

Chapter 15: Circular Economy and Waste





Circular Economy and Waste

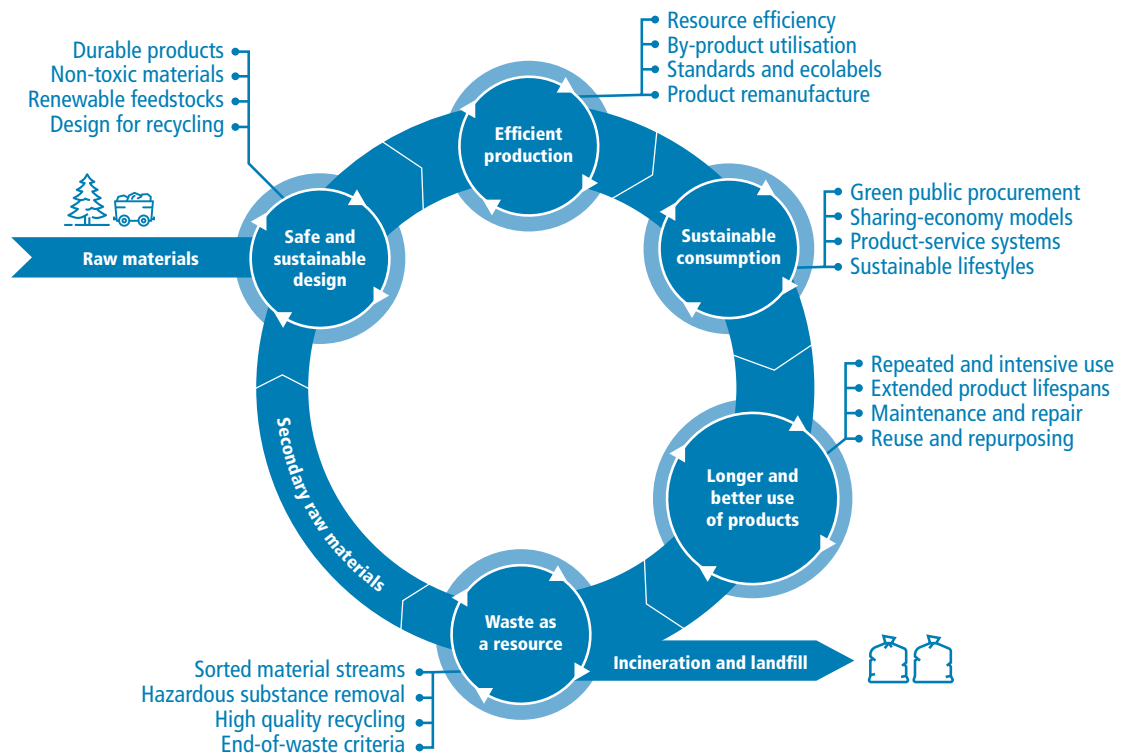
1. Introduction

The circular economy is a 'model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible' (European Parliament, 2023). In striving to use existing resources, materials and products to their fullest extent, the circular economy model is less environmentally damaging than the traditional linear economic model and also promotes growth and prosperity. The traditional linear economic model, and its take–make–consume–throw away pattern cannot be sustained. Through its continued reliance on extracting natural resources and generating significant volumes of waste, the linear model endangers

our climate, biodiversity, water resources and human health. The challenge for Ireland is to move to a circular economy as quickly as possible and in doing so meet key European Union (EU) waste targets.

EU circular economy strategies recognise the need to accelerate the transition from a linear economic model. In March 2020, the European Commission adopted the second Circular Economy Action Plan (EC, 2020). This plan is one of the main building blocks of the European Green Deal (EC, 2021) aiming to transform the EU into a resource-efficient economy with no net emissions of greenhouse gases by 2050. Figure 15.1 depicts the vision for Ireland's circular economy model.

Figure 15.1 Ireland's circular economy model



Source: EPA, 2023b (adapted from EEA¹)

1 www.eea.europa.eu/publications/accelerating-the-circular-economy (accessed 9 July 2024).



2. Circular economy and waste drivers

Legislative and policy drivers

In Ireland, circular economy policy has been slowly developing from waste management policy. The government's Waste Action Plan for a Circular Economy 2020–2025 (DECC, 2020), set out policies to ensure that Ireland meets statutory targets on waste recycling and recovery while also developing its circular economy. The Whole of Government Circular Economy Strategy 2022–2023: Living More, Using Less (DECC, 2021a), Ireland's first national circular economy strategy aims to address the absence of a joined-up national policy framework and the lack of awareness and understanding of circularity among households, businesses and policymakers.



Source: DECC, 2021a

The legislative framework for a circular economy was strengthened with the introduction of the Circular Economy and Miscellaneous Provisions Act (No. 26 of 2022; the Circular Economy Act). The Act provides the legal basis for national circular economy roadmaps, strategies, programmes and targets.

Government policy also committed to reconfiguring the National Waste Prevention Programme, led by the Environmental Protection Agency (EPA), which had been operating since 2004. In 2021, that programme was incorporated into the 2021–2027 Circular Economy Programme, also led by the EPA (EPA, 2021a). This programme is a statutory requirement under the Circular Economy Act and, together with local government's National Waste Management Plan for a Circular Economy,² is a key driver of Ireland's move to a circular economy.

Economic growth

Ireland's National Planning Framework (DHPLG, 2018) and National Development Plan 2021–2030 (DPER, 2021) set out long-term planning and public investment (€165 billion) for the country. The National Development Plan identifies a circular economy's role in creating resilient supply chains. It reiterates Ireland's commitment to strategic investment in the circular economy by reconfiguring the Environment Fund as the Circular Economy Fund and by ensuring that funding is ring-fenced to support projects and initiatives focused on the environment and a circular economy. The plan commits to supporting investment under the government's Circular Economy Strategy (DECC, 2021a).

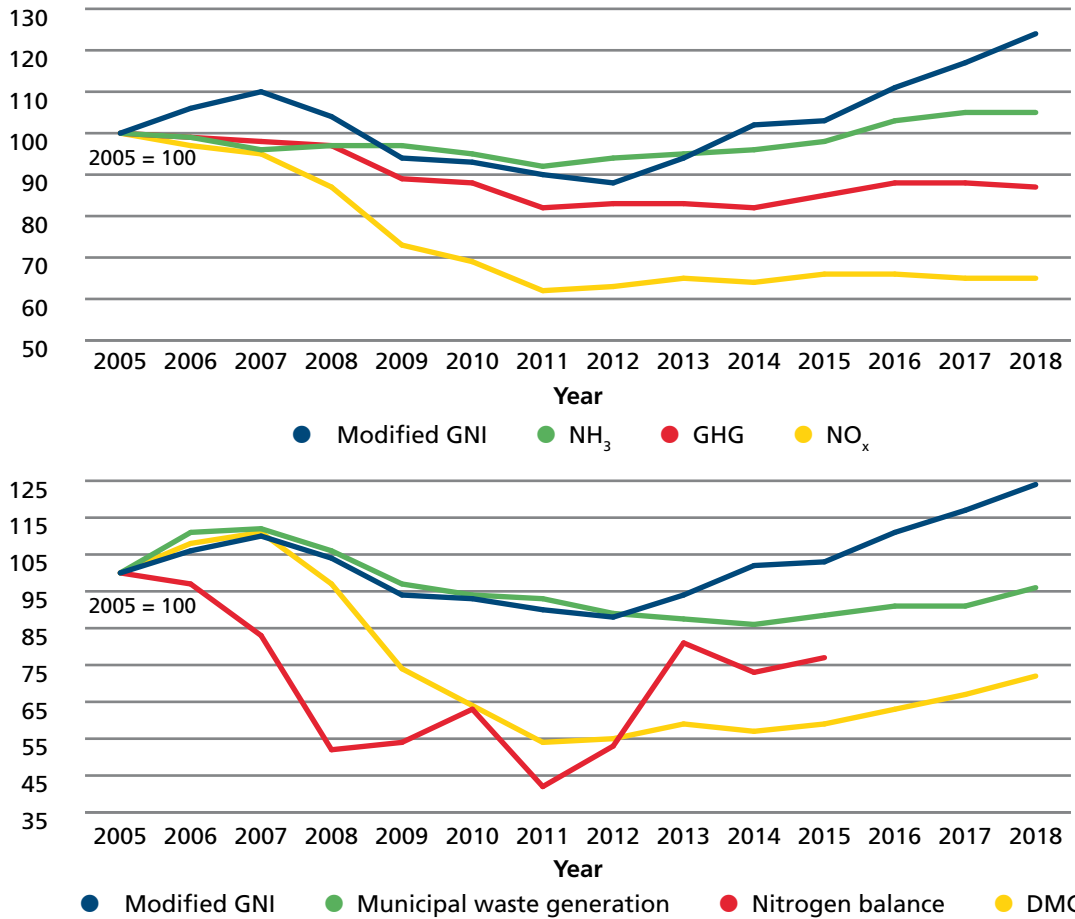
Current capital expenditure supports the transition to a circular economy, although these financial commitments are predicated upon continued expansion in the Irish economy. The circular economy model goes some way towards reframing older economic models of prosperity, which focused largely on measures of gross domestic product and consumption, to consider climate, environmental and social outcomes. Ireland's unemployment rate remains one of the lowest in Europe despite the cost-of-living crisis, which has significantly impacted many households. The Organisation for Economic Co-operation and Development (OECD, 2023) reported that household consumption remained resilient in 2023 due to increases in wages and employment rates and excess pandemic savings. This is reflected in the continued growth in household disposable income.³ The OECD's review of Ireland's environmental performance (OECD, 2021) makes clear that decoupling across planetary boundaries, the limits within which humanity can continue to develop and thrive, is a core priority for Ireland (Figure 15.2). The report notes that 'Significant underinvestment in the wake of the recession affected the quality of infrastructure and slowed down environmental progress. Environmental pressures rose with the fast economic growth 2014–2019.' When considering the actions needed to address the imbalance, the report states that 'a circular economy approach will help increase resilience of supply chains and self-sufficiency.'

2 www.mywaste.ie/national-waste-management-plan/ (accessed 24 June 2024).

3 www.cso.ie/en/interactivezone/statisticsexplained/nationalaccountsexplained/householdgrossdisposableincome (accessed 24 June 2024).



Figure 15.2 OECD review of Ireland’s environmental performance, 2021



Note: Modified GNI: Gross national income in constant prices, excluding highly mobile economic activities that affect the measurement of the Irish economy. GHG: greenhouse gas emissions, without land use, land use change and forestry. Nitrogen balance: calculated as the difference between the nutrient inputs and the nutrient outputs. NO_x: Nitrogen oxides. DMC: domestic material consumption, the sum of domestic extraction of raw materials used by an economy and their physical trade balance.

Source: OECD, 2021. © OECD

Waste generation in Ireland continues to follow our economic patterns as we continue to fail to break the link between, or decouple, waste generation and economic growth. The European Environment Agency (EEA) states that the only true way to decouple waste generation is through waste prevention (EEA, 2021). The EEA proposes new indicators to improve the effectiveness of monitoring waste prevention across Europe (EEA, 2023). These include a refocus on more quantitative measures to track and monitor waste prevention.

Population growth

Waste generation in Ireland is linked to population growth through material consumption (Topic Box 15.1). Population growth is one of the main drivers of waste generation (EPA, 2022). Ireland’s population increased by 8% between 2016 and 2022. For the first time in 171 years, Ireland’s population exceeded 5 million, with 5,149,139 people usually resident in Ireland in 2022. Ireland’s population is forecast to rise substantially, to 6.7 million, by 2051 (CSO, 2021).⁴

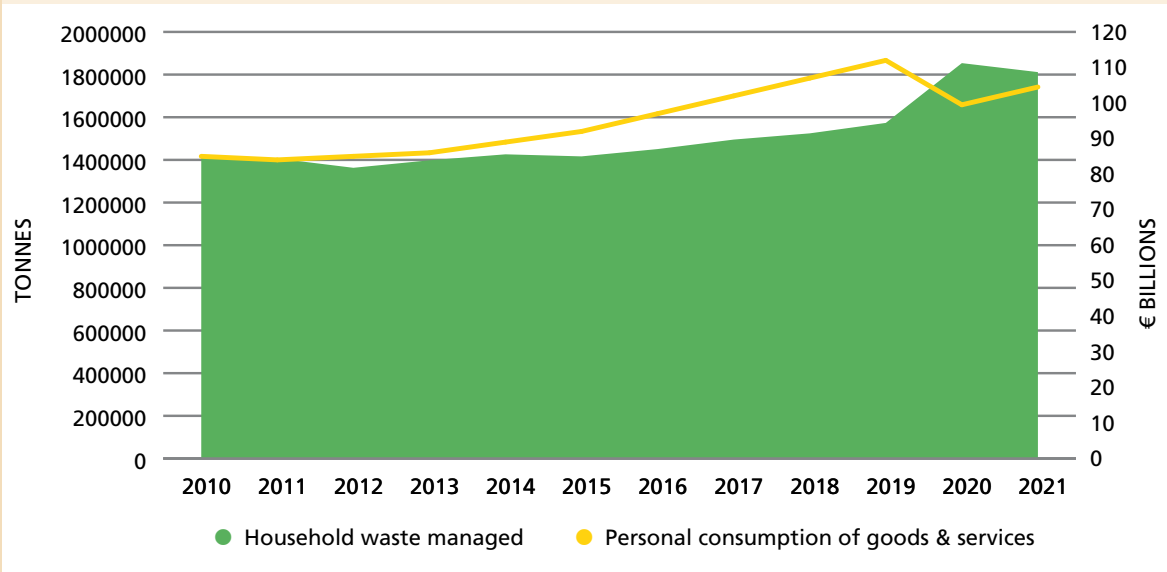
4 www.cso.ie/en/releasesandpublications/ep/p-plfp/populationandlabourforceprojections2017-2051/populationprojectionsresults/ (accessed 24 June 2024).



