

# Chapter 9

# Waste





# Waste

## 1. Introduction

Waste comes from the production and consumption of resources, products and services. The quantity of waste generated, its nature and composition, and how and where it is treated all cause environmental pressures, affecting where we live and work and our recreational spaces. Land use, air quality and water quality are all affected to an extent and poor waste management practices can affect our health and wellbeing.

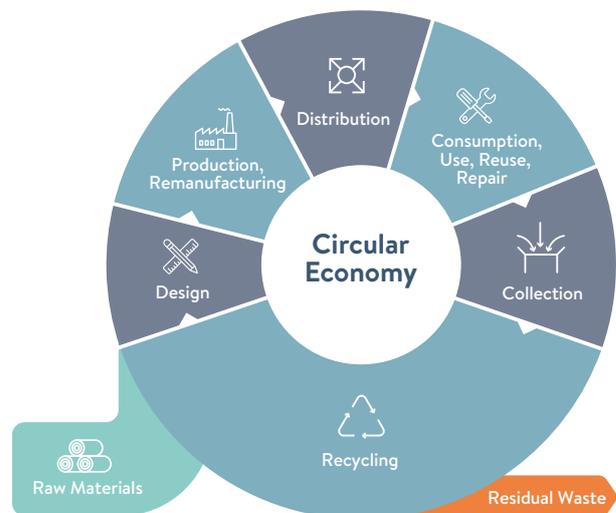
While Ireland is meeting current waste legislative targets, future targets under circular economy legislation will be a challenge given recent performance.<sup>1</sup> Ireland's municipal landfills and waste to energy facilities are operating at capacity, and we are reliant on export markets to treat much of our residual, recyclable and hazardous waste. This presents a significant risk for the country.

Much waste generation is linked to our consumer values and lifestyles and to products and packaging not being designed for reuse, durability, repairability or recyclability. Waste characterisation studies have provided evidence of poor segregation of household and commercial kerbside bins, which results in waste that could be recycled being sent for disposal or energy recovery, the least preferred options in the waste hierarchy. Wasteful behaviours, such as wasting food, cost households and businesses money each year. There is potential to reduce carbon emissions by improving our waste management behaviours and by becoming more self-sufficient in waste management.



We are at a pivotal point in Ireland's waste policy, legislation and planning. A National Waste Action Plan for a Circular Economy was published in September (see Topic Box 9.1). Waste legislation is being amended to bring in challenging new targets and obligations on producers. Statutory waste prevention and waste management plans will be reviewed in 2020/2021. This pivot point provides opportunity for change. The ambition for Ireland is a circular economy (Figure 9.1) in which waste is prevented, consumption of single-use items is reduced, reuse and repair initiatives are incentivised, recycling is maximised, and waste is used as an energy source to replace fossil fuels. The 2019 National Climate Action Plan identified the challenge of the sustainable use of resources and the opportunity for making carbon savings in a circular economy.

**Figure 9.1** Circular economy (Source: EPA)



<sup>1</sup> Unless otherwise specified, the Environmental Protection Agency is the source of the waste data presented. For more information, see <http://www.epa.ie/nationalwastestatistics>



### Topic Box 9.1 A Waste Action Plan for a Circular Economy. Ireland's National Waste Policy 2020-2015

In September 2020, the Department of Environment launched new national waste policy, *A Waste Action Plan for a Circular Economy* (DCCAE, 2020a). This Waste Action Plan recognises that there are opportunities to introduce circular economy measures within our national recovery post COVID-19. Circular economy measures present opportunities for job creation in design, reuse, repair, re-manufacturing and recycling which have the potential to reduce our carbon footprint and meet our climate targets.



While waste prevention has been a focus of waste policy since the 1990s, there is a much stronger focus in this policy document. A key objective is to shift attention from waste treatment (how products and materials are treated at end of life) to product design for circular economy (use of secondary versus raw materials, designing out hazardous materials, products that are designed for reuse, for easy repair and which are ultimately recyclable at end of life), reducing our consumption of single use products and extended producer responsibility for products placed on the market. All these actions are circular economy activities (Figure 9.1) and linked to the European Commission's ambitions for circular economy under the European Green Deal.

The Plan gives effect to commitments in the Programme for Government, including the introduction of a deposit and return scheme for plastic bottles and measures to support the development of indigenous treatment capacity, supporting national economic recovery.

The Action Plan sets out challenges and measures to achieve optimum results for priority areas including food waste, single use plastic, waste enforcement, waste data and waste flows and citizen engagement.

A Waste Management (Circular Economy) Bill will be introduced to provide the legislative underpinning of the policy measures identified and the Department of Environment will chair a cross-sectoral Waste Advisory Group to support the policy's implementation.

## 2. Current Situation

### National Waste Generation

**Ireland generated 14 million tonnes of waste in 2018.**

It is estimated that almost 14 million tonnes of waste were generated in Ireland in 2018 across all economic sectors and households, corresponding to 2.9 tonnes per person (EPA, 2020a).



### Municipal Waste

**The variety and composition of municipal waste makes it challenging to manage and treat.**

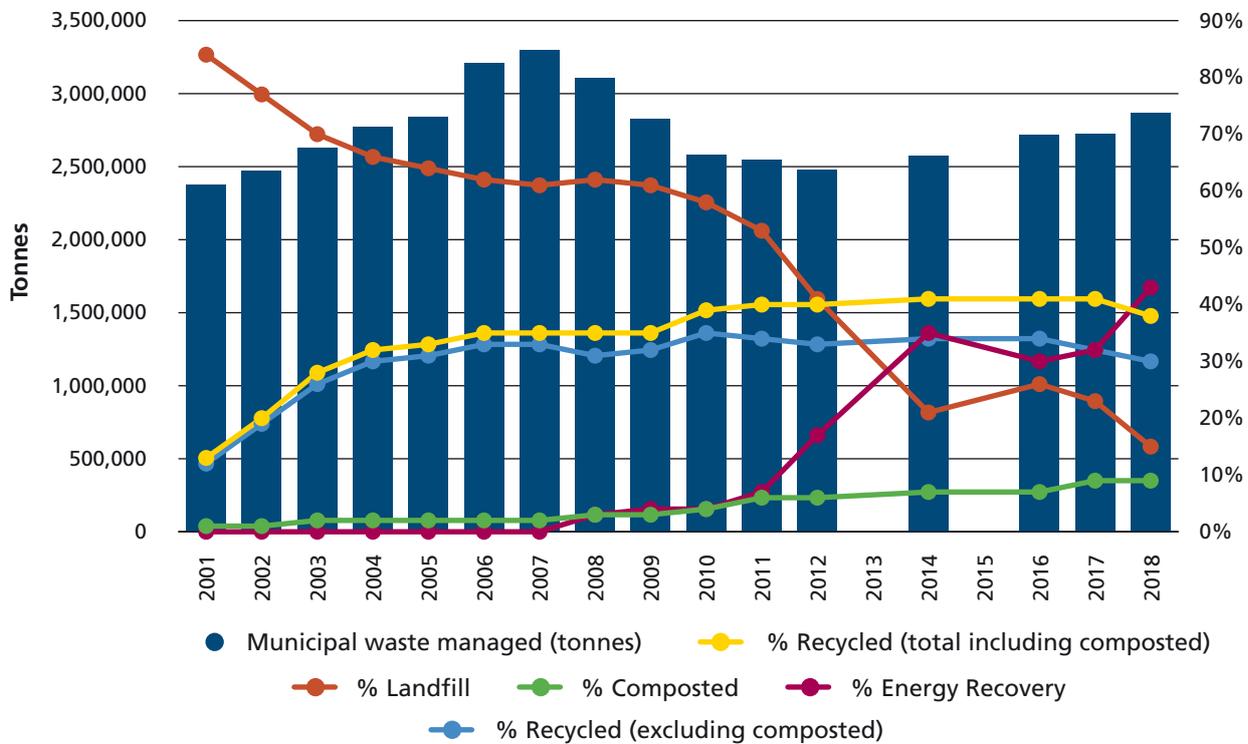
Municipal waste is household waste and commercial waste that is similar in nature to household waste. It is challenging to manage and treat because of its varied nature and composition.<sup>2</sup> Over 2.9 million tonnes were generated in 2018, 53 per cent from households and 47 per cent from commercial sources. One million tonnes, over one-third of municipal waste, was exported for treatment: 729,000 tonnes for recycling and 287,000 tonnes for energy recovery.

Since 2012, municipal waste generation has increased by 15 per cent. The quantity disposed of to landfill has decreased, but the shift has been towards energy recovery rather than recycling, as recycling rates initially plateaued from 2010 to 2017 and then decreased in 2018 (Figure 9.2). Under the waste hierarchy, prevention, reuse, reduction and recycling are all preferred over energy recovery.

