finances, including the aftercare of landfills and the operation of Civic Amenity facilities.

Enforcement activities represent a major commitment for the sector.

Of the shared services considered, waste planning is the most under resourced which is significant in the context of the challenges this Plan presents for the sector in the transition to a more circular economy.

Financial deficits have been identified across all waste functions for which potential mitigation measures have been identified.

Key Challenges arising from Part C: The Resources

Volume I, Part C identifies a range of challenges for organisational aspects and resources which must be addressed in the policy and action response presented in **Volume II** of this Plan and the key challenges to be addressed as listed as follows:

- This Plan requires an organisational response from the LGS to enhance the sectors ability to respond to the challenges identified within this Plan.
- The Plan needs to include measures to maintain and enhance established working relationships with key partners and other stakeholders.
- This Plan must be delivered by all stakeholders and a suitable collaborative delivery model is required including shared ownership of action and targets to achieve the ambition of the Plan.
- Local authority expenditure across all waste functions resulted in an overall deficit of €217 million in 2020 and the Plan must include for strategic measures to manage and reduce, where possible, the deficits identified.
- The delivery of local authority waste functions, the maintenance of essential waste services and environmental obligations is achieved with support from both local and central government and to maintain business continuity, this Plan will require a similar level of annual investment.

SUMMARY OF THE CURRENT SITUATION AND CHALLENGES

This document is **Volume I Current Situation and Challenges** and sets out the waste management challenges faced by the State including the legislative rules, the strengths and weaknesses of the existing waste landscape and the financial and human resources required to maintain existing services and to accelerate the transition to a circular economy. Key challenges identified are resources, policy, specific material stream targets, the provision of infrastructure and continued waste growth. The following list highlights the principle challenges facing the sector over the Plan period that must be addressed and accounted for within **Volume II Policy Responses and Actions:**

- This Plan must have the flexibility to respond to the evolving waste, circular and climate policy base and integrate with the wider policy direction to ensure that all policies and actions arising are suitably aligned to manage waste and accelerate the transition to a circular economy.

- Ireland's waste generation is driven by population growth (Ireland's population is growing almost twice as fast as the OECD average) and economic activity (modified GNI increased by 44% from 2015 to 2021). Decoupling waste generation from population and economic output is a clear challenge for this Plan.
- Each of the material streams addressed in this Volume has a circular potential that is not currently being maximised and this Plan needs to both prevent the generation of these streams and to optimise any waste generated to maximise the circular potential.
- An overview of the infrastructure available within the State is presented in this Volume and illustrates that when generation rates are compared to treatment capacity, there remains a deficit which is being managed through waste exports. Continued reliance on export is unsustainable and while an emphasis on prevention and reuse may reduce this reliance, there remains a need for additional indigenous infrastructure which is supported by this Plan.
- Existing organisational arrangements within the waste sector have been largely successful in delivering and maintaining a functioning and regulated waste market. However, the challenge of accelerating the transition to a circular economy requires an appropriate organisational response from the LGS and its key partners. Organisational arrangements must take account of the evolving role of the LGS within the wider waste landscape as it continues the transition from the direct provision of most waste services to an increased planning and regulatory role.
- Total local authority budgeted expenditure across all waste functions in 2021 was €281 million and income was €64 million resulting in an operational deficit of €217 million for 2021. A budget deficit of this scale is unsustainable, and this Plan commits the LGS to the examination of potential measures and strategies to mitigate the deficits in each of the waste functions identified.

The challenges identified in this Plan will require complete collaboration between key partners and all stakeholders to achieve the desired outcomes over the life of the Plan.



Rialtas Áitiúil Éireann
Local Government Ireland