Topic Box 15.1 Focus on household waste

In 2021, 1.81 million tonnes of household waste were managed in Ireland. This equates to 361 kg/person, up from 314 kg/person in 2018. There has been an overall increase in the amount of household waste managed per capita in Ireland since 2010 (EPA, 2022), with a pronounced increase in 2020 due to the COVID-19 pandemic (Figure 15.3). The challenge for Ireland is to reverse this trend and reduce waste growth per capita.

Figure 15.3 Household waste managed and consumption of goods and services, 2010–2021



Source: Adapted from EPA, 2023b

The overall growth in household waste is concerning and is strongly related to high levels of consumption. Waste produced by households needs proper management, defined by good separation of materials to support and increase recycling rates. There is an opportunity for consistent segregation practices to ensure that recyclables and food waste are separated from residual waste. Waste characterisation surveys⁵ have found that only 36% of the materials found in black bins should have been placed there (Figure 15.4). The other 64% should have been separated and collected through the organic bin, dry recyclables bin or bring bank system.

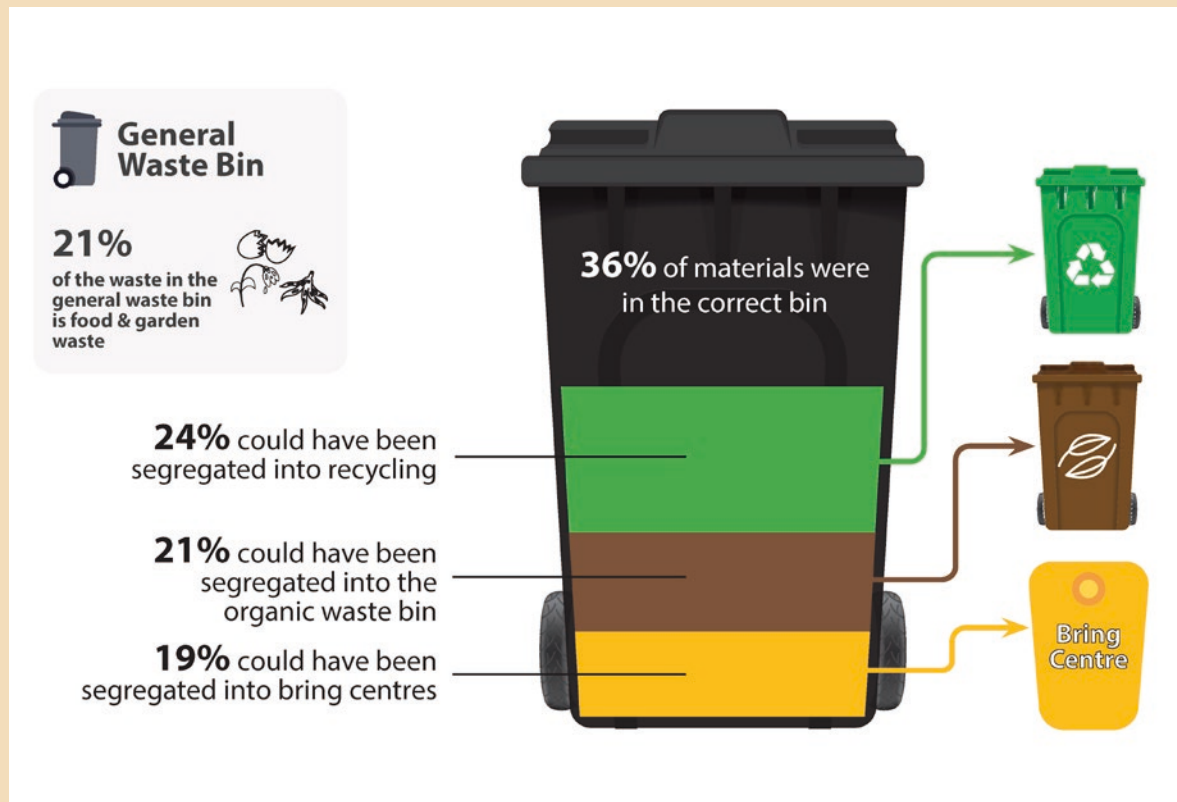


⁵ www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/waste-characterisation/ (accessed 24 June 2024).



Topic Box 15.1 Focus on household waste (continued)

Figure 15.4 Summary of the percentage of different waste materials found in household general waste bins



Source: EPA, 2023a

Production models and consumer behaviour

The Eighth Environmental Action Programme (Decision (EU) 2022/591) calls for a significant reduction in the EU's consumption footprint to bring European consumption-related impacts within planetary boundaries. This will require substantially transforming production and consumption systems.

Reporting on environment and climate pressures from household consumption in Europe, the EEA⁶ stated that: 'unprecedented sustainability challenges from accumulating environmental and climate pressures and impacts – to a large extent caused by unsustainable consumption – require a fundamental shift in our production and consumption systems in Europe and beyond'.

6 www.eea.europa.eu/publications/environment-and-climate-pressures-from/environment-and-climate-pressures-from (accessed 24 June 2024).



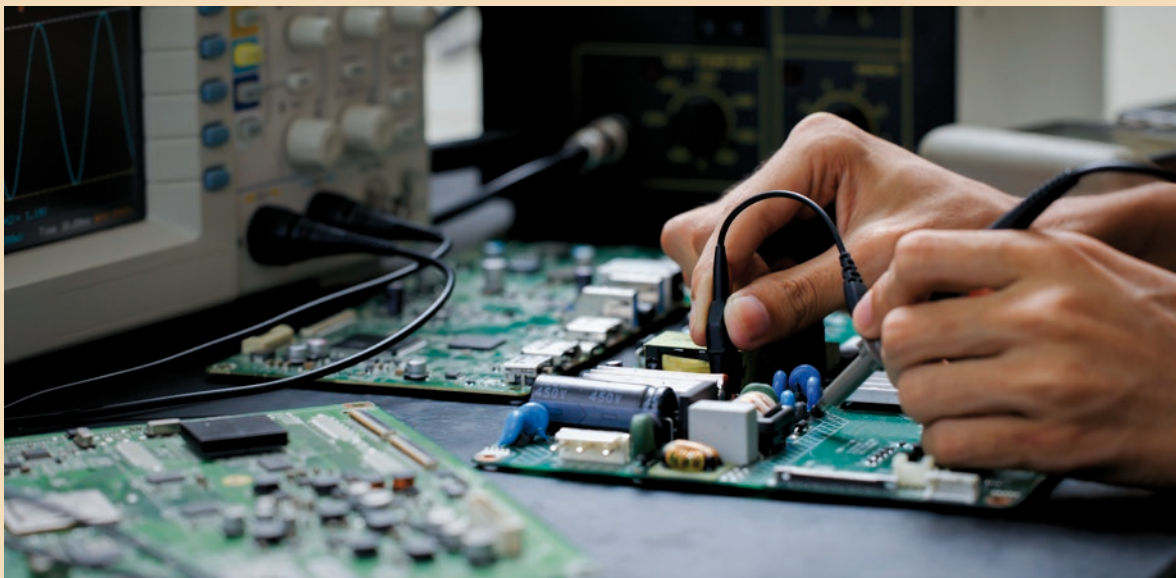
The economic value of household expenditure in Ireland increased by 50% between 2014 and 2022 (from €80.6 billion to €120.9 billion). Consumption had dropped by 10% between 2019 and 2020, mainly because of the COVID-19 pandemic-related downturn. The three areas of household consumption responsible for the greatest household expenditure in Ireland in 2022 were: food (28.7%), housing (28%) and services (21.3%).⁷

The Waste Action Plan for a Circular Economy 2020–2025 (DECC, 2020) clearly states that waste policy can no longer be limited to considering how to treat the waste we produce, an approach that is implicitly based on a linear, or take–make–consume–throw away model that cannot be sustained. Our policy focus must be broader and look at how people consume materials and resources and how the products that households and businesses use can be better designed (Topic Box 15.2) to prevent waste generation and resource consumption and extend the productive life of all goods and products in our society and economy.

Topic Box 15.2 Regulating for circular design of future products

The OECD report *The Circular Economy in Ireland* (OECD, 2022) states that ‘circular waste management starts with ensuring that products are built to last by promoting or mandating ecodesign across the entire product life cycle.’

The current legislation related to ecodesign in Ireland is the EU Ecodesign Directive on energy-related products (2009/125/EC). The European Commission’s Ecodesign for Sustainable Products Regulation⁸ (2024/1781/EC) came into force in July 2024. This Regulation will allow the EU to set design requirements for a wide range of products to be sold in the EU with the aim of extending the lifetime of products, making them more resource-efficient, and making them easier to repair and recycle. A digital product passport will be introduced for all products regulated. The Regulation also bans the destruction of unsold textiles and footwear by large and medium enterprises, which will help reduce waste. The European Commission is also progressing legislation⁹ supporting the right to repair for consumers, which will make it easier and more cost-effective to repair goods. These proposals are part of the Commission’s sustainable products initiative, which aims to improve the design and reparability of products to extend their useful life.



7 ec.europa.eu/eurostat/databrowser/view/NAMA_10_CO3_P3/default/table?lang=en (accessed 24 June 2024).

8 commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products-regulation_en (accessed 25 July 2024).

9 Directive (EU) 2019/771 on common rules to promote the repair of goods for consumers.

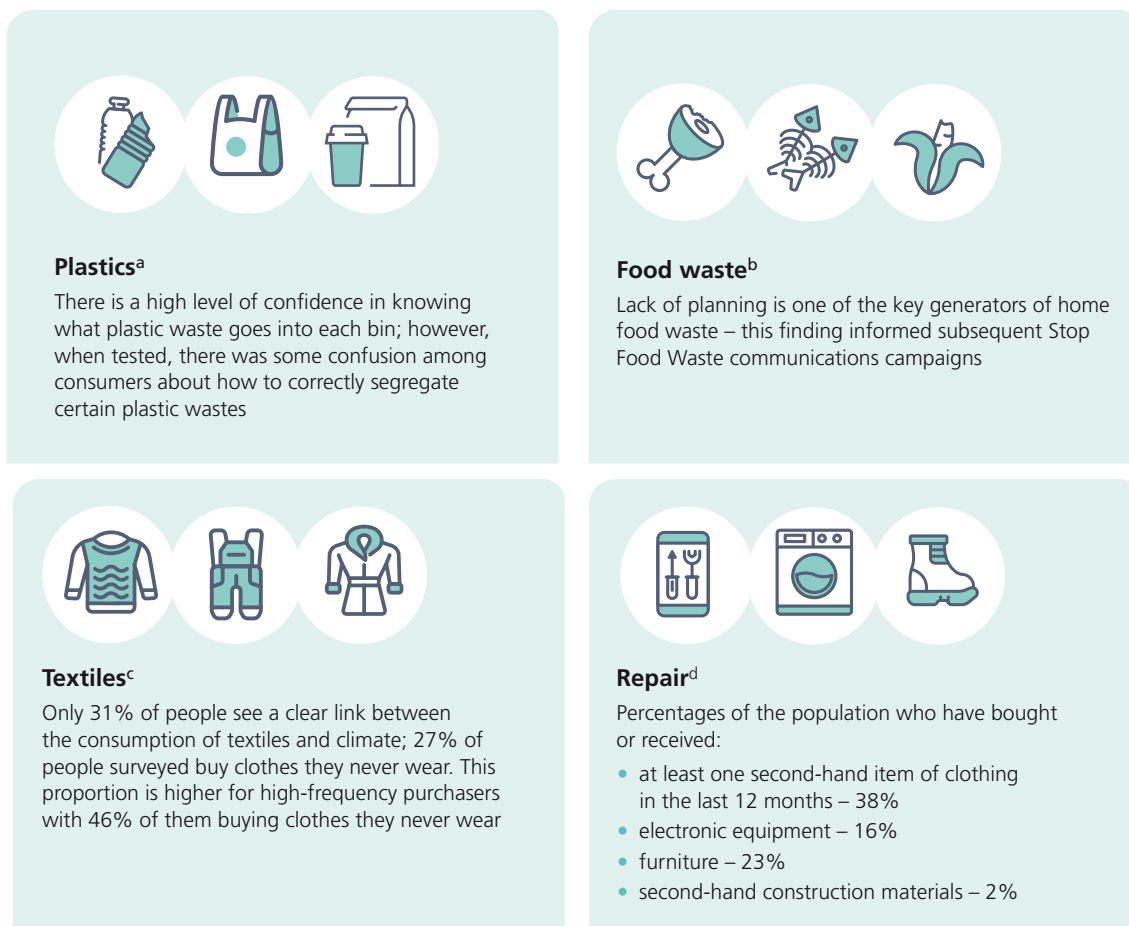


Transition to a circular economy and its associated behavioural change will require action from all sectors of society. Positive practices and behaviours will need to be promoted while “bad habits” – built up over many years – will need to be discouraged or prohibited. (DECC, 2020)

It is clear that engaging the public and businesses to take action to support the implementation of a circular economy in Ireland requires insights and evidence to understand behaviours, knowledge and attitudes. Behavioural insights studies can inform evidence-based

communication campaigns about waste and the circular economy and can inform policy. Figure 15.5 sets out a sample of the EPA’s work seeking insights into consumer waste management behaviour.