<sup>2</sup> Glass, metal, paper and card, plastic, textiles, wood and composite materials. Packaging and non-packaging wastes, waste electrical and electronic equipment, food and garden waste, batteries, medicines and pesticides.



Figure 9.2 Trends in municipal waste management, 2001 to 2018 (Source: EPA)



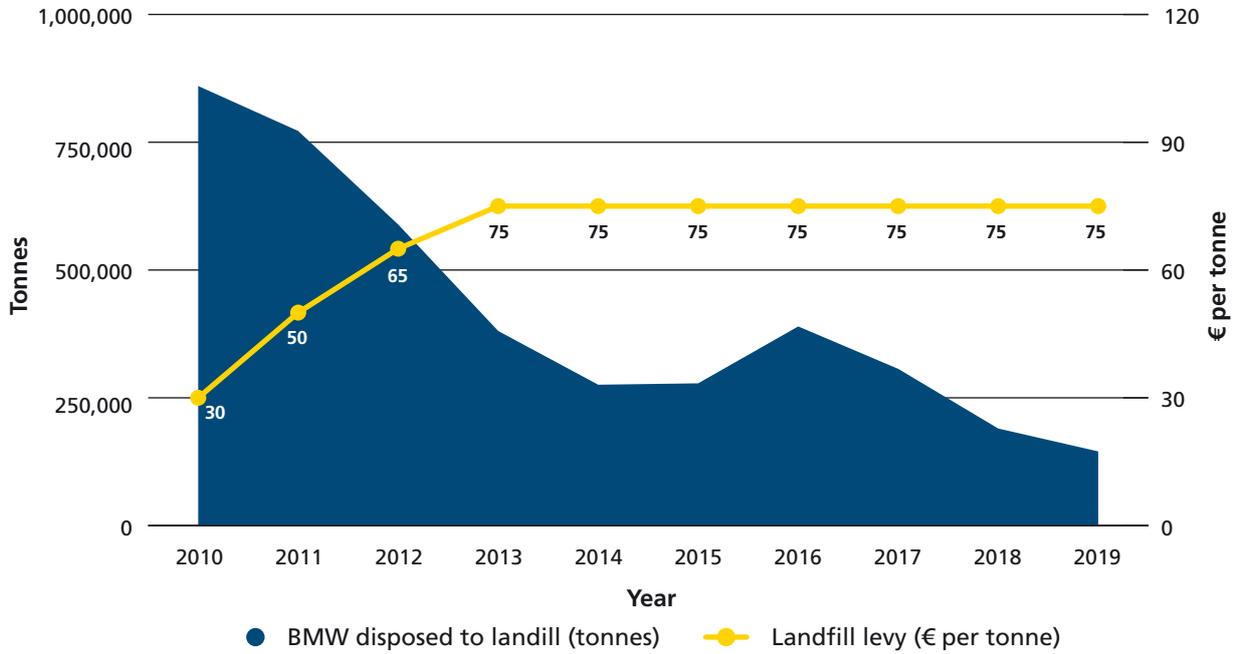
In 2018, 38 per cent of municipal waste was recycled, 43 per cent used for energy recovery and 14 per cent disposed to landfill. These rates are quite a distance from the 2020 target to recycle 50 per cent of municipal waste (increasing to 65% in 2035) and the 2035 target to dispose of 10 per cent or less in landfill.

The Landfill Directive (1999/31/EC) sets a limit on the quantity of the biodegradable element of municipal waste (food and garden waste, paper and cardboard and other biodegradable material) disposed of to landfill compared with the baseline year 1995. Ireland has been meeting its targets under the Landfill Directive and is on track to meet its 2020 target. Increases in the landfill levy have been successful in disincentivising disposal of waste (Figure 9.3) as well as the municipal waste incineration (energy recovery) capacity coming into operation since 2012. The increased roll-out of household and commercial organic kerbside bins to households under the biowaste regulations has diverted increasing amounts of organic waste to recycling. There is scope for further diversion, however, as described in the 'Food Waste' section.





**Figure 9.3** Biodegradable municipal waste disposed of to landfill (tonnes) and landfill levy (euro per tonne), 2010-2019 (Source: EPA)

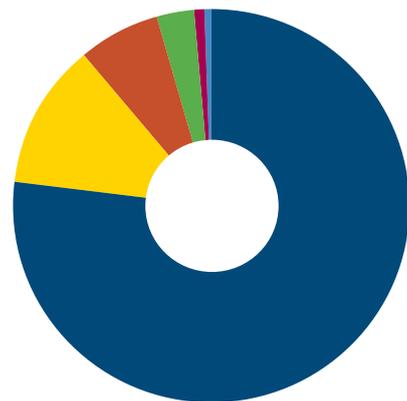


### Construction and Demolition Waste

Waste generated in construction and demolition is a substantial waste stream in terms of volume and weight.

Construction and demolition (C&D) and the renovation of buildings and roads generates significant quantities of waste. In 2018, 6.2 million tonnes were collected for treatment, up significantly from 4.7 million tonnes in 2017. The majority of this consisted of soil and stone (77%) with the remainder made up of concrete, brick, tile and gypsum waste (12%) and mixed waste (7%) (See Figure 9.4). Soil and stone also includes a small amount of dredging spoil that was brought onto land for treatment. Dredging spoil that is dumped at sea is covered in Chapter 8.

**Figure 9.4** Construction and demolition waste collected, 2018 (Source: EPA)



- Waste soil and stone and dredging spoil (77.0%)
- Concrete, brick, tile and gypsum waste (12.1%)
- Mixed C&D waste (6.7%)
- Metal waste (2.9%)
- Waste bituminous mixtures (1.0%)
- Segregated wood, glass and plastic waste (0.4%)



There is a legislative target to achieve 70 per cent material recovery (excluding energy recovery) of C&D waste by 2020.<sup>3</sup> In 2018, Ireland's recovery rate was 78 per cent. Most C&D waste underwent final treatment in Ireland (96%) with 4 per cent exported for treatment. The majority of C&D waste (including exports) was recovered by backfilling (89%, >5 million tonnes)<sup>4</sup> with just over 9 per cent (>524,000 tonnes) recycled. Recycling was the dominant treatment type for C&D waste metal, plastic and glass, while disposal was mainly relevant for C&D waste treatment residues.

There is great scope for circular economy initiatives within the construction sector, which handles large volumes of natural resources. The Waste Framework Directive (2008/98/EC as recast by 2018/851/EC) provides for uncontaminated excavated soil and other naturally occurring material to be considered by-products and not waste (see 'By-products and End of Waste' section).

## Hazardous Waste

**The amount of hazardous waste generated has been increasing.**

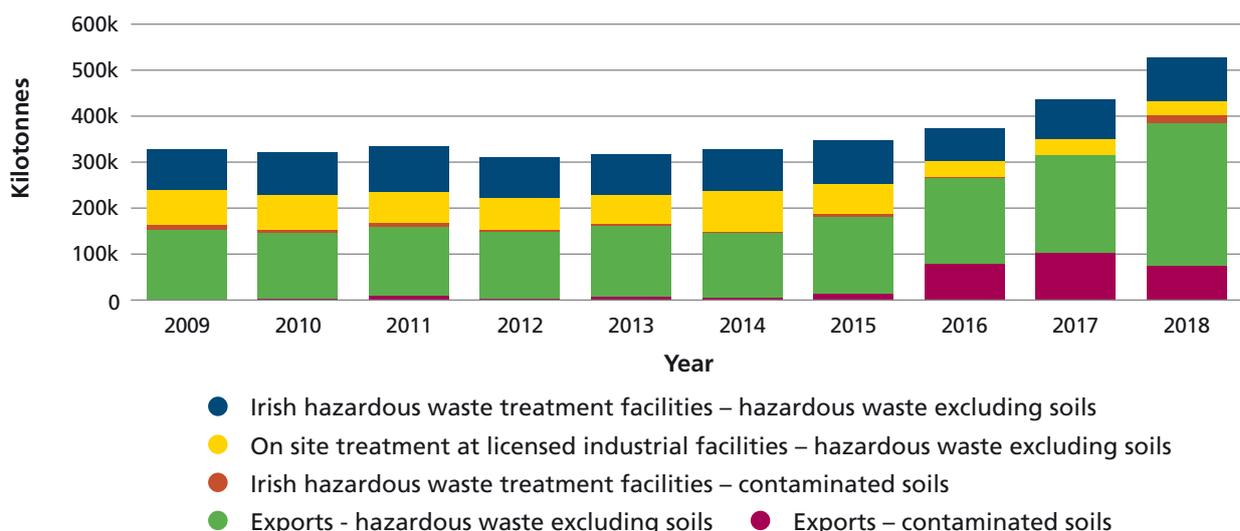
Industry is the largest generator of hazardous waste in Ireland (solvents, sludges, oils, chemicals) but other sectors produce hazardous wastes including paints, batteries, pesticides, asbestos and contaminated soil.

In 2018, 526,397 tonnes of hazardous waste were generated. The amount of hazardous waste generated in Ireland has been increasing since 2012, with larger quantities of incinerator ash<sup>5</sup> and contaminated soil<sup>6</sup> the main sources of the increase (Figure 9.5).

In 2018, 73 per cent of hazardous waste was exported for treatment (mainly to the Netherlands, the UK, Germany and Belgium), 21 per cent was treated at commercial hazardous waste treatment facilities in Ireland and 6 per cent was treated by industry at the site of generation under licence from the Environmental Protection Agency (EPA). Hazardous waste exported for treatment, such as contaminated soil and incinerator ash, is generally what we do not have capacity to treat in Ireland.

The mid-term review of the National Hazardous Waste Management Plan 2014-2020 found that 23 of the 27 recommended actions were in progress or completed but that further work was needed on the recommended actions that remained at risk: focused engagement on hazardous waste prevention; promotion of Ireland's self-sufficiency goals for hazardous waste treatment; and developing hazardous waste collection networks and take-back schemes for small-scale hazardous wastes from households and small businesses (EPA, 2018a).

**Figure 9.5** Hazardous waste generation and location of treatment, 2009-2018 (Source: EPA)



<sup>3</sup> This recovery target excludes the soil and stone and hazardous waste portions of C&D waste.

<sup>4</sup> Backfilling is a recovery operation in which suitable waste is used for reclamation purposes in excavated areas or for engineering purposes in landscaping and the waste is a substitute for non-waste materials.

<sup>5</sup> The first municipal waste incinerator started operations in 2012 and the second in 2017. Note that bottom ash generated at these sites was exported as hazardous waste up to 2020 but now has been classified as non-hazardous. Fly-ash is still exported as hazardous waste.

<sup>6</sup> Contaminated soil from old industrial sites, gas works and petrol stations.



## Food Waste

Ireland generates over 1 million tonnes of food waste annually.

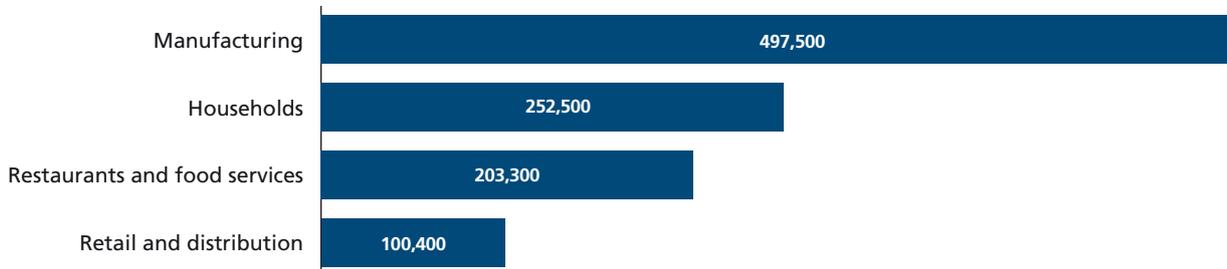
Ireland generates approximately 1.05 million tonnes of food waste annually,<sup>7</sup> 53 per cent of which is generated by commercial and household sectors and 47 per cent generated by the manufacturing sector (Figure 9.6) (EPA, 2020a). An Irish household throws out on average 150 kg of food waste each year at a cost of €700, and food waste is estimated to cost Irish businesses over €2 billion each year (EPA, 2019a).

## Producer Responsibility Initiatives

Six waste streams are the subject of producer responsibility initiatives.

Producer responsibility initiatives (PRIs) are based on the producer pays principle, where producers have a responsibility to finance the collection and environmentally sound management of their products when they become waste.<sup>8</sup> All PRI statutory targets are currently being achieved (Table 9.1).

**Figure 9.6** Estimated food waste (in tonnes) generated in Ireland, 2018 (Source: EPA)



Preventing food waste (avoiding its generation) is the highest priority, but where there is unavoidable food waste (such as peelings or bones) it needs to be segregated for separate collection for recycling.

A significant amount of household and commercial food waste is not being segregated for separate collection. Over 60 per cent of household organic waste is deposited in the residual or recycling bin and one-third of the commercial residual bin consists of organic waste that could be segregated for recycling (EPA, 2018b). A survey on brown bin use in the commercial sector found that over 30 per cent of businesses surveyed did not use a food waste bin, despite biowaste regulations requiring such segregation since 2009 (Cré, 2019). In 2018, only 43 per cent of households had a brown bin (EPA, 2020a) but new national waste policy provides for the mandatory provision of an organic waste bin as part of the household waste collection service. Separate collection of biowaste will be mandatory from the end of 2023 under circular economy legislation, not just from households but also from offices, restaurants, retailers and comparable waste from food processing plants.

Ireland has committed to halving food waste by 2030, in line with its EU and United Nations (UN) Sustainable Development Goal (SDG) commitments, and it will be required to report on food waste generated at each stage of the food supply chain for the reference year (2020) and onwards.



<sup>7</sup> Excluding food waste from primary production (agriculture) for which no data are currently available.

<sup>8</sup> For more information on progress to targets, see <https://www.epa.ie/nationalwastestatistics/>



Table 9.1 Producer responsibility initiatives in Ireland (Source: EPA)

	WASTE STREAM	EU OR NATIONAL	STATUS
	Packaging	EU	In 2018, >1 million tonnes of packaging waste were generated, of which 64% was recycled (66% in 2017). Most packaging waste was paper and cardboard (40%) and plastic (25%) with smaller amounts of glass, wood, metal and textiles. See Topic Box 9.2.
	Waste electrical and electronic equipment (WEEE)	EU	More than 62,700 tonnes of WEEE were collected for treatment in 2018. Ireland's 61% WEEE collection rate exceeded the EU's 45% target; moreover, a challenging 65% target comes into force for reference year 2019. Some 55,754 tonnes of WEEE were recovered in 2018 and 52,010 tonnes were prepared for reuse or recycling (increases of 17% and 19%, respectively on the 2017 quantities). Of the WEEE collected, 73% was treated in Ireland (nearly all of this was then exported for final treatment).
	End-of-life vehicles (ELVs) <sup>a</sup>	EU	More than 162,500 ELVs were treated in Ireland in 2018, an increase of almost 22,000 vehicles (or 16%) on the previous year. Ireland achieved full compliance with the current targets for the first time in 2018, achieving a reuse and recycling rate of 86% and a reuse and recovery rate of 95%.
	Batteries and accumulators	EU	All legislative targets for portable battery collection rates and for the recycling efficiency of various battery types have been met. In 2019, 47% of portable waste batteries were collected <sup>b</sup> (EU target 45%).
	End-of-life tyres	National	Producers placed 3.8 million car tyres on the market in 2018 and 31,000 tonnes of waste tyres were recovered: 1% were reused, 96% were recycled and 3% were sent for energy recovery (Repak ELT, 2019).
	Farm plastics	National	The Irish Farm Film Producers Group operates over 230 bring centres annually and provides a farmyard collection service. Between 28,000 and 30,000 tonnes of farm plastics are recycled each year (IFFPG, 2020).

<sup>a</sup> ELVs are cars or light commercial vehicles weighing less than 3.5 tonnes that are discarded as waste.

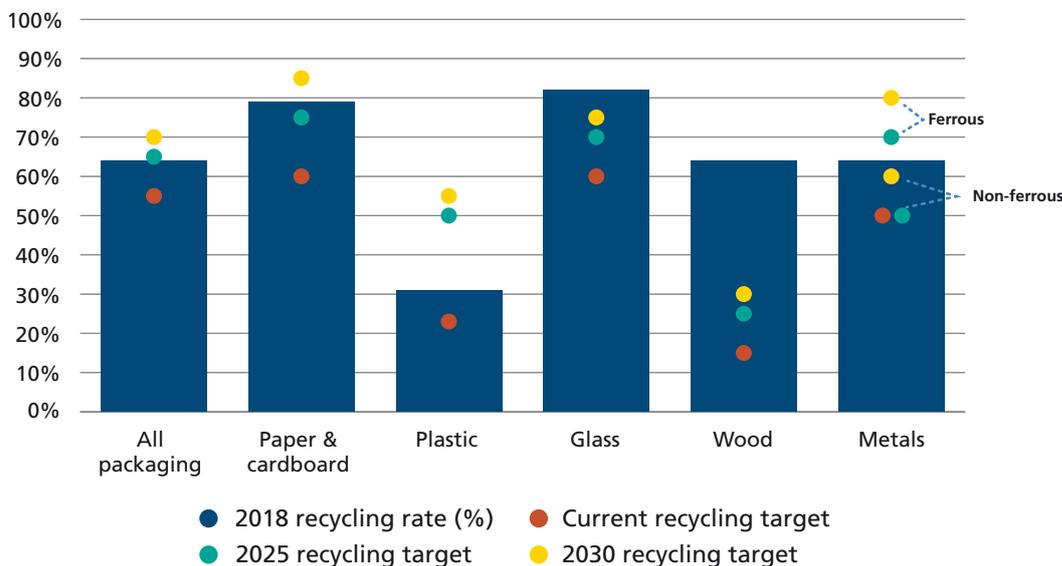
<sup>b</sup> In reference to portable batteries placed on the market in the preceding 3 years.