Figure 15.5 Findings of EPA-commissioned consumer surveys on circular economy behaviour



Sources:

- www.epa.ie/publications/circular-economy/resources/plastics-attitudes-and-behaviours-in-ireland-2019---2021 (accessed 24 June 2024).
- www.epa.ie/publications/circular-economy/resources/food-waste-attitudes-and-behaviours-in-ireland-2021 (accessed 24 June 2024).
- www.epa.ie/our-services/monitoring--assessment/circular-economy/textiles-national-attitudes--behaviours-surveys/textiles-national-attitudes--behaviours-survey-2021/#d.en.102826 (accessed 28 June 2024).
- www.epa.ie/publications/circular-economy/resources/EPA-Repair-National-Survey-2022-The-Repair-Economy.pdf (accessed 24 June 2024).



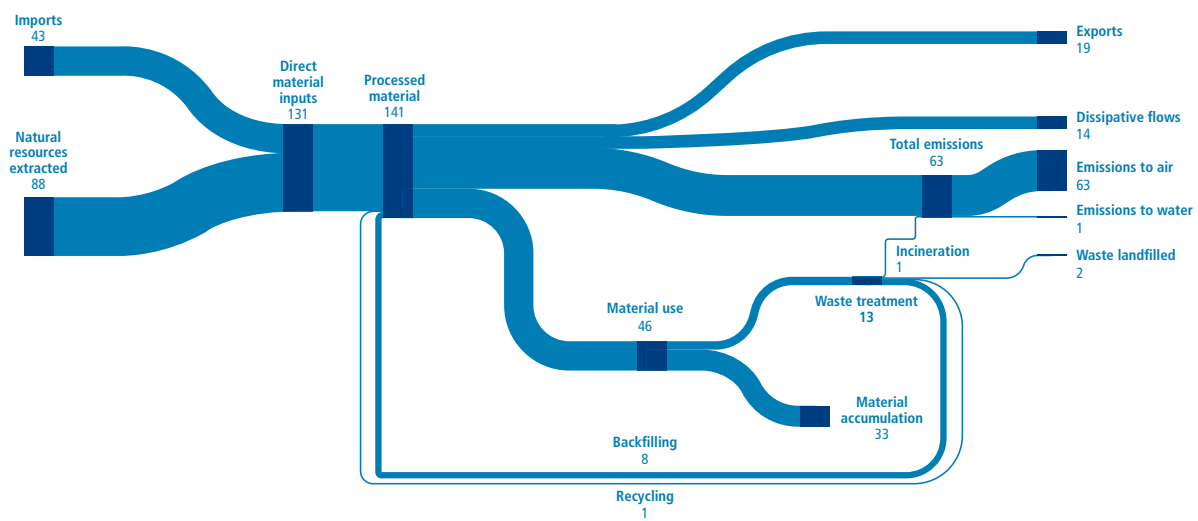
3. Current situation

Material consumption

Analysis of how materials flow¹⁰ through the economy can help to identify waste and environmental emissions that would otherwise go unnoticed in conventional economic monitoring systems. It can also allow the exploration of solutions. As shown in Figure 15.6,

Ireland's open economy consumed over 140 million tonnes of goods and primary raw materials in 2022: 31% from abroad and 69% extracted in Ireland. Of the inputs to the Irish economy in 2022 (141 million tonnes), only 28% (39 million tonnes) of materials was accumulated, 14% (19 million tonnes) was exported and 1% (1 million tonnes) was recycled.

Figure 15.6 The flow of material inputs to and outputs from the Irish economy, 2022 (million tonnes)



Source: Eurostat¹¹

The circular material use rate, or circularity rate, is a measure of material reused, recycled and recovered and fed back into the economy. In 2022, Ireland's material circularity rate was 1.8%, while the average circularity rate in the EU was 11.5%. We are currently out of step with other Member States.

A recent EPA research report recommends interventions such as improving the domestic recycling of construction and mineral wastes while reducing the primary consumption of these materials (McCarthy *et al.*, 2024) to improve our circularity rate. The data suggest that there is significant scope to improve Ireland's material circularity rate, which is low by European standards, by reducing the extraction of natural resources and encouraging greater material efficiency and use of secondary materials. A higher circularity rate would mean that more secondary materials would be in use and would replace primary raw materials, thus reducing the environmental impacts of extracting raw materials.

10 The CSO, in compliance with Regulation (EU) No. 691/2011 on European environmental economic accounts, compiles this data for Eurostat. It is presented in Figure 15.6.

11 Click here to see the full EUROSTAT data timeseries and for more information on the material sources, flows and stages: ec.europa.eu/eurostat/cache/sankey/circular_economy/sankey.html?geos=EU27&year=2022&unit=MIO_T&materials=TOTAL&highlight=&nodeDisagg=0101100100&flowDisagg=false&language=EN&material=TOTAL flow diagrams (europa.eu) (accessed 29 June 2024).

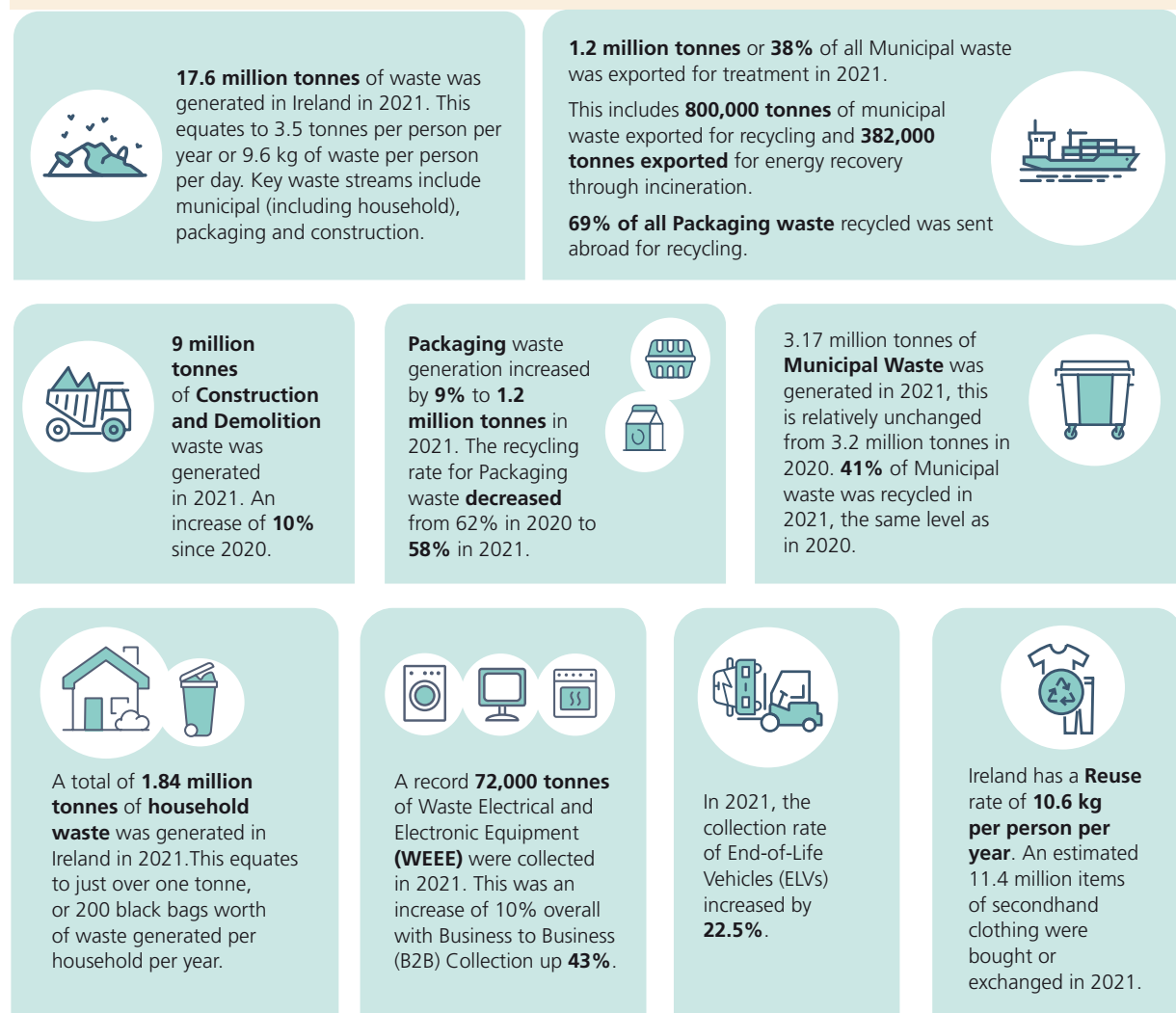


Waste generation and management

Waste generation is a subset of the flow of materials through the economy (Figure 15.6). In 2021, waste generated by Ireland's linear economy increased¹² to 17.6 million¹³ tonnes (3.38 tonnes per person), up from 12.7 million tonnes (2.77 tonnes per person) in 2012 (Figure 15.7).

Increasing consumption and the current economic model of production using natural resources rather than secondary materials are leading to a growing waste generation problem (Figure 15.8).

Figure 15.7 Circular economy and waste data highlights, 2021



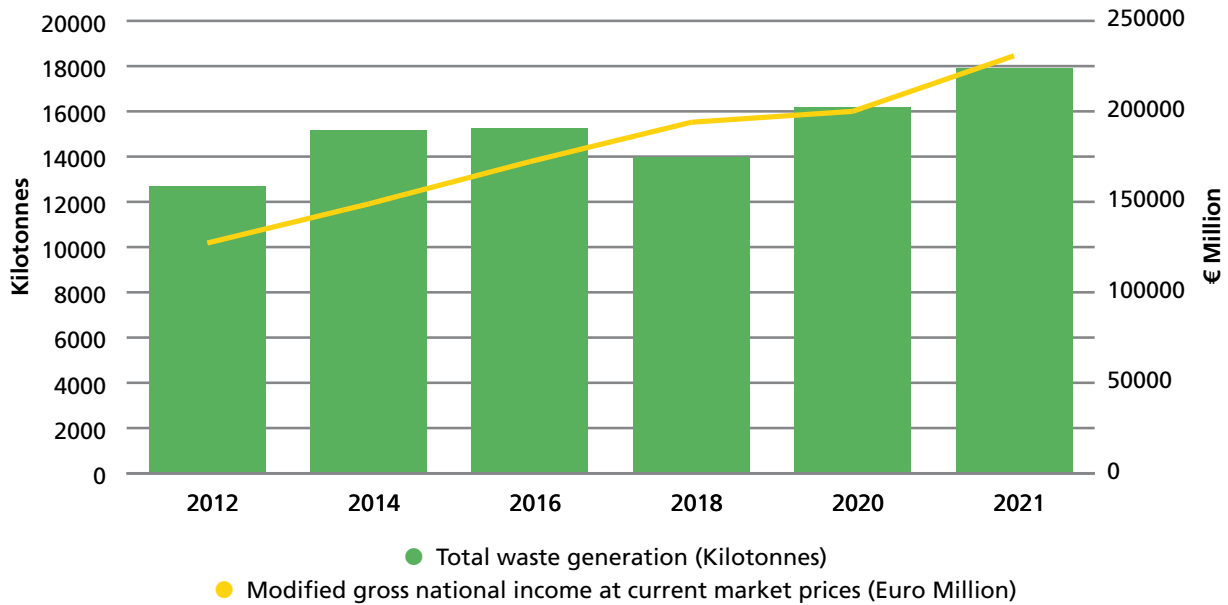
Source: EPA, 2023b

12 Central Statistics Office (CSO) Waste Statistics Waste Generation 2020. Overall waste generation figure calculated biennially by CSO using EPA waste data in this report and scaled up for other industries/businesses: ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics (accessed 24 June 2024).

13 www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/waste-generation/ (accessed 24 June 2024).



Figure 15.8 Trends in waste generation (tonnes) and modified gross national income, 2012–2021



Source: EPA, 2023b

Households, offices, schools and similar premises generated 3.2 million tonnes of municipal waste¹⁴ in 2021, 41% of which was recycled. In 2021, 1.2 million tonnes of packaging waste was generated, an increase of 9% from the previous year (and an increase of 25% since 2016). Although recycling tonnages are increasing, improvements in recycling rates are being cancelled out by the increasing amount of waste generated. The amount of municipal waste recycled has increased by 11% since 2016, but total municipal waste generated also increased by 11%, resulting in a static recycling rate of 41%. The recycling rate of packaging waste has increased by 8% since 2016. However, this is just one-third of the rate of the increase in packaging waste generated (25%). Consequently, the packaging recycling rate decreased from 62% in 2020 to 58% in 2021. Current trends (Figure 15.9) mean that the statutory targets for 2025 are likely to be missed.