### Topic Box 9.2 Focus on Packaging Waste

EPA characterisation studies have found that packaging waste accounts for one-third of all household waste collected at the kerbside and the proportion of packaging has increased in the last decade. Almost two-thirds of plastic packaging found in kerbside bins is not on Ireland's recycling list (including soft plastics such as films and wrappers) and ends up in the residual bin, which is disposed of to landfill or sent for energy recovery (EPA, 2018b). Circular economy legislation is introducing higher recycling targets from 2025 onwards, which will be a challenge to meet, given that recycling rates for overall packaging and plastic packaging have been declining, coinciding with an increase in the quantity of packaging sent for energy recovery. In 2018 less than one third of plastic packaging waste was recycled (82,000 tonnes was recycled and 170,000 tonnes incinerated with energy recovery). Figure 9.7 shows that plastic and metal packaging are at the greatest distance from achieving future targets based on current rates. Urgent action is needed to reduce unnecessary packaging, increase the recyclability of packaging placed on the market and maximise recycling of waste packaging.

**Figure 9.7** Recycling of packaging waste streams in 2018 relative to current and future targets (Source: EPA)



### Sewage Sludge

**Sewage sludge is mainly used as a soil improver or fertiliser on agricultural land.**

In 2019, wastewater treatment plants produced 58,630 tonnes of sewage sludge (Table 9.2). Sludge is rich in nutrients and is primarily used as a soil improver or fertiliser on agricultural land. All sludge sent for composting was subsequently used in agriculture (EPA, 2020b).

### Radioactive Waste Management

**A further reduction in the national inventory of disused radioactive sources has been achieved.**

In 2011, 63 licensees held over 3300 disused radioactive sources (with half-lives greater than 10 years). This reduced to 16 disused sources by 2019, representing a 99 per cent reduction. Through legislative requirements and enhanced regulatory enforcement, it is expected that this number will trend towards zero by 2021. Radioactive waste is exported, as there is no treatment capacity in Ireland. Importation of radioactive waste is prohibited.



**Table 9.2** Treatment routes for sewage sludge (tonnes dry solids), 2016-2019 (Source: EPA)

YEAR	AGRICULTURE	COMPOST	LANDFILL	OTHER <sup>a</sup>	TOTAL
2016	45,344	9610	102	962	56,018
2017	46,487	10,065	87	2134	58,773
2018	44,003	10,605	91	527	55,226
2019	52,139	6,099	115	277	58,630

<sup>a</sup> Treated sludge that was in storage or used in anaerobic digestion or as a fuel in cement kilns.



## Litter and Backyard Burning

Littering is a persistent problem.

The National Litter Pollution Monitoring System is a Department of Environment initiative to report on litter pollution countrywide and measure changes over time through annual reporting. In 2018, the proportion of areas considered unpolluted was 20.5 per cent (15.6% in 2017) and the amount of grossly polluted areas was 0.4 per cent (0.3% in 2017) (DCCAE, 2019a). The main causes of litter pollution were passing pedestrians (42%) and passing motorists (22%) and the main constituents were cigarette-related litter (54%) and packaging items (18%), measured as litter counts versus weights.

The EPA estimates that 47,307 tonnes of household waste went unmanaged<sup>9</sup> in 2018, reflecting a minority of citizens illegally dumping or burning their waste. During the coronavirus (COVID-19) pandemic 2020 lockdown period, the EPA received a four-fold increase in enquires in relation to illegal backyard burning and there was evidence that illegal dumping had increased (EPA, 2020c). It is estimated that 70,000 tonnes of street cleaning and fly-tipped wastes were managed by local authorities in 2018 (EPA, unpublished data).<sup>10,11</sup>

<sup>9</sup> Unmanaged waste being waste that was not collected at the kerbside or brought to waste collection centres.

<sup>10</sup> Not including litter and street bin waste (23,000 tonnes).

<sup>11</sup> The EPA has conducted a characterisation study on litter bin and street sweeping waste.

## Unauthorised Waste Disposal

Enforcement of unauthorised waste disposal is a priority action for regulators.

The EPA is carrying out a study into the nature and extent of waste crime in Ireland, which will report on the scale, costs and impact of waste crime and assess the extent of illegal dumping over the last 10 years.<sup>12</sup> Enforcement of unauthorised waste disposal is a priority action for regulators. Multi-agency waste enforcement operations have stopped significant illegal waste activities (Council of the European Union, 2018).

## Historic Landfills

The past reliance on landfills means that remediation and ongoing monitoring of closed sites are a significant ongoing cost to the State.

For many years, disposal to landfill was the primary method for treating waste in Ireland and there is a significant ongoing cost to the State for the remediation and monitoring of landfills, of which 611 have been registered. A report by the Comptroller and Auditor General identified that nearly €106 million has been provided in grants to local authorities to undertake remediation works on 121 landfill sites, with works on 22 sites completed, but there is no estimate of the expenditure that may be required for the sites where remediation is ongoing or where the risk assessment is yet to be completed (Comptroller and Auditor General, 2020).

<sup>12</sup> The last report on unauthorised waste disposal was published in 2005 (EPA, 2005).



## Marine Litter

Growing evidence and awareness of the problems associated with marine litter has led to legislative and citizen initiatives.

Pollution from litter, including plastic and microplastics, are of concern for the ecology of marine flora and fauna (Chapter 8, The Marine Environment). Reducing marine litter is a key action under several national and international commitments including the Marine Strategy Framework Directive (MSFD) and UN SDG 14: Life Below Water. Irish marine litter arises from littering, mismanaged waste or accidental spillage and through abrasion, wear and fragmentation. It can come from land-based and maritime human activities as well as transboundary sources. Litter from land-based sources can be carried to the marine environment by rivers, streams, drains, sewage and other wastewater outflows.

Beach litter data is available from Ireland's OSPAR beach litter surveys which are used to monitor national trends as part of the MSFD. By the end of 2018, there was a 20 per cent decrease (from 61 to 49 items) in the median number of beach litter items found on the selected Irish beaches in the OSPAR surveys (DHPLG, 2020). The overwhelming bulk of beach litter found in these surveys is plastic. Ireland's MSFD assessment report from 2020 highlights that plastic string and cord (diameter less than 1cm) and plastic/polystyrene pieces (0-2.5cm) makes up 37.5 per cent and 11.5 per cent respectively of all waste found. These are part of the non-single-use plastic items found as beach litter that includes larger lost or discarded re-usable items such as fishing or aquaculture gear, strings, plastic fragments, discarded clothing etc. Litter is not just a beach issue. Seabed litter was reported on average in 62 per cent of seabed survey trawls in Irish waters between 2012-2018 (excluding 2015) (DHPLG, 2020).

The percentage of single-use plastic items in the total amount of beach litter identified in Irish OSPAR beach litter surveys 2013-2018 was 25.79 per cent. The Single-use Plastics Directive (2019/904) focuses on reducing the consumption of single-use plastic products, given their prevalence in marine litter. Additional national targets will be set in relation to the median number of litter items found in beach litter surveys and single-use plastic items, which are to be prohibited from being placed on the market from 2021 by the Single-use Plastics Directive (DHPLG, 2020).



Non-governmental organisations are actively involved in beach clean-ups and litter surveys. The #2minutebeachcleanup is an An Taisce Clean Coasts initiative. Clean Coasts groups adopt stretches of Irish coastline and welcome volunteers to take part in beach clean-ups and other environmental and educational activities. In a 2019 survey, another NGO, Coastwatch, found that the amount of plastic bottle and aluminium can litter had halved compared with the previous year, but an increase in polystyrene and wet wipes was observed; wet wipes are associated with sewage discharges (O'Sullivan, 2020).





Aerial view of Poolbeg, Dublin

## Waste Imports and Exports

Ireland exports 21 times as much waste for treatment as it imports.

In 2019, over 100,000 tonnes of waste were imported and just under 2.1 million tonnes exported (Table 9.3).

Imported waste is mainly refuse-derived fuel for energy recovery, plastics and scrap lead. Exports of bottom ash from incineration plants have increased since 2017 following the commissioning of the second municipal waste-to-energy facility and soil and stone exports increased,<sup>13</sup> reflecting increased activity in the construction sector and the lack of a national treatment capacity. One million tonnes (over one-third) of municipal waste was exported for treatment: 729,000 tonnes for recycling and 287,000 tonnes for energy recovery (EPA, 2020a).

In 2019, paper and cardboard and metals accounted for over 75 per cent by weight of green list<sup>14</sup> waste exports. At the time of the last state of the environment report in 2016, China was the main destination for green list waste exports (245,000 tonnes) but, following China's ban on the importation of waste plastics in 2018, Ireland now exports waste paper, plastics and metals to a broader range of countries in South East Asia (NTFSO, 2020).

Table 9.3 Waste imports and exports, tonnes, 2019  
(Source: National TransFrontier Shipment Office)

WASTE SHIPMENT REGISTER	WASTE IMPORTS	WASTE EXPORTS
Amber list <sup>a</sup>	52,860	1,105,996
Green list <sup>b</sup>	48,602	981,773
Total	101,462	2,087,769

<sup>a</sup> Amber list wastes are hazardous or mixed wastes shipped for disposal or recovery (e.g. combustible wastes).

<sup>b</sup> Green list wastes are non-hazardous, non-mixed wastes shipped for recovery (e.g. recyclable wastes such as plastics, metals, wood).



<sup>13</sup> In 2019 soil and stone accounted for 10 per cent of all notified transfrontier shipment exports.

<sup>14</sup> Green list wastes are non-hazardous, non-mixed wastes shipped for recovery (e.g. recyclable wastes such as plastics, metals, wood).



**Table 9.4 Enforcement responsibilities in Ireland, 2020**

REGULATOR		RESPONSIBILITIES
EPA		Enforcement of licensed activities – all disposal activities, all hazardous waste and incineration activities. Recovery activities over thresholds set out in legislation.  Enforcement of certificate of registration sites issued to local authorities.
Local authorities	Waste enforcement regional lead authorities (WERLAs)	Three regions (Eastern Midlands, Southern and Connacht-Ulster) with lead local authorities that coordinate local authority waste enforcement actions.
	31 functional areas	Enforcement of permitted waste facilities (recovery activities below certain thresholds set out in legislation) and certificate of registration sites issued to private sector.  Enforcement of waste collection permits, which are authorised by the National Waste Collection Permit Office at Offaly County Council.
	National TransFrontier Shipment Office at Dublin City Council	Competent authority for imports and exports of waste and transport of hazardous waste within Ireland.

## Waste Enforcement

### Multiple agencies have roles and powers to enforce and direct the enforcement of waste legislation.

The EPA and local authorities have statutory responsibilities for authorising and enforcing waste collection and management activities (Table 9.4).

More than 4000 authorisations (licences, permits, certificates of registration) are in force for waste collection, storage, treatment and transfrontier shipment. The number of permitted waste collectors fell from over 3000 to 2104 in 2018, indicating consolidation of the sector (EPA, 2020a).

Funding from the Department of Communications, Climate Action and Environment (DCCAE) to support waste enforcement was €11.48 million in 2019 (up from €10.23 million in 2018) (DCCAE, 2020b).

The EPA's waste enforcement approach is governed by a compliance and enforcement policy (EPA, 2019b). The non-hazardous waste transfer sector accounts for the highest number of operational waste sector licences to be enforced (Table 9.5) and across all sectors licensed by the EPA; this sector ranked second highest for non-compliances in 2017 and 2018 (after the food and drink sector).

Between January and June 2020, four of the eight licensees featured on the EPA's national priority sites for enforcement were waste licensees (EPA, 2020d). Eleven prosecutions of waste licensees have concluded in convictions from 2016 to date, one involving the Director of Public Prosecutions (EPA, 2020e).





**Table 9.5 EPA waste sector licence enforcement activities in 2019**

CATEGORY	NUMBER	DETAILS OF MAIN ACTIVITIES
Non-compliances (breaches of licence conditions) <sup>a</sup>	569	271 (48%) related to non-hazardous waste transfer stations, 146 (26%) related to landfill sector
Inspections	416	173 (42%) routine sampling visits, 114 (27%) enforcement plan visits and 96 (23%) visits related to complaints, non-compliances and incidents
Complaints received	165	97 (59%) related to non-hazardous waste transfer stations and 34 (21%) to landfills

<sup>a</sup> For example, exceedance of licence emission limits, failure to notify incidents.

Source: EPA.

Local authorities prepare annual inspection and enforcement plans<sup>15</sup> and report on the implementation of these plans. The EPA, in its statutory role of supervising local authority enforcement, evaluates the plans using a framework of indicators to drive continual improvement. Areas identified by the EPA for improvement included early notification of any illegal waste sites to the waste enforcement regional lead authorities (WERLAs); a focus on enforcing the food waste regulations to increase segregation of food waste by businesses and households;<sup>16</sup> prioritising enforcement of waste management at construction sites; and improving the timeliness of validating and sharing waste data to ensure that illegal waste activities can be detected and prevented (EPA, 2020f). Table 9.6 provides information on the extent of some local authority waste enforcement activities in 2018. Local authority waste enforcement activities reported include not only permit enforcement, but also enforcement of producer responsibility initiatives and litter.

**Table 9.6 Local authority waste enforcement activities in 2018 (Source: EPA)**

ACTIVITY	NUMBER
Enforcement actions	17,000
Inspections	112,000
Complaints received	> 70,000 (bulk related to litter)
Prosecutions	790 (bulk related to unpaid litter fines)

<sup>15</sup> Under the EU's recommendation providing for minimum criteria for environmental inspections.

<sup>16</sup> Roll-out of the household organic bin began in 2013, and since July 2016 organic bins must be provided in population centres with greater than 500 inhabitants (EPA, 2020f). Municipal waste characterisation indicates poor segregation of food waste at commercial premises (EPA, 2018b).

The work of the WERLAs is overseen by a National Waste Enforcement Steering Committee (NWESC), which includes representatives from a wide range of regulatory authorities. The NWESC identified the following enforcement priorities for 2020: tackling significant illegal waste activity including illegal dumping and unauthorised C&D waste activity; inspections of authorised treatment facilities for end-of-life vehicles (ELVs); waste collection compliance (including roll-out of the organic bin under the biowaste regulations); and tracking waste flows.

## 3. Drivers

### Waste Policy and Legislation

**National waste policies are evolving to encompass the circular economy and climate change, in line with EU and UN priorities.**

A National Waste Action Plan for a Circular Economy was published in September (DCCAE, 2020a) (see Topic Box 9.1), replacing the previous national waste policy *A Resource Opportunity: Waste Management Policy in Ireland* (DCCAE, 2012).<sup>17</sup> Ireland's Climate Action Plan, published in 2019, includes ten actions for waste; if implemented these will be important drivers of change (DCCAE, 2019b). Legislative changes driven by the European Commission's 2015 Circular Economy Action Plan will be transposed into national law in 2020/2021 and introduce:

- challenging recycling targets
- new separate collection obligations and in some cases collection targets (certain plastic beverage bottles, textiles, waste oils and household hazardous wastes)

<sup>17</sup> This focuses on treating waste as a resource and virtually eliminating landfilling.



- new data reporting obligations (food waste generated along the supply chain, oils and waste oils, placed on the market data<sup>18</sup> for lightweight plastic bags, home composting, reuse)
- restrictions on placing certain single-use plastic products on the market (cotton bud sticks, cutlery, plates and straws)
- labelling requirements for certain single-use plastic products
- new extended producer responsibility initiatives and measures to reduce the consumption of certain single-use plastic products.

The Commission is also considering the introduction of food waste reduction, overall waste reduction and product reuse targets. The EU Green Deal,<sup>19</sup> the EU's roadmap to sustainability published in late 2019, includes a European Industrial Strategy, a second Circular Economy Action Plan and a Farm to Fork Strategy.

New legislative targets coming into force from 2020 onwards will be a challenge in some cases, particularly for plastic packaging recycling and municipal recycling but also for waste electrical and electronic equipment (WEEE) collection rates and the limits for municipal waste disposal to landfill. Statutory targets will be a driver for change and give opportunities to introduce new policy instruments to incentivise repair, to incentivise kerbside bin segregation (particularly for commercial waste for which 70% of what is presented in the residual bin is potentially recyclable) and to introduce new methods of waste management such as deposit return schemes.

Producer responsibility legislation has been an important driver of funding the collection and environmentally sound management of six waste streams (see 'Producer Responsibility Initiatives' section). The ambition of the PRI legislation to increase the durability, reparability and recyclability of products at the point of design and manufacture has been strengthened under the revised provision under the 2018 Waste Framework Directive and will have an increased focus under the EU Green Deal's sustainable products initiative. Circular economy legislation is extending the requirements for producer responsibility schemes and the Single-use Plastics Directive (2019/904/EC) will introduce new extended producer responsibilities for tobacco products, wet wipes, balloons and fishing gear containing plastic.

## Waste Plans and Programmes

Waste plans and programmes provide a framework, but drivers for implementation are needed.

There are statutory requirements for waste prevention and waste management plans, each with governance structures and timeframes (Table 9.7).