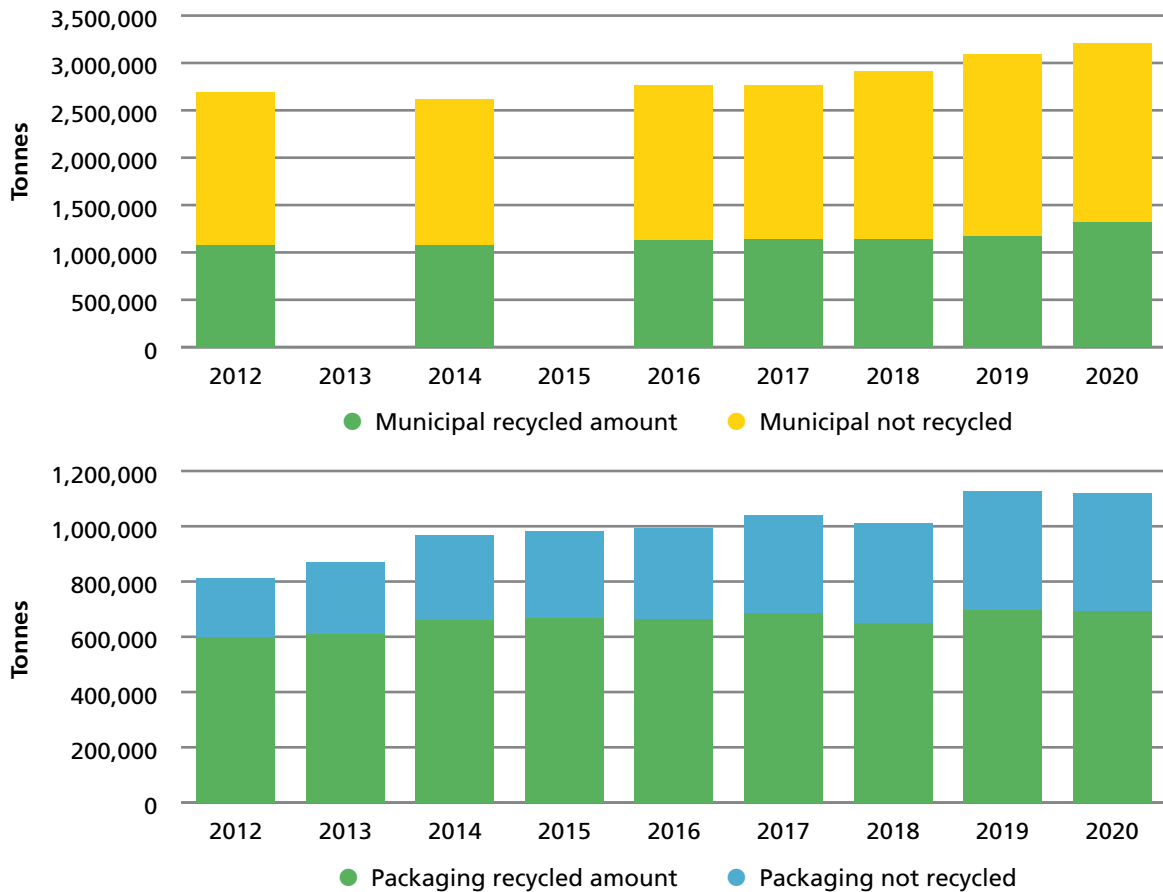
Reducing packaging waste generation is key to improving the current trends. Measures needed include avoiding packaging where possible; improving product design, including using lightweighting materials and more recyclable materials; and increasing the use of reusable products in supply chains, supported by targeted fiscal incentives.

Food waste. Food waste can occur at any point along the food supply chain, from primary production to processing and manufacturing, from retail and distribution (unsold stock) to restaurants, and food services (food uneaten by customers) and households (purchased food uneaten).

It is a global problem that has environmental, social and economic consequences. The urgency and challenge of addressing food waste is highlighted at the international level through Target 12.3 of the United Nations' Sustainable Development Goals (UN, 2020), which states: '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.' Tackling food waste is one of the key steps that we can take to achieve sustainability, to help combat climate change and to support the transition to a circular economy and bioeconomy (see 'Bioeconomy').

The EPA estimates that Ireland generated over 753,000 tonnes of food waste in 2021, a decrease of 2% from 2020. Approximately 29% of the total comes from households, another 29% from the processing and manufacturing sector, and the remainder comes from restaurants and food service (25%), primary production (7%) and retail and other distribution of food (10%).

14 For the most up-to-date statistics on waste generation and management in Ireland, see www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics (accessed 24 June 2024).


Figure 15.9 Trends in municipal and packaging waste generation and recycling


Source: EPA, 2023b

Construction and demolition waste. Construction waste accounts for over half of the total waste currently being generated in Ireland. Excavated soil and stone waste makes up about 85% of the total; the remainder includes concrete, brick, tiles, glass, metal, plastic and wood. Approximately 8% of total Irish construction and demolition waste is recycled or reused, with most being used as backfilling¹⁵ material and some being sent for disposal. Based on 2021 figures, approximately 8.2 million tonnes of construction and demolition waste was backfilled (7.65 million tonnes) or disposed of at landfills (0.6 million tonnes). Given that so much of this waste is potentially preventable, reusable or recyclable, this is an unnecessary and largely avoidable cost for the construction industry. It also has very negative environmental consequences in terms of carbon emissions, waste capacity and Ireland's material circularity

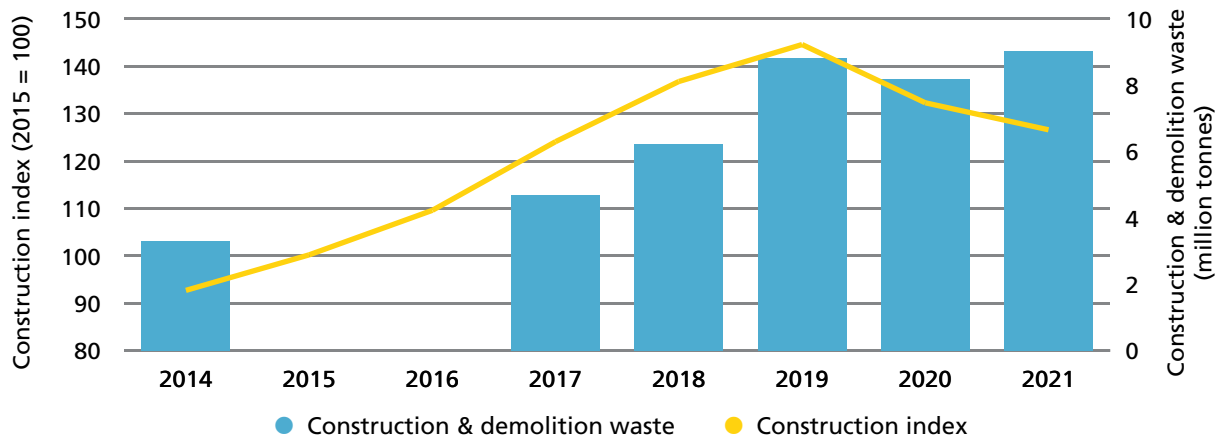
rate. The EPA has introduced national by-product and end-of-waste decisions for construction-based materials to reduce construction waste and to encourage increased reuse and recycling activities (see further information in section 5).

In Ireland, construction waste is the fastest growing waste stream and is increasing at an alarming rate (see Figure 15.10). The amount of construction and demolition waste rose to 9 million tonnes in 2021 from 3 million tonnes in 2014.

¹⁵ Backfilling is a waste recovery operation carried out at an authorised waste facility, where suitable soil and stone waste is used for land improvement, for reclamation purposes in excavated areas, or for engineering purposes in landscaping. Backfilling sits one tier above landfill but below recycling and reuse on the waste management hierarchy.



Figure 15.10 Quantity of construction and demolition waste managed in Ireland, compared with the Central Statistics Office construction index, 2014–2020



Sources: Compiled from data from the EPA, NWCPO and CSO

Infrastructure capacity to treat waste

Ireland remains overly reliant on export markets for the treatment of waste streams including residual municipal waste, hazardous waste, packaging waste and, more recently, biowastes. There is limited resilience in the system to deal with market shocks or unforeseen events that give rise to additional quantities of waste. Improving Ireland's self-sufficiency in treating our waste and expanding domestic residual and recycling capacity is of utmost importance in terms of building resilience and a national circular economy.

The capacity to manage municipal and construction and demolition wastes continues to be under pressure, particularly for hazardous soil and stone wastes. The most significant change in recent years has been the shift away from disposing of residual (i.e. black bin) waste in landfills to instead using it in energy recovery. Almost 3.2 million tonnes of municipal waste was generated in Ireland in 2021, up 4% from 2019. Of the municipal waste managed in Ireland in 2021, 41% was recycled, 43% was treated with energy recovery (waste-to-energy installations and cement kilns, down from 46% in 2019) and 16% was sent to landfills¹⁶ (up slightly from 15% in 2019) (Figure 15.10).

Ireland's dependence on waste exports for the management of various waste streams also continues. Approximately 38% (1.2 million tonnes) of all municipal waste generated in 2021 was exported for treatment mainly in other EU Member States. Of the waste exported, most went for recycling (58%) or energy recovery (32%), while 8% went for composting or anaerobic digestion.

Hazardous waste. Similarly, the dependence on exports for the management of hazardous waste generated in Ireland persists. Industry is the largest generator of hazardous waste in Ireland (solvents, sludges, oils, chemicals) but other sectors also produce hazardous wastes, including paints, batteries, pesticides, asbestos and contaminated soil.

Ireland generated 389,908 tonnes of hazardous waste in 2022, a decrease of 16% (over 77,000 tonnes) from 2021. This decrease was driven by reduced dredging activities at Dublin Port, with dredged spoil quantities falling by almost 65,000 tonnes. In 2022, 57% of hazardous waste was treated abroad and 43% (169,000 tonnes) was treated in Ireland.

There are limited hazardous waste treatment operations in Ireland (these are mainly used for oil recovery, healthcare waste treatment and solvent reclamation), meaning that Ireland is heavily dependent on export for the treatment of many hazardous waste streams. The reliance on exports also highlights a possible missed opportunity for the treatment of more hazardous wastes in Ireland from an economic and circular economy perspective.

16 mywaste.ie/wp-content/uploads/2024/05/National-Waste-Management-Plan-for-a-Circular-Economy-Volume-I-Current-Situation-and-Challenges.pdf (accessed 23 September 2024).



Treatment capacity. In terms of waste infrastructure, Ireland has three active landfills that are authorised to accept municipal and other waste types (down from six in 2016 and 125 in 1996). There are also three waste-to-energy installations (two active incinerators and one inactive pyrolysis plant) and four cement kilns (accepting waste for co-incineration as an alternative to using fossil fuels). There is still no commercial hazardous waste landfill or hazardous waste incinerator in Ireland. This lack of infrastructure is a risk to the State, as Ireland

remains reliant on facilities in European countries accepting exports of residual non-hazardous and hazardous wastes.

The EPA and the local authorities, through the regional waste management planning offices, regularly monitor waste treatment capacities nationally. Table 15.1 sets out the status of key elements of Ireland's waste infrastructure and capacity.

Table 15.1 Waste infrastructure and capacity, 2023

Infrastructure	Name and licence number	Authorised and Active Capacity (tpa) ^a	Comments
Landfills accepting municipal and other waste for disposal and recovery	Drehid Waste Management Facility (W0201-03) Knockharley Landfill Ltd (W0146-04) Ballynagran Landfill Ltd (W0165-02)	735,000	Waste types accepted and available capacities as per individual licence
Municipal waste-to-energy facilities	Meath Waste-to-Energy (W0167-03) Dublin Waste to Energy Ltd (W0232-02) Glanpower Ltd (W0282-01)	975,000	Glanpower Ltd is not active (May 2024)
Co-incineration of waste at cement kilns	Irish Cement Ltd, Platin (P0030-06) Irish Cement Ltd, Castlemungret (P0029-06) Breedon Cement Ireland Ltd (P0487-07) Mannok Cement Ltd (P0378-03)	787,875	Waste types accepted and available capacities as per individual licence
Composting and anaerobic digestion	18 facilities	968,100	Does not include industrial/agricultural facilities that treat their own waste
Soil and stone recovery capacity	20 facilities	5,700,000	Includes capacity of 2 inert landfills which accept soil and stone wastes
Civic amenity sites ^b	96 local authority civic amenity sites (in addition, there are approximately 20 private civic amenity sites)	–	–
Bring banks	Over 1800 bring banks	–	–
Pay-to-use compactors	Over 30 compactors	–	–

^a Limitations to different waste types and quantities are defined within each licence

^b Source: National Waste Management Plan for a Circular Economy, Volume 1¹⁷

17 mywaste.ie/wp-content/uploads/2024/05/National-Waste-Management-Plan-for-a-Circular-Economy-Volume-I-Current-Situation-and-Challenges.pdf (accessed 1 July 2024).