**Table 9.7** Statutory waste planning in Ireland (Source: EPA)

PLAN	RESPONSIBILITY	DURATION/ CYCLE
National Waste Prevention Programme	EPA	Current programme 2014-2020
Regional waste management plans	Local authorities Three Regions: Connacht-Ulster Region Eastern Midlands Region Southern Region	Current plans 2015-2021
National Hazardous Waste Management Plan	EPA	Current plan 2014-2020
Litter management plans	Local authorities	Every 3 years

Selected infographic from the Waste Action Plan for a Circular Economy (<https://www.gov.ie/en/publication/4221c-waste-action-plan-for-a-circular-economy/>)

**HOUSEHOLD AND BUSINESS**

- RECYCLING TARGETS FOR WASTE COLLECTORS
- STANDARDISED BIN COLOURS ACROSS THE STATE: GREEN FOR RECYCLING, BLACK FOR RESIDUAL AND BROWN FOR ORGANIC WASTE
- WASTE RECOVERY LEVY TO ENCOURAGE RECYCLING
- WASTE OVERSIGHT BODY TO MANAGE CONSUMER RIGHTS
- EDUCATION AND AWARENESS CAMPAIGN TO IMPROVE WASTE SEGREGATION

**FOOD WASTE**

- HALVE OUR FOOD WASTE BY 2030
- WASTE SEGREGATION INFRASTRUCTURE FOR APARTMENT DWELLERS
- SUSTAINABLE FOOD WASTE MANAGEMENT OPTIONS FOR ALL HOMES AND BUSINESSES

**PLASTIC, PACKAGING AND SINGLE USE PLASTIC (SUP)**

- DEPOSIT AND RETURN SCHEME FOR PLASTIC BOTTLES AND ALUMINIUM CANS
- SINGLE USE ITEMS BANNED FROM JULY 2021: COTTON BUD STICKS, CUTLERY, PLATES, STIRRERS, CHOPSTICKS, STRAWS, POLYSTYRENE CONTAINERS AND OXO-DEGRADABLE PLASTIC PRODUCTS
- SIGNIFICANTLY REDUCE SUPS BEING PLACED ON THE MARKET BY 2026
- ALL PACKAGING REUSABLE OR RECYCLABLE BY 2030
- EXTENDED PRODUCER RESPONSIBILITY (EPR)
- MANDATORY EPR FOR ALL PACKAGING PRODUCERS BEFORE 2024 EU DEADLINE
- NEW RULES FOR EPR SCHEMES TO INCENTIVISE GOOD PRACTICE IN WASTE RECYCLING AND DRIVE BETTER PRODUCT DESIGN
- PRODUCERS LIABLE FOR MODULATION FEES

18 Measured at the point when a product is supplied or made available to a third party for payment or free of charge (including imported). This is a different approach from that for measuring waste generated.  
 19 See [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)



## 4. Pressures

### Economy

Ireland's use of resources and generation of waste are high.

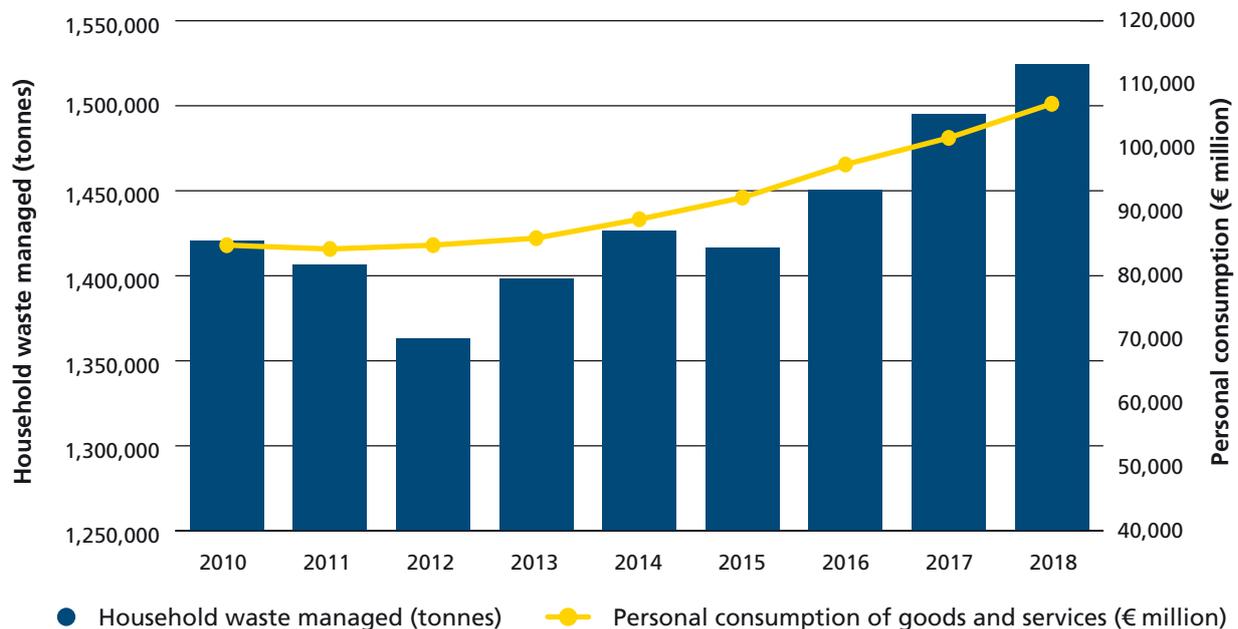
As well as affecting public health, the COVID-19 pandemic has had a significant impact on our economy and the implications of this in relation to waste generation and management will become evident in time (see Topic Box 9.3).

Domestic material consumption (DMC)<sup>20</sup> measures the amount of materials used by an economy and provides an assessment of its use of resources; if materials are used more efficiently, it reduces stresses on the environment, including waste generation. Ireland's DMC is significantly above the EU average (24.35 tonnes per person compared with the EU-28 average of 13.14 tonnes per person; Eurostat, 2020).

Project Ireland 2040 includes a public capital investment of €116 billion, which will result in significant growth in the construction sector (DPER, 2019). Projections from the waste management planning regions indicate that by 2028 up to 7.5 million tonnes of C&D waste will be collected (high-growth scenario) (RWMPOs, 2020).

The quantity of household waste managed correlates closely with Central Statistics Office data on personal consumption of goods and services, both of which have shown a predominantly upward trend since 2012 (Figure 9.8) and indicate that household waste generation is closely linked to consumption patterns.

**Figure 9.8** Household waste managed and personal consumption of goods and services, 2010-2018 (Sources: EPA, Central Statistics Office)



<sup>20</sup> DMC is defined as the annual quantity of raw materials extracted from the domestic territory (biomass, minerals, fossil fuels) plus all physical imports minus all physical exports.



### Topic Box 9.3 COVID-19's implications for waste generation and management

Waste management services were designated an essential service throughout the COVID-19 crisis and bin collections and most waste treatment facilities continued to operate. Surveys carried out by the regional waste management planning offices found that household waste increased by 21 per cent on average and commercial waste generation volumes went down by 50 per cent during the initial phase of restrictions. This trend is understandable given that all but essential services were closed for a time and people were working from home where possible. C&D waste decreased by 70 per cent, as this sector also ceased operating for a time. Skip hire and civic amenity facility activities increased because of clear-out and do-it-yourself activities (EPA, 2020c). The COVID-19 pandemic has the potential to affect waste policy in the short term and national waste statistics in the longer term.

## Population

### Population growth is likely to drive further waste generation.

Ireland's population is forecast to be up to 6.7 million by 2051 (CSO, 2019). Based on 2018 waste generation figures, a population of 6.7 million would generate 3.9 million tonnes of municipal waste (2.9 million tonnes in 2018) and a potential 19.3 million tonnes of overall waste (14 million tonnes currently).<sup>21</sup>

## Consumer Behaviours

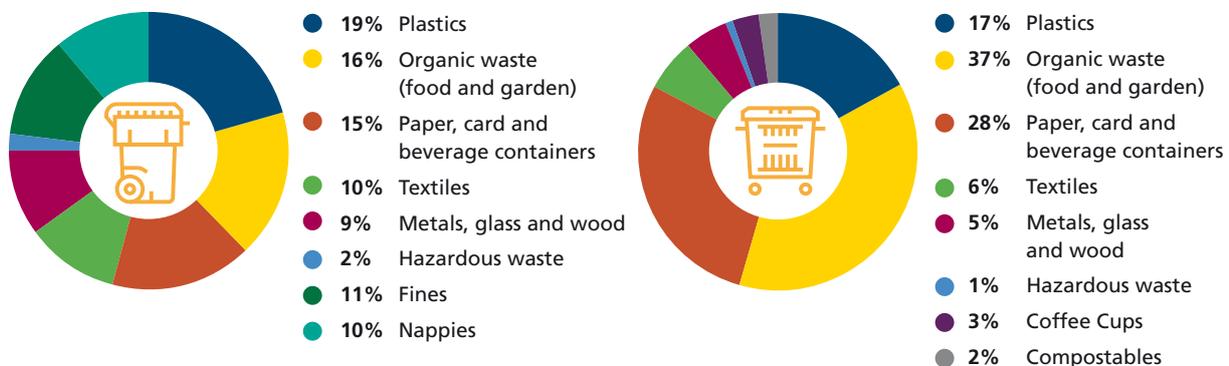
### Consumer behaviours affect waste generation and management.