Waste enforcement

In Ireland, waste enforcement is undertaken by local authorities supported by the Waste Enforcement Regional Lead Authorities (WERLAs) shared service model, the National Transfrontier Shipment Office and the EPA (Table 15.2). The National Waste Enforcement Steering Committee (NWESC) was set up in 2016 to coordinate and support waste enforcement priorities nationally across several government agencies. The committee is co-chaired by the Department of the Environment, Climate and Communications (DECC) and the EPA and

it has set five high-level priorities for waste enforcement activities for 2022–2024 (DECC, 2021b):

1. tackling significant illegal waste activity
2. construction and demolition activity
3. End-of Life Vehicles Directive and the waste metal industry
4. waste collection – household and commercial
5. producer responsibility initiatives and additional local priorities.

Table 15.2 Responsibilities of the waste enforcement bodies in Ireland

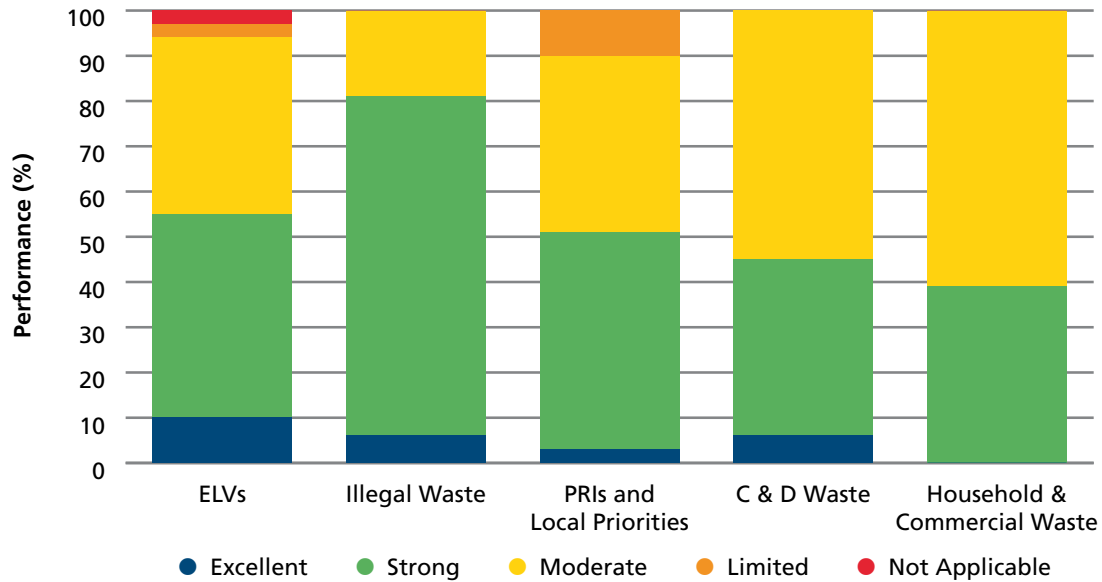
Regulator	Responsibilities
EPA	<p>Enforcement of licensed activities – all disposal activities, all hazardous waste and incineration activities. Recovery activities over thresholds set out in legislation.</p> <p>Enforcement of certificate of registration sites and certificate of authorisation sites (historic landfills) issued to local authorities.</p>
Local authorities <ul style="list-style-type: none"> ■ Waste enforcement regional lead authorities (WERLAs) ■ 31 functional areas 	<p>Three regions (Eastern Midlands, Southern and Connacht-Ulster) with lead local authorities that coordinate local authority waste enforcement actions.</p> <p>Monitoring and enforcement of household waste kerbside collectors.</p> <p>Enforcement of priority sites and operators.</p> <p>Enforcement of permitted waste facilities (recovery activities below certain thresholds set out in legislation) and certificate of registration sites issued to private sector.</p> <p>Enforcement of waste collection permits, which are authorised by the National Waste Collection Permit Office at Offaly County Council.</p>
National TransFrontier Shipment Office at Dublin City Council	<p>Competent authority for imports and exports of waste and transport of hazardous waste within Ireland.</p>

Local authority personnel are the first responders to specific breaches of waste legislation and have significant powers to tackle illegal waste activity (DECC, 2021c). In 2022, local authorities handled approximately 62,000 waste complaints, carried out over 135,000 waste inspections and initiated 580 waste prosecutions (excluding litter). This work represents 90% of all environmental complaints received by local authorities, almost 70% of all local authority environmental inspections and 93% of the environmental prosecutions undertaken by local authorities (EPA, 2023c).

The WERLAs are a shared service governed by the local government sector through the *County and City Management Association* and have responsibility for coordinating the waste enforcement actions undertaken by local authorities within regions. Other responsibilities include monitoring and enforcement of household waste kerbside collectors and undertaking enforcement of priority sites and operators.



Figure 15.11 Overall performance of local authorities on national waste enforcement priorities, 2022



Source: EPA, 2023c

Section 63(2) of the EPA Act, as amended (No. 6 of 2023), provides for the EPA to carry out an assessment of the performance by a local authority of a statutory function of that authority in relation to environmental protection. This includes waste enforcement. The EPA carries out annual assessments of each local authority using the Local Authority Performance Framework to deliver the annual *Focus on Local Authority Environmental Enforcement Performance Report*. In relation to waste enforcement, the 2022 report found evidence of effective enforcement and collaboration by local authorities on combating illegal waste activities (Figure 15.11) while also identifying that further improvements could be made in relation to enforcement in the construction and municipal waste sectors (EPA, 2023c). The WERLAs publish an annual report that details how the national waste enforcement priorities are being addressed at a local authority level.

Licensed activities. In the EPA, waste enforcement is undertaken by the Office of Environmental Enforcement. In 2023, the EPA identified five priority areas for waste enforcement at licensed activities. It also undertook 369 inspections in the waste sector to assess:

1. controls in place to address fire risk at waste transfer facilities
2. aftercare at closed, unlined landfills and impact on groundwater and surface water bodies

3. nuisance issues at waste processing facilities
4. process management at anaerobic digestion plants
5. compliance as part of multi-agency enforcement activities.

The inspections found the following:

1. Fire remains a significant risk at waste transfer facilities (16 fires occurred during 2022–2023). Fire has the potential to remove the waste processing capacity needed to effectively service the market from the sector. The causes of these fires vary and include hot ashes, lithium batteries and pressurised cylinders/aerosols being inappropriately placed into the general waste stream, poor operational practices during plant maintenance (welding), poor housekeeping resulting in mobile plant overheating and anti-social behaviour.
2. Nine closed, unlined landfills operated by local authorities were identified as placing significant pressures on groundwater bodies. Poor aftercare may result in those water bodies failing to meet the Water Framework Directive (2000/60/EC) objectives of having, at minimum, good status. A leachate extraction system is critical infrastructure required to prevent pollution. Between 2021 and 2023, the EPA prosecuted four local authorities for failing to adequately manage leachate arising from closed landfills.



3. In 2023, the EPA handled 99 odour and six noise complaints relating to waste transfer facilities.
4. As a developing sector in Ireland, anaerobic digestion has the potential to displace fossil gas and decarbonise Ireland's agriculture sector. Six plants, licensed by the EPA, are operational. Significant compliance issues have arisen at these facilities, including inadequate process control, odour nuisance and digestate management. Developing appropriately skilled workers and technical capabilities at these plants is required to ensure compliance with licence conditions and to protect the environment.
5. The EPA has worked with local authorities, WERLAs, An Garda Síochána, the National Transfrontier Shipment Office and the three regional waste management planning offices on multi-agency enforcement. Activities have focused on improving compliance at authorised treatment facilities and metal sites, minimising the risk of national waste capacity shortfall, enforcing EPA guidance on waste acceptance criteria in the soil recovery sector and tackling contaminant levels in the recycling waste stream.

The EPA has developed a system for ranking industrial and waste licensed sites in order of priority for enforcement action and publishes its findings quarterly in a list of national priority sites.¹⁸ Sites are ranked on performance-based indicators (see Chapter 10).



4. Pressure and impacts

The current linear economy consumes materials to provide a higher standard of living in Ireland than that experienced by previous generations or available in other parts of the world. The system of extraction of primary materials, manufacture and disposal frequently puts obstacles in the way of circular economy activities. While a circular economy aims to design waste out of the system, it also requires measures that inhibit linear activities such as removing the following: certain single-use products, the practice of built-in obsolescence and high repair costs compared with the cost of new purchases. The linear approach is facing significant limiting factors that are causing damage to our society and environment:

- **High rates of material extraction.** Using primary materials rather than secondary materials is the norm in Ireland (Figure 15.6). This is evidenced by Ireland's low material circularity rate (1.8% in 2022 compared with an EU average of 11.5%), indicating a linear flow of materials. A more circular economy keeps resources and materials in use for longer and can reduce emissions from Ireland's extractive, agricultural and industrial activities. A recent international report¹⁹ highlighted the potential influence of a circular economy in mitigating the effects of climate change. It states that as much as 296 million tonnes of carbon dioxide per year (of the 530 million tonnes emitted from heavy industry) could be removed across the EU by 2050 – and some 3.6 billion tonnes per year globally.
- **High rates of waste generation.** A common theme across all waste types is one of increasing generation. Recycling rates are static because increases in wastes being recycled cannot keep up with waste generation increases. There is no indication that these trends are changing.

¹⁸ National priority sites list: www.epa.ie/our-services/compliance--enforcement/whats-happening/national-priority-sites-list/ (accessed 24 June 2024).

¹⁹ www.sitra.fi/en/publications/circular-economy-powerful-force-climate-mitigation/ (accessed 24 June 2024).



- **Biodiversity loss and land use change.** Extraction of resources (such as biomass, metal, minerals and peat) is contributing to the loss of Ireland's biodiversity and ecosystems (see Chapter 7). Globally, extracting and processing material resources accounts for 90% of biodiversity impacts (UNEP, 2019). Healthy ecosystems play a key role in climate resilience by absorbing and accumulating carbon dioxide from the atmosphere. Our current consumption of materials coupled with Ireland's poor circularity rates contribute to biodiversity loss, climate change, disruption to land management practices (see Chapter 5) and emissions to air and water.
 - **Reliance on export for waste treatment.** Ireland's increasing waste generation rates and inability to treat all our own waste domestically has led to a reliance on exporting waste for treatment. At the same time, there is a reliance on lower tier treatment (e.g. disposal and recovery), rather than higher tier treatment such as prevention, reuse and recycling. Although there may always be a need to rely on other Member States for some waste treatment options, there are opportunities to increase the contribution of Ireland's recycling sector to the circular economy of the future.
 - **High consumption rate.** Ireland is a large consumer of materials, as evidenced by our increasing waste generation rates (3.25 tonnes per person in 2020, up from 2.77 tonnes per person in 2012). All materials have carbon built into their supply chain. This can be released when the waste is treated, including when the material is recycled. Every tonne of material used contributes to our carbon emissions. To reduce our emissions, our current production models and consumption habits need to change. We need to tackle the linear economic model and take strong and urgent action to make it easier and affordable to prevent waste, increase reuse and expand recycling activities.
- Current policy actions to reduce waste and support the circular economy are contained in the Waste Action Plan for a Circular Economy (DECC, 2020) and in Ireland's National Food Waste Prevention Roadmap (DECC, 2022). Although actions are supporting the transition to a circular economy, only a few are effective prevention measures and likely to result in a sustained reduction in waste generation. Future circular economy policy statements must aim to tackle linear consumption and waste generation in the first instance.





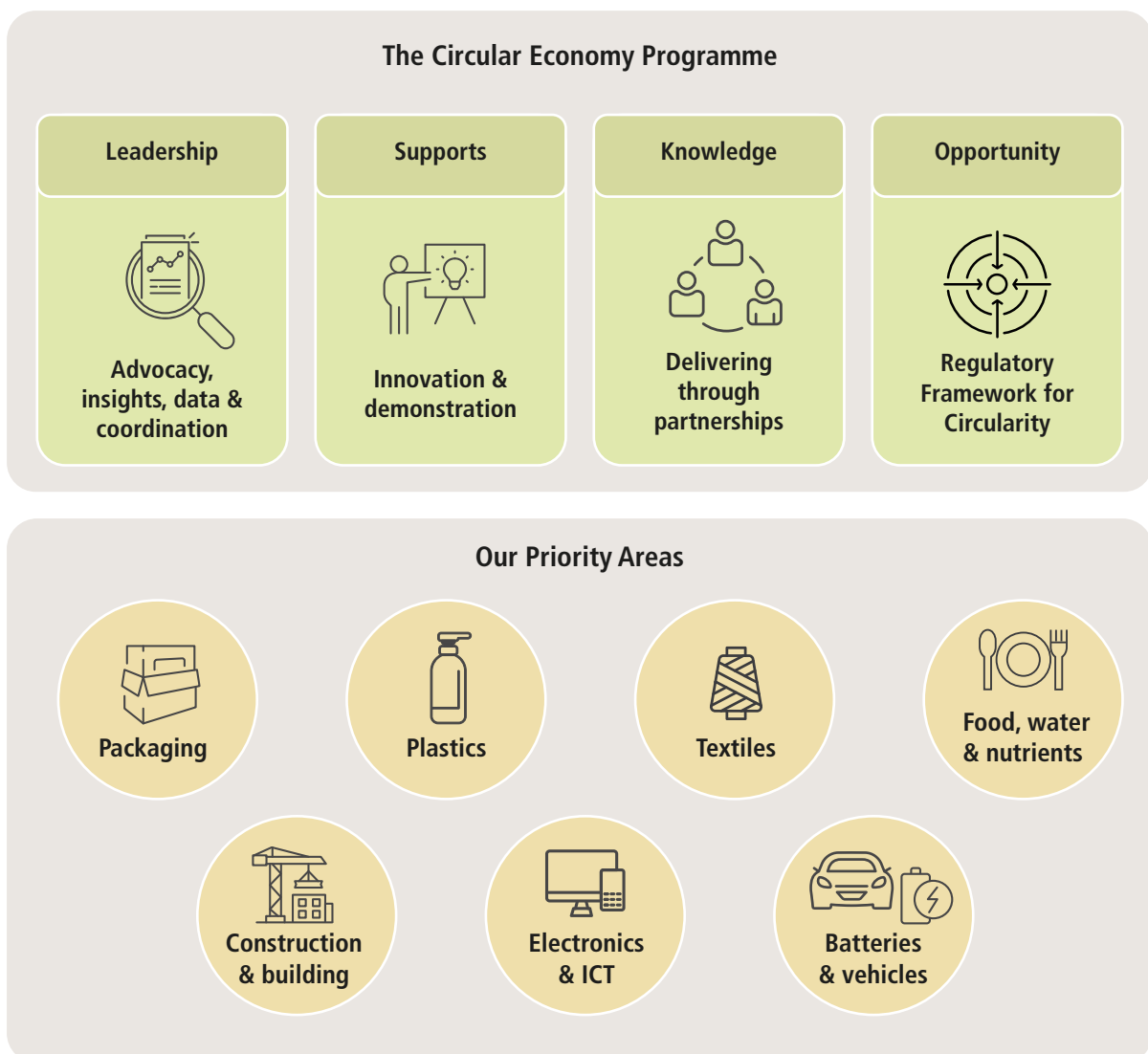
5. Responses

EPA Circular Economy Programme

Section 10 of the Circular Economy Act (2022) gives the EPA statutory responsibility for establishing a circular economy programme. The EPA's report on the Circular Economy Programme (EPA, 2021a), outlines the EPA's role in Ireland's transition to a circular economy. By means of the Circular Economy Programme, the EPA looks

beyond waste management to lead a more coherent approach to circular thinking nationally, regionally and locally. The current programme includes four pillars and seven priority areas, aligned to the European Green Deal (Figure 15.12). Its focus is on delivering national measures, assessments, evidence and data to facilitate systemic change. Table 15.3 sets out the key activities under each of the four pillars.

Figure 15.12 The 2021-2027 Circular Economy Programme



Source: EPA, 2021a



Table 15.3 Key activities under the four pillars of the 2021-2027 Circular Economy Programme

	<p>Advocacy, insights, data, coordination</p> <ul style="list-style-type: none"> ■ National waste prevention programmes, including food waste prevention ■ Behavioural insights programme ■ Circular insights series ■ Annual circular economy conference ■ National waste and circular economy statistics ■ National waste characterisation studies ■ National Hazardous Waste Management Plan ■ Supporting national roadmaps, education and awareness, EPA research programme
	<p>Innovation and demonstration</p> <ul style="list-style-type: none"> ■ Funding support for circular economy pilot and demonstration activities ■ Supporting the implementation of green public procurement
	<p>Delivering through partnerships</p> <ul style="list-style-type: none"> ■ National reuse and repair network ■ Industry, Circuléire (see Topic Box 15.3) ■ Local authority sector partnership
	<p>Regulation for circularity</p> <ul style="list-style-type: none"> ■ End of waste decisions (national and single case) ■ By-product decisions (national and single case)

Topic Box 15.3 Circuléire project



The Irish Manufacturing Research (IMR) project entitled Circuléire²⁰ began as a €4.5 million public-private partnership created by IMR, three strategic partners (DECC, EPA and EIT Climate-KIC²¹) and 25 founding industry members. Circuléire was the first cross-sectoral industry-led innovation network dedicated to closing the circular innovation gap and accelerating the net zero carbon circular economy in Ireland.

Between 2020 and 2022, Circuléire's activities included circularity assessments of members, thematic working groups and an innovation and mentoring programme for members. In-depth circularity assessments were completed for 18 founding members, identifying approximately 400 opportunities to reduce waste and carbon emissions through resource efficiency and circular practices. IMR is supporting the development of tailored key performance indicators for members to enable performance monitoring and emission reductions. It is also preparing a roadmap for a centre of excellence for circular innovation for industry that can build on the learning of Circuléire.

20 circuleire.ie/ (accessed 24 June 2024).

21 www.climate-kic.org (accessed 1 July 2024).



National Waste Management Plan for a Circular Economy 2024–2030

The three regional waste management planning offices recently produced an all-inclusive national waste management plan²² with circular thinking at its core. The plan contains national targets (Figure 15.13) and an overarching ambition to reach 0% total waste growth per person in each year of

its lifetime. On top of key EU recycling targets, overlapping international climate change targets and Sustainable Development Goals, the plan lays out roadmaps to achieve all relevant targets in a coherent and collaborative approach. These national targets provide the necessary strategic shift to focus planning, investment and resources further up the waste hierarchy, to prevent waste generation and to decouple it from economic growth.

Figure 15.13 National targets set out in the National Waste Management Plan



Source: www.mywaste.ie/national-waste-management-plan

22 www.mywaste.ie/national-waste-management-plan (accessed 24 June 2024).



Topic Box 15.4 EPA's role in preventing food waste

The EPA is the competent authority for delivering the statutory National Food Waste Prevention Programme, producing statutory reporting on food waste and delivering key actions in the National Food Waste Prevention Roadmap. The EPA delivers campaigns and supporting resources targeting food waste generation in households, across the supply chain and in the hospitality sector.

Stop Food Waste²³ is the public-facing national campaign to reduce household food waste generation in Ireland. The campaign runs awareness-raising initiatives to share easy tips and resources on how to make the most of our food, keep it fresher for longer and avoid generating food waste. Its messaging and intended audiences are informed by ongoing behavioural insights and market research. The theme for all campaigns is to encourage simple good behaviours around purchasing food and meal planning.

The EPA also manages and coordinates the national Food Waste Charter, relaunched in June 2023 and supported by five state agencies (Bord Bia, Bord Iascaigh Mhara, Enterprise Ireland, Fáilte Ireland and Teagasc) that pledged their support to champion the charter in their sustainability programmes. Businesses that sign up voluntarily commit to measuring their food waste using EPA methodologies, setting targets, taking action to reduce food waste and reporting their progress annually. Business that take these actions reduce their operational costs and contribute to organisational climate change mitigation and sustainability goals.

National Food Waste Prevention Roadmap

Ireland's National Food Waste Prevention Roadmap 2023–2025 (DECC, 2022) sets out 38 actions to steer efforts towards achieving Ireland's commitment to halve food waste by 2030. This commitment is in line with the UN Sustainable Development Goal Target 12.3 to halve global per capita food waste by 2030. The European Commission is also proposing legally binding food waste reduction targets to be achieved by Member States by 2030 as part of the revision of the Waste Framework Directive.

Key areas of focus in the roadmap include food waste measurement and reporting, extending the EPA's Food Waste Charter to food supply chain businesses, surplus food donation and redistribution measures, food waste segregation, communications and awareness on food waste prevention, research and innovation, and green public procurement (Topic Box 15.4). DECC is the lead government department developing Ireland's National Food Waste Prevention Roadmap and coordinating and reviewing its implementation. The Department of Agriculture, Food and the Marine is the lead government department for UN Sustainable Development Goal Target 12.3.

Construction sector roadmap and guidance

The Climate Action Plan 2023 (DECC, 2023a) sets a target of a 35% reduction in emissions (against 2018 levels) by 2030 from construction materials. The Circular Economy Strategy (DECC, 2021a) committed to developing a series of sectoral roadmaps for resource-intensive sectors of the economy.

The construction and demolition sector is the largest single source of waste in the Irish economy; this is also generally the case globally. However, only a small percentage (approximately 8%) of total Irish construction and demolition waste is recycled or reused, with most being backfilled and some being sent for disposal.

DECC is developing the Circular Economy Roadmap for the Construction Sector for draft publication in 2024. A full public consultation ahead of its finalisation is also planned for before the end of 2024.

The Circular Economy Roadmap for the Construction Sector will be informed by a report under development that is being led by the Construction Sector Group's Innovation and Digital Adoption Sub-Group. The Construction Sector Group was set up in 2018 by the Department of Public Expenditure and Reform as a forum for regular and open dialogue between the government and the construction industry. It focuses on how best to achieve and maintain a sustainable and innovative construction sector positioned to successfully deliver on the commitments in Project Ireland 2040. This report is due for completion in 2024.

²³ stopfoodwaste.ie/ (accessed 1 July 2024).



In addition, the EPA has provided best practice guidelines (EPA, 2021b) for the preparation of resource and waste management plans for construction and demolition projects. The guidelines provide a practical approach, informed by best practice, for preventing and managing construction and demolition waste and resources, from the design stage through to construction and

deconstruction (Topic Box 15.5). Currently voluntary in nature, the implementation of these guidelines would help drive circularity within the construction sector. To trial their implementation, the EPA, through the Circular Economy Network, has created a number of awards for the preparation of resource and waste plans for infrastructure and mixed-use developments.

Topic Box 15.5 Preventing and recycling construction waste by applying by-product and end-of-waste criteria

Preventing material from becoming waste diverts materials from waste treatment outlets, such as landfills, lowers industry costs and reduces the extraction of finite virgin materials and the associated environmental impacts. Under the Waste Framework Directive, the by-product regulatory mechanism can be used to prevent materials from becoming waste in the first instance. There is a strong demand for secondary construction products in Ireland to support the development of new infrastructure that has a low carbon footprint.

Another regulatory mechanism, end-of-waste criteria, supports the safe reclassification of waste as a material or product following the processing of the material in accordance with a set of national rules. This mechanism will support the growth of national markets for recycled materials and green purchasing activities.

National hazardous waste management plan

In December 2021, the EPA published the National Hazardous Waste Management Plan 2021–2027. This is the fourth such plan drawn up under Section 26 of the Waste Management Act 1996. The purpose of this plan is to protect the environment and human health in Ireland through best-practice management of hazardous wastes. The implementation of the plan is coordinated and driven by the EPA's Circular Economy Programme. The plan's priorities are set out in 20 recommendations which are grouped into the following categories: policy and regulation; prevention; collection and treatment; and implementation. Each recommendation is accompanied by an 'owner' and specific key actions required to be implemented. Progress is reported²⁴ annually by the EPA.

Circular economy economic instruments

Economic instruments can be effective measures for encouraging businesses and householders to make choices that support the implementation of environmental and circular economy policy. The following instruments are designed to support efforts towards a more circular model of resource use.

Plastics own resource. Since 2021, plastic packaging waste that is not recycled in EU Member States has been subject to a financial contribution to the EU budget, called the plastics own resource.²⁵ A uniform rate of €0.80 per kilogram is applied to the weight of plastic packaging waste that is not recycled.²⁶ In 2021, Ireland contributed €215 million. This EU-level instrument is designed to incentivise the recycling of plastic packaging by penalising Member States that produced high levels of non-recycled plastic packaging.

Environmental levies. The Circular Economy Act (2022) provides the Minister for the Environment, Climate and Communications with the power to introduce environmental levies on a range of single-use items. New levies will be implemented to incentivise the use of reusable and recyclable products and materials. Revenues raised from future levies will be ringfenced in the Circular Economy Fund and used to support projects relating to environmental and climate action objectives.

Single-use coffee cups. Nearly 200 million coffee cups are used and wasted every year in Ireland. This is entirely avoidable waste and is being addressed by the introduction of a levy on single-use cups for hot drinks. The coffee cup levy being considered is expected to incentivise the use of reusable cups and help reduce

24 www.epa.ie/our-services/monitoring--assessment/waste/hazardous-waste/06793-EPA-National-Hazardous-Waste-Management-Plan-2021-2027-Proof-04.pdf (accessed 24 June 2024).

25 commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/revenue/own-resources/plastics-own-resource_en (accessed 24 June 2024).

26 The contribution is initially calculated based on forecast figures and is then adjusted based on the actual tonnage of plastic packaging not recycled that is reported 2 years later.