How consumers behave affects the quantity and types of waste generated and how these wastes are managed. Examining the waste collected provides important insights into the amounts and types of waste presented,<sup>22</sup> whether the waste was deposited in the correct bin and the extent of contamination of the recyclables.

The latest national municipal waste characterisation study (EPA, 2018b) found that 11 per cent of material in household bins should not have been there at all (WEEE, batteries, textiles, paint) and that the recycling bin had higher levels of contamination and non-target materials than 10 years previously. Half of household organic waste is being deposited in residual or recycling bins, rather than being deposited in organic bins. Even more starkly, 70 per cent of waste presented in the commercial residual bin was potentially recyclable. Two-thirds of the plastic waste deposited was soft plastics (films, bags and wrappers), which are not currently accepted in the kerbside recyclables bin.

Since the previous study in 2008, there was a change in the materials placed on the market and consumer behaviour; this is reflected in the decrease in the amount of newspaper in recycling bins and an increase in the amount of single-use items (plastics, coffee cups, tissue paper). Regulators and policymakers use this evidence to target enforcement and awareness and education campaigns on correctly segregating and presenting waste (Figure 9.9).

**Figure 9.9** Municipal waste characterisation insights from household (left) and commercial (right) residual waste bins (Source: EPA; for more information, see EPA, 2018b)



<sup>21</sup> Based on latest data and not allowing for economic growth or contraction.

<sup>22</sup> Typically, three kerbside bins: residual waste, dry recyclables (co-mingled rigid plastics, paper and cardboard, metals) and organic waste (food waste, sometimes green waste). Some collection operators provide a separate bin for glass. For commercial premises, cardboard waste is often a separate collection.



## Market Structure

**The structure of Ireland's household waste collection market is atypical.**

Local authorities are responsible for collecting or arranging for the collection of household waste under the Waste Management Act, 1996. Atypically, compared with other Member States, the household waste collection market is privatised; householders contract directly with the operator for provision of the service.<sup>23</sup> In 'side-by-side competition' for the waste collection market, waste operators can offer their services in any location and there may be more than one collector in any location. A study by the Competition and Consumer Protection Commission (CCPC) to assess the nature and scale of household and operator issues in the household waste collection market reported that the market is highly concentrated, consumers have little or no power to influence operators' behaviour and the current structure affects the achievement of environmental goals. The CCPC also reported that, although there are numerous regulators, there are few state economic levers to ensure that policy on waste collection services is delivered and environmental goals achieved (CCPC, 2018).

## Waste Infrastructure and Capacity

**Ireland has limited, and in some cases zero, national capacity to treat the wastes generated.**

Local authorities are statutorily responsible for waste management planning and provision of infrastructure. A network of civic amenity sites and bring banks are owned and managed by local authorities (or their management is

subcontracted to the private sector) and local authorities manage legacy sites, particularly closed landfills, but the private sector primarily provides waste collection and treatment facilities.

Waste treatment capacity is finely balanced, particularly for municipal and non-inert C&D wastes (Table 9.8). In 2016, landfill capacity was critically low and additional capacity had to be authorised to prevent environmental impacts. Municipal and non-inert C&D waste treatment capacity is now monitored quarterly by the regional waste management planning offices to ensure continuity of collection and processing capacity (also healthcare waste capacity since COVID-19). There is no contingent landfill capacity currently in place, although some suitable sites have been identified, and the process of assigning contingency capacity is under way. Lack of capacity has affected the state's availability to repatriate certain legacy waste that had been deposited illegally at sites in Northern Ireland. There is currently no commercial hazardous waste landfill or hazardous waste incinerator in Ireland<sup>24</sup> and no facility for radioactive waste treatment. This lack of infrastructure is a risk to the state. While the EU single market gives us security of movement, there are risks that export markets for hazardous and recyclable wastes may close at short notice because of lack of capacity or cost-effectiveness.<sup>25</sup> Waste exports are also lost resources; some wastes can be repaired for reuse, others used as fuel and others mined for recycling.

<sup>23</sup> Kerry County Council and Kilkenny City Council continue to collect household kerbside waste for fewer than 2,325 urban households (2019 data).

<sup>24</sup> A licence review application for Bord na Móna Dredhú Landfill includes for hazardous waste landfill. Indaver Ireland Limited has applied for a licence for a hazardous waste incinerator in Co. Cork.

<sup>25</sup> The Netherlands and Sweden introduced waste-to-energy levies in 2020.



**Table 9.8 Waste infrastructure and capacity, 2020 (Source: EPA)**

INFRASTRUCTURE	DETAILS	AUTHORISED CAPACITY	COMMENTS
Landfills accepting municipal and other waste for disposal and recovery <sup>a</sup>	Drehid landfill Knockharley landfill Ballynagran landfill	470,000 tonnes a year <sup>b</sup>	Three landfills, compared with six in 2016.
Municipal waste-to-energy facilities	Indaver waste-to-energy facility Dublin waste-to-energy facility	835,000 tonnes a year	A pyrolysis plant in Co. Offaly with a licence to process 65,000 tonnes a year is due to start operations in 2021.
Co-incineration of solid recovered fuel at cement kilns	Irish Cement Platin Quinn Cement Breedon Cement Ireland Limited	343,000 tonnes a year	A licence application for Irish Cement Mungret is under consideration by the EPA.
Composting and anaerobic digestion <sup>c</sup>	33 commercial facilities	688,000 tonnes a year	Does not include industrial/agricultural facilities that treat their own waste.
Soil and stone recovery capacity		>20 million tonnes <sup>26</sup>	In 2019, waste facility permit regulations were amended to increase the threshold for recovery of inert wastes from 100,000 tonnes to 200,000 tonnes over the lifetime of a facility.
Civic amenity sites	118 (96 local authority and approx. 25 private sector)		Approx. 17% of household waste managed is accepted at these sites.
Bring banks	Approx. 1850		
Pay-to-use compactors	Approx. 30		

<sup>a</sup> Ballaghveny landfill, operated by Tipperary County Council, is due to reopen in 2021 to accept non-municipal wastes such as non-hazardous C&D waste.

<sup>b</sup> In 2018, 418,029 tonnes of municipal waste were disposed of to landfill. In that year there were five operational landfills accepting municipal waste.

<sup>c</sup> In 2018, 436,000 tonnes of biodegradable waste were accepted for treatment at these sites, an increase of 15% on the 2017 tonnage.

Authorised capacity reported here is based on licence/permit conditions but there may also be planning restrictions. Note authorised capacity does not always equal operational capacity, as the capacity may not be built or commissioned and may be subject to shut-down/maintenance at times.

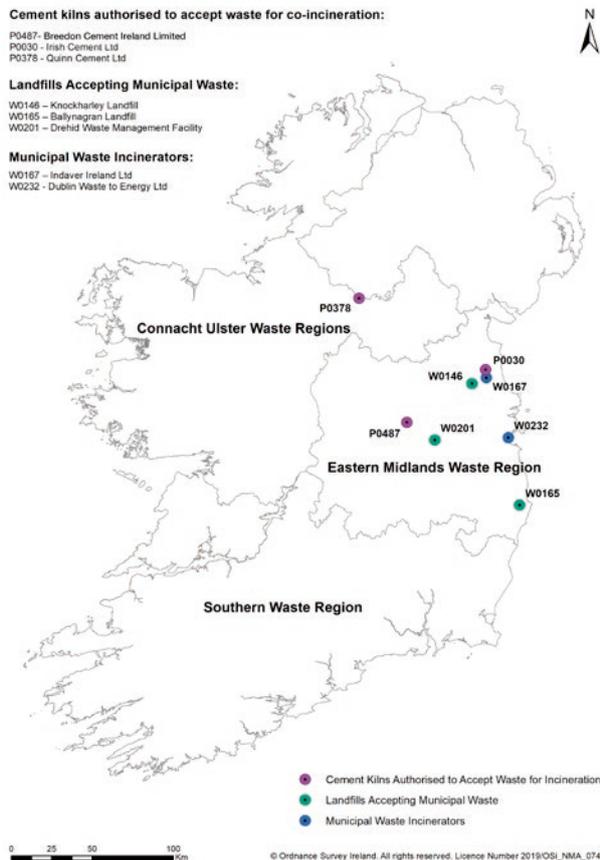
At present, registers of waste collection and facility permits are maintained by the National Waste Collection Permit Office, and the EPA maintains a register of waste sector licences. The State would benefit from a national, online, open-source register of waste infrastructure and capacity.