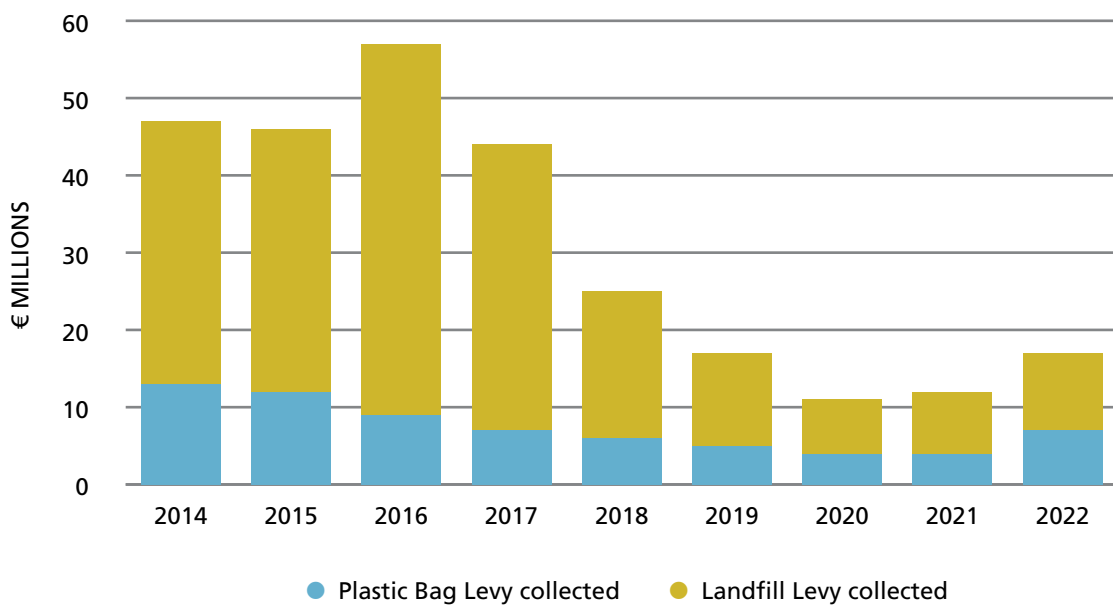


single-use waste. The proposed levy is a flat rate of €0.20 on all single-use disposable cups and is due to be introduced by the end of 2024.

Waste disposal and recovery levies. A waste recovery levy²⁷ was introduced in September 2023. The measure applies a rate of €10 per tonne to municipal waste recovery operations at landfills, waste-to-energy plants and co-incineration plants and on the export of

municipal waste for recovery abroad. At the same time, an additional €10 per tonne was applied to the existing landfill levy, raising it to €85 per tonne of waste disposed of. These measures are intended to drive behavioural change, encouraging better segregation of waste at source and moving treatment further up the waste hierarchy towards more recycling and reuse activities. Figure 15.14 documents the revenue generated from the plastic bag and landfill levies from 2014 to 2022.

Figure 15.14 Plastic bag and landfill levies collected (million euros), 2014–2022



Deposit return scheme. It is estimated that about 1.9 billion drinks bottles and cans are consumed each year in Ireland.²⁸ The introduction of the Re-turn²⁹ deposit return scheme in 2024 aims to boost the recycling of plastic bottles and aluminium cans by charging a small, refundable deposit for each bottle or can. The scheme covers PET (polyethylene terephthalate) plastic bottles and aluminium and steel cans of between 150 ml and 3 l volume. Deposits are €0.15 for containers of 500 ml or less and €0.25 for containers above 500 ml. The deposit is refunded to the consumer when they return the container to a retailer or collection point. In addition to supporting recycling efforts, the scheme helps reduce on-the-go waste.



27 A review of the waste recovery levy has been commissioned by DECC to examine the option to extend the levy to construction waste.

28 www.gov.ie/en/press-release/b3f2f-minister-smyth-launches-irelands-deposit-return-scheme/#:~:text=It%20is%20estimated%20that%20about,each%20plastic%20bottle%20or%20can (accessed 24 June 2024).

29 Re-turn.ie (accessed 24 June 2024).



Circular economy regulatory instruments

Ireland's regulatory instruments are responding to the challenges of moving from an economic model characterised by high volumes of waste towards one that encourages, incentivises and regulates the better use of resources and materials.

Commercial incentivised collections and household biowaste collection service. National policy commits Ireland to improving waste segregation and reducing waste. Regulations (S.I. No. 104/2023) introducing incentivised waste collection charging in the commercial sector came into force in 2023, along with a requirement for all commercial premises to be provided with a three-bin system (mixed dry recycling bin, organic waste bin and general waste bin), broadly mirroring the regime in the household sector. New legislation means that every household in the State is being provided with a brown bin for food waste and garden waste by their waste collector from 2024 onwards. This change is to meet a requirement in the EU Waste Framework Directive.

By-product and end of waste criteria. National by-product and end of waste regulations can contribute to growing the circular economy in Ireland. A by-product³⁰ is a residue of a production process (not the intended product) that has a certain and lawful use. A material determined to be a by-product never becomes waste; simply put, waste is prevented.

A material reaches end-of-waste³¹ status when it is fully recovered and meets specific statutory criteria such as certainty of use and product standards. Products derived from materials with end-of-waste support the growth of national markets for secondary materials.

The EPA is responsible for assessing applications it receives on materials seeking by-product and end-of-waste status and can make single-case or national decisions. National criteria provide a framework for economic operators to obtain by-product or end-of-waste status for particular materials.

The EPA, in consultation with industry and the European Commission, has also prepared national decisions on:

- end of waste criteria for recycled aggregate
- by-product criteria for site-won asphalt (road planings).³²

A third national decision for by-product criteria for greenfield soil and stone is currently in preparation. These national decisions provide pathways for the construction sector to tackle construction waste by preventing its generation, allowing for safe reuse, increasing recycling and supporting greener purchasing of materials. Outside the construction sector, there is significant and untapped potential for the application of end-of-waste and by-product criteria to significantly increase Ireland's circularity rating.

National end-of-waste criteria give the opportunity to increase recycled aggregate use in Ireland. With 30 million tonnes of crushed rock extracted in Ireland annually, widespread use of the new criteria has the potential to reduce primary extraction.

In 2022, the EPA made 122 by-product single-case project decisions of which 97 were for soil and stone by-products. That equated to approximately 2.7 million tonnes of soil and stone being prevented from becoming waste. The other significant by-product material notified to the EPA was road planings (e.g. site-won asphalt). Determining materials and resources to be by-products and not wastes offers clear environmental and economic benefits to projects and businesses. In 2022, the EPA made a by-product decision for a notified chemical material, which illustrates the benefits the mechanism offers to businesses and the environment (see Topic Box 15.6).



30 www.epa.ie/our-services/licensing/waste/by-products-regulation-27/ (accessed 24 June 2024).

31 www.epa.ie/our-services/licensing/waste/end-of-waste-art-28/ (accessed 24 June 2024).

32 Site-won asphalt is milled asphalt road layers or slabs that have been stripped from road surfaces. Asphalt is a mixture of bitumen and aggregate (sand/gravel/stone).



Topic Box 15.6 Chemical by-product case study



The company Vision Care uses propylene glycol (PG) as a hydration agent in the manufacture of contact lenses. The used material is in demand by the aviation sector for use in products such as de-icing fluid and heat transfer fluid. Planned expansion at the Vision Care manufacturing facility in Limerick is expected to increase volumes of used PG to 24,500 m³ per year by 2025. The EPA made a decision to grant this material by-product status, which means that it no longer needs to be treated as a hazardous waste; it had previously been exported for recovery. The financial and environmental gains for the company are considerable. The decision will also have the knock-on effect of lowering Ireland's national hazardous waste figures (initially by an estimated 15,000 tonnes; this figure could grow depending on production of PG at the facility).

Enforcement

The NWESC has an oversight role in coordinating waste enforcement activities in Ireland. It seeks to drive compliance, public and environmental protection and consistency by setting national waste enforcement priorities for all waste regulators. The committee is co-chaired by DECC and the EPA and includes representatives from a wide range of regulatory authorities. Other stakeholders in the waste sector have input to the committee through an Industry Contact Group (DECC, 2021c). Following discussion and engagement, and the inclusion of recommendations from the EPA, DECC set out the high-level national enforcement priorities for the period 2022–2024 in a circular to all regulators in 2021 (DECC, 2021b). Each priority area has associated annual and multi-annual deliverables. An increased number of multi-agency investigations have been initiated since 2022 to give effect to the five national waste priorities set by the NWESC. Emphasis is placed on multi-agency investigations, recognising that waste moves across all types of authorisations regardless of whether they are issued and enforced by local authorities or the EPA.

The EPA ensures that major industrial and waste operations in Ireland comply with their licences, be they industrial emissions, integrated pollution control or waste licences. The EPA launched the Beyond Compliance initiative, which aims to recognise operators who do more than their EPA licence requires and to encourage them to further reduce their environmental emissions and improve their performance (see case study in Topic Box 15.7). The beyond compliance concept is also discussed in Chapter 13.



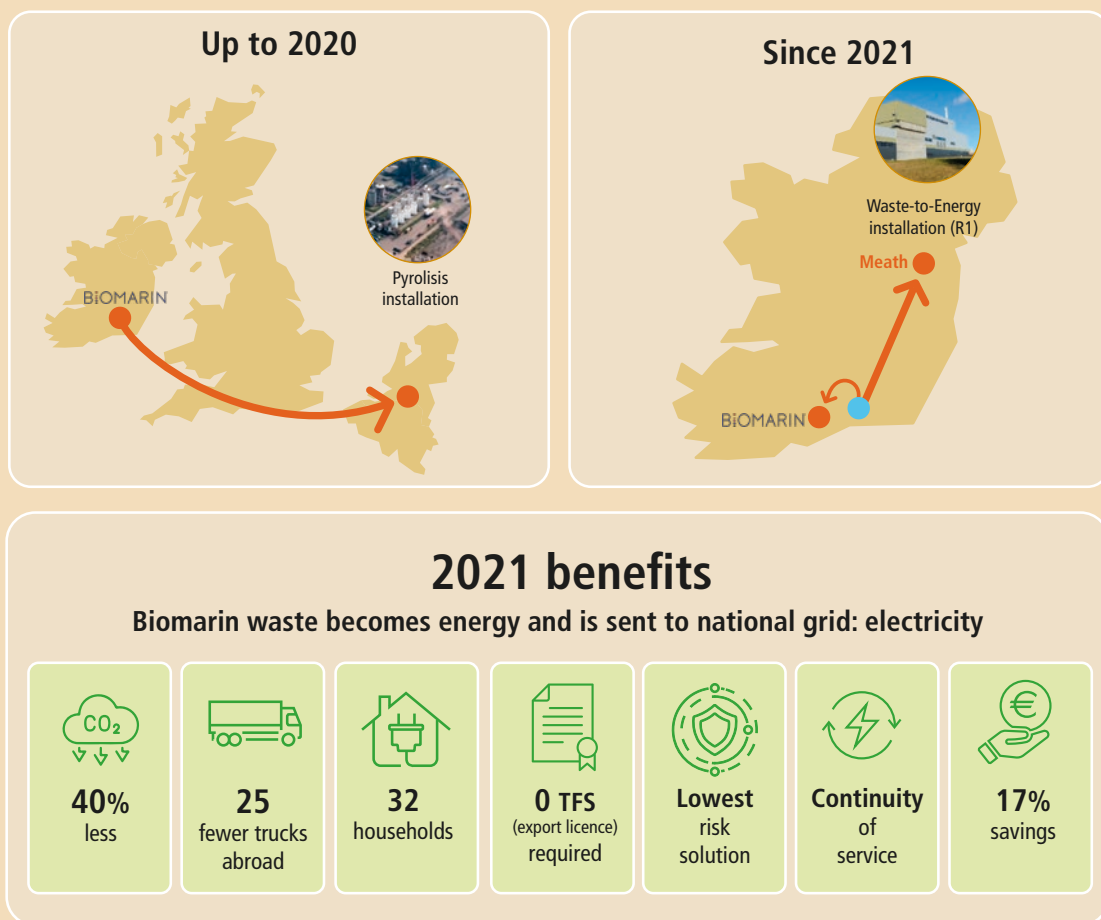


Topic Box 15.7 EPA Beyond Compliance case study

In 2021, the EPA launched the Beyond Compliance initiative to promote moving beyond compliance at licensed sites (EPA, 2021c). One licensee that has gone beyond compliance is BioMarin International Ltd. Cork (licence number P0864-01). Some of the initiatives the company has taken relating to the circular economy and waste management are:

- Moving from passive to active shipping, removing the need for shippers, cold packs and templates. By doing so, the company produced 44 tonnes less waste in 2021.
- Eliminating eight chemicals and replacing at least ten further chemicals with more environmentally friendly alternatives. This was achieved by evaluating proposed new processes, evaluating chemical inventories, optimising chemical use, training and improved staff awareness.
- Reducing paper purchasing and use, from 430 boxes in 2019 to 278 boxes in 2020. This was achieved by introducing paperless training and digital signing systems.
- Changing waste flows in 2020/2021. This resulted in the re-routing of solid waste streams from treatment abroad to treatment within Ireland (Figure 15.15).

Figure 15.15 BioMarin solid waste treatment destinations up to 2020 (a) and since 2021 (b) and the resulting benefits (lower panel)



Source: BioMarin International Ltd



Green public procurement

The public sector has a vital role to play in leading Ireland's transition to a sustainable and carbon-neutral economy and society. In Ireland, public bodies (excluding utilities) spend an estimated €18.5 billion a year on goods, services and works.³³ Such purchasing power has significant potential to reduce emissions and protect the environment while saving money over the full life cycle of goods and services. Government commitment to green purchasing sends a powerful signal to the market.

DECC has published a 2024-2027 Green Public Procurement Strategy and Action Plan,³⁴ which will play a key role in driving the implementation of green and circular procurement practices across the public sector. The strategy is wide ranging and includes actions on policy, legislation, using green public procurement in public sector mandates, sectoral actions, training, awareness, monitoring and reporting. The strategy has set targets to increase the use of green criteria in key economic sectors.

The EPA supports green public procurement through the provision of national guidance and green criteria for priority sectors, materials and services. Ten national criteria have been developed and are available³⁵ to be incorporated into the procurement of, for example, food and catering services, road transport vehicles, lighting, information and communications technology, textiles, and office building design and construction.

Under the Climate Action Plan (DECC, 2019), the EPA has responsibility to monitor and report on green public procurement implementation in government departments and has published annual reports since 2022 (EPA 2022b, EPA 2023d, EPA 2024a). The findings are stark. The reports show a low level of implementation across government, even for the procurement of goods and services where national criteria have been in place since 2014. The EPA will continue to monitor spending in government departments and track progress against report recommendations. The most recent EPA report shows that, of the reported spend of €922 million on contracts worth over €25,000 signed in 2022, just one-third (34%) included green criteria, (EPA, 2024). This low level of green public procurement implementation across the government is a missed opportunity and needs to be urgently addressed.

Action 148 of the Climate Action Plan 2019 (DECC, 2019) requires government departments to measure and report on green public procurement on an annual basis. Successive climate action plans have introduced additional measures to improve the use of green criteria (DECC, 2023b). The report on the Climate Action Framework for the commercial semi-state sector (NTMA, 2022) includes a commitment to promote circular economy measures and green procurement (commitment 4) and stipulates that NewERA³⁶ reports biannually on behalf of commercial semi-state companies from 2023.

Bioeconomy

The bioeconomy refers to sectors and systems (e.g. agriculture, forestry, fisheries, food, marine, energy) that use renewable biological resources (such as crops, forests, fish, animals, microorganisms, biomass and organic waste) to produce valuable food, materials and energy. The opportunities for Ireland's circular bioeconomy are rich and diverse. The restorative and regenerative aspects of the bioeconomy will be an important aspect of ensuring that Ireland's natural capital is protected when incorporated into any circular economy model.

Commitments under the Climate Action Plan 2021 (DECC, 2021d), and the Bioeconomy Action Plan 2023–2025 (DECC and DAFM, 2023), includes actions to accelerate support for the development of the bioeconomy. The 2023 and 2024 Climate Action Plans (DECC, 2023a, 2024) aim to further develop Ireland's bioeconomy, in commercial, societal and policy terms while also increasing awareness and understanding of the bioeconomy more broadly. The Bioeconomy Action Plan seeks to enhance policy coordination and greater integration of the bioeconomy within sectoral policies. It will support the goal of moving biobased innovation and solutions from research to sustainable and circular industrial production at greater speed. It will also support more investment in demonstrating the bioeconomy concept, providing exemplars, and ensuring support for interactions and progress among multiple actors, including businesses, primary producers, scientific communities, policymakers, social movements and interest groups.

33 www.gov.ie/en/collection/06f1e-procurement-reform-annual-reports/ (accessed 24 June 2024).

34 www.gov.ie/en/publication/7b1f8-green-public-procurement-strategy-and-action-plan-2024-2027/ (accessed 24 June 2024).

35 The criteria are available for direct use in tenders and contracts. They are accompanied by notes about relevant legislation, standards and labels and how to evaluate and verify the criteria.

36 NewERA is part of the National Treasury Management Agency.

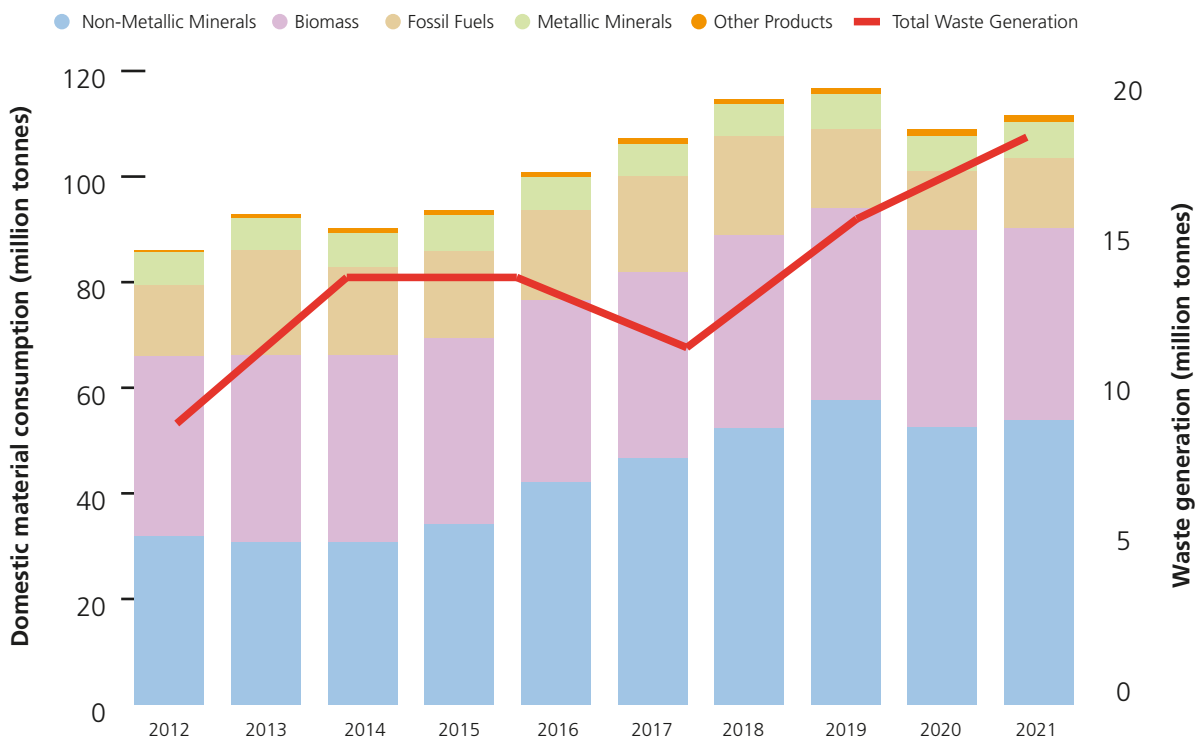


6. Conclusions

Ireland's economy is characterised by high consumption, one of the highest in Europe, and high volumes of waste generated per capita. Central Statistics Office data showing the domestic consumption of various material

categories in the Irish economy since 2012 confirm a direct correlation between rising material consumption and increased waste generation (Figure 15.16).

Figure 15.16 Domestic material consumption and total waste generation (million tonnes), 2012–2021



Source: EPA, 2023b

In 2021, high levels of waste generation were recorded in key waste streams such as construction and demolition waste, which increased by 10%, and packaging waste, which increased by 9%, compared with 2020. As discussed throughout this chapter, our current economic model is a damaging one, characterised by overconsumption of materials and goods, growing volumes of waste and supply chain emissions, biodiversity loss and water stress. Lowering consumption will help to reduce the emissions damaging our environment, including waste emissions.

We need to recognise that our current economic model and culture of consumption is negatively impacting our society, the health of people and our environment. Previous indicators of economic prosperity, focused largely on gross domestic product and wealth, need to be broadened to encompass the health and vitality of our society, the environment in which we live and the economic prosperity of national businesses trading

alongside international companies. We need to reframe our view of economic growth beyond one of being solely a measure of gross domestic product and consider climate, environmental and social indicators. We need to interrogate the complex questions about continued and damaging economic growth as the primary policy driver and measure of success against a background of climate change, biodiversity loss, water stress and depletion of natural resources.

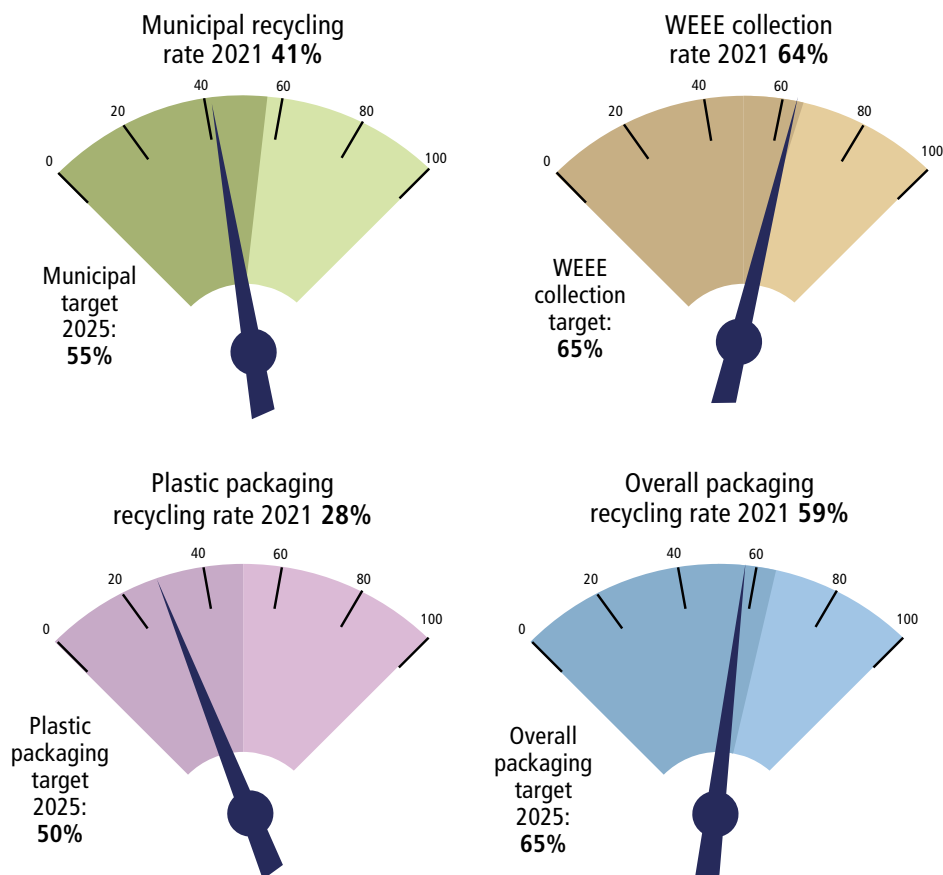
A circular economy strives to minimise the consumption of new and virgin materials while increasing the reuse and use of secondary or recycled materials. In 2022, Ireland's circular material use rate of 1.8% was well below the European average of 11.5% and far behind the 33% of the best performing Member State, the Netherlands. There is an urgent need for systemic change to accelerate the transition to a circular economy by normalising the right behaviours through effective regulation, incentives and enforcement.



Recycling levels for municipal, total packaging and plastic packaging waste streams cannot keep pace with waste generation levels and are undermining our efforts to improve Ireland's performance. For example, since 2016, volumes of packaging waste have risen by 25% while the

recycling rate for packaging has risen by one-third of that (8%). As a result, Ireland is on course to miss EU waste recycling targets for municipal, total packaging and plastic packaging wastes for 2025, as shown in Figure 15.17.

Figure 15.17 Recycling and recovery rates and targets in municipal, waste electrical and electronic equipment (WEEE) and packaging waste, 2021



Source: EPA, 2023b

To have any prospect of meeting the 2025 recycling targets, we need to focus our efforts on reducing waste generation and improving source segregation of wastes to support recycling. As the latest waste characterisation reports show, households and businesses are not segregating wastes correctly, and many do not have a separate organic waste bin. There is a significant opportunity to improve recycling through the full implementation and use of a segregated system for residual waste, mixed dry recyclables and organic waste bins. Continuing awareness and enforcement measures are essential. So too is the urgent roll-out of organic waste bins to households and businesses that have not been provided with them to date.

Ireland exported over 1.3 million tonnes of municipal waste in 2020 with over 400,000 tonnes sent for treatment by incineration with energy recovery. Ireland's insufficient capacity to treat domestic residual wastes and its continued reliance on overseas treatment facilities are risks to public health and to the waste sector. Exporting waste is an economic and environmental loss to Ireland, as other Member States benefit from the energy generated from our waste. National capacity to treat residual non-hazardous and hazardous wastes needs to be developed where feasible to build resilience and reduce dependence on exports.



Key chapter messages

- 1.** Ireland has a damaging linear economy characterised by the overconsumption of materials and goods and the growing volumes of waste and greenhouse gas emissions. While recycling tonnages are increasing, these increases are being cancelled out by the growing amount of waste generated. Current trends pose a high risk of not meeting mandatory recycling targets. The challenge for Ireland is to reverse these trends and significantly reduce waste production.
- 2.** Ireland's capacity to collect and treat waste is vulnerable and underperforming, with an over-reliance on other countries to treat our recycling materials, general municipal and hazardous wastes.
- 3.** Systemic change is needed to accelerate the transition to an accessible, fair and affordable circular economy. Effective regulation, incentives and enforcement are required to influence businesses and consumers to adopt best practices in production, supply, purchasing, use and reuse of goods, products and services.





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