Municipal waste disposal and thermal treatment infrastructure is concentrated in the Eastern Midlands waste region (Figure 9.10).

<sup>26</sup> This figure represents EPA authorised capacity and does not include capacity for soil & stone recovery at local authority authorised waste facilities.  
[http://www.epa.ie/pubs/reports/other/corporate/2019-09-11\\_EPA\\_AnnualReport\\_English\\_2018web.pdf](http://www.epa.ie/pubs/reports/other/corporate/2019-09-11_EPA_AnnualReport_English_2018web.pdf)



**Figure 9.10** Municipal waste landfill and waste-to-energy treatment infrastructure (Source: EPA)



## Waste Management Planning and Regulation Responsibilities

Interagency cooperation is vital given the existing planning and regulatory systems.

Ireland's waste planning and regulatory responsibilities and systems have developed over the last 25 years, and the EPA and local authorities have statutory roles. The EPA's Office of Environmental Enforcement (OEE) is responsible for enforcing EPA waste sector licences and supervises the environmental protection activities of local authorities. The OEE coordinates the activities of NIECE, the Network for Ireland's Environmental Compliance and Enforcement (Topic Box 9.4).

### Topic Box 9.4 Network for Ireland's Environmental Compliance and Enforcement

NIECE was set up to improve the implementation of environmental protection legislation through enhanced promotion, engagement and collaboration among public authorities (EPA, 2018c). Waste is a thematic area<sup>27</sup> and priorities such as illegal dumping, C&D waste, ELVs, tyres and landfills have been a focus.



Regional local authority structures are in place for waste management, waste enforcement and climate action planning. The National TransFrontier Shipment Office at Dublin City Council is the competent authority for waste shipments and hazardous waste movements within the State while the National Waste Collection Permit Office at Offaly County Council is responsible for waste collection permitting.

An evaluation of Ireland's implementation and operation of European policies on preventing and combatting waste crime was broadly positive, and it made a number of observations and recommendations, including compiling waste crime statistics at a national level, keeping the EPA and National TransFrontier Shipment Office's capacity under review to allow them to effectively fulfil their tasks, and considering evaluating the benefits of specialised judges in waste crimes or providing judges with structured and ongoing training in waste crime. They also identified an overlap in competences and gaps between the authorities responsible for the enforcement of environmental legislation and suggested enhanced cooperation between the stakeholders responsible for enforcement, given that waste crime is a concern and interagency cooperation is vital (Council of the European Union, 2018).

<sup>27</sup> Water and air/climate are the other thematic areas.



## Timely Waste Data

The provision of good-quality, timely waste data is a priority action.

Provision of quality and timely waste data is a priority action for Ireland (EC, 2019). To meet this priority, waste management operators must provide good-quality data to regulators when they need it. Local authorities must complete data validation work in good time to allow timely publication of national waste statistics. Regulators should identify waste statistics that can be provided on a more up-to-date basis, even as preliminary information, to inform enforcement and investment in the waste industry and for decision-making by policymakers. Fixed penalty notices could be an effective administrative sanction to introduce for operators that fail to report on time or whose data reporting requires significant validation efforts. Introducing a legislative requirement to make certain waste collection and facility data accessible online, without compromising commercial sensitivity, should be considered. The circular economy legislation is introducing new reporting obligations and calculation methods, and setting up data sources and reporting methodologies will need significant resources in the short term.

## 5. Promoting Sustainable Behaviours and the Circular Economy

### National Waste Prevention Programme

The National Waste Prevention Programme supports national initiatives that prevent waste and drive the circular economy.

The National Waste Prevention Programme supports national-level, strategic programmes to prevent waste and drive the circular economy.



Programmes include the Green Enterprise<sup>28</sup> innovation funding programme, the Local Authority Prevention Network<sup>29</sup> and Smart Farming.<sup>30</sup> Food waste prevention has greater priority in the National Waste Prevention Programme since its review in 2018, and new initiatives are being undertaken to examine the nature and extent of food waste in Ireland and estimate carbon impacts. The programme will continue to build on the successful consumer-focused Stop Food Waste<sup>31</sup> and business-focused Food Waste Charter, Retail Action Group and Food Waste Forum.

### Green Public Procurement – Public Sector as Leader

Green public procurement can be a stimulus for waste prevention and the circular economy.

Green public procurement (GPP) has significant potential to create a critical mass of demand for more sustainable goods and services, given that public sector purchasing accounts for up to 12 per cent of Ireland's gross domestic product each year (Topic Box 9.5). The Climate Action Plan recognises that the public sector has a leadership role in GPP (DCCA, 2019b), as does the Green Government initiative (DCCA, 2019c). The programme for government 'Our Shared Future' commits to developing and implementing a sustainable procurement policy and to mandating the inclusion of green criteria in all procurement using public funds within 36 months (Government of Ireland, 2020).

The EPA's *Green Procurement Guidance for the Public Sector* (EPA, 2014) is under review and a revised version will be published in early 2021. GPP training for government departments and public bodies has started in 2020 and a GPP monitoring and reporting template for government departments is in preparation. The EU Green Deal flags the potential for GPP legislative targets, and the Farm to Fork Strategy proposes minimum mandatory GPP for public food and catering contracts.

28 <http://www.epa.ie/researchandeducation/research/epafunding/greenenterprise/>

29 <https://localprevention.ie>

30 <https://smartfarming.ie>

31 <https://stopfoodwaste.ie>



### Topic Box 9.5 Green and Social Public Procurement

In 2019, the National Waste Collection Permit Office procured the delivery, assembly and installation of upcycled furniture for its new office in Tullamore. Community Resources Network Ireland led a consortium of ten social enterprises to complete the project and fitted the office with 97 items of upcycled furniture, saving approximately 2.6 tonnes of carbon dioxide. Seeking reused and upcycled furniture through procurement has the potential to prevent waste and also support organisations delivering circular economy activities in Ireland.



(Source: Community Resources Network Ireland)

### Environmental Levies

**Levies encourage better waste disposal practices and deter overconsumption.**

There are environmental taxes on disposal of waste to landfill and consumption of certain plastic bags. In 2019, €6 million was collected from the plastic bag levy and €12 million was collected from the landfill levy (Table 9.9). In the period 2004-2019, the maximum amount collected under the landfill levy was €52 million in 2012 and the maximum under the plastic bag levy was €27 million in 2008 (CSO, 2020).

The European Commission's Environmental Implementation Review recommended that Ireland introduce new economic instruments to promote prevention and make reuse and recycling more economically attractive (EC, 2019). In 2019, the government held a public consultation on the proposed introduction of a waste recovery levy and coffee cup levy and increases in the existing plastic bag and landfill levies (DCCAE, 2019d). A *Waste Action Plan for a Circular Economy* has stated that levies will be introduced on disposable coffee cups and also that a new waste recovery levy of €5 per tonne will be introduced to incentivise recycling over energy recovery and backfilling. Levies for virgin plastic usage, cold drinks cups and food containers are also proposed in the new national waste policy.

**Table 9.9** Plastic bag and landfill levies collected (€ million), 2012-2019 (Source: CSO, 2020)

LEVY	2012	2013	2014	2015	2016	2017	2018	2019 <sup>a</sup>
Plastic bag levy	14	15	13	12	9	7	6	6
Landfill levy	52	43	34	34	48	37	19	12

<sup>a</sup> Provisional figure.



## By-products and End-of-waste

The numbers of by-product notifications and end-of-waste applications are increasing.

The Waste Framework Directive 2008 introduced provisions for by-products and end-of-waste materials, aiming to keep resources in the economy as part of a circular economy.<sup>32</sup> The by-products provision allows economic operators to decide that a substance or object produced by them is a by-product and not a waste. These decisions must be notified to the EPA, which may decide to agree with the decision or may determine that the material should be considered waste. In excess of 1300 by-product notifications have been made, mostly relating to soil and stone,<sup>33</sup> road planings<sup>34</sup> and other C&D materials. Where the EPA has made decisions, 37 per cent were accepted as a by-product, 33 per cent were determined to be waste and 29 per cent of the decisions were withdrawn. The EPA has published guidance on soil and stone as a by-product, and draft guidance on the preparation and submission of by-product notifications will be finalised in 2020 following a public consultation period.

The European Commission has developed end-of-waste criteria for iron, steel and aluminium scrap and glass cullet. The EPA is responsible for making national decisions and single-case decisions on end-of-waste criteria if there are no criteria at EU level. Recent single-case decisions relate to plastic, recycled aggregate, ash from energy generation and recovered ammonium sulphate.<sup>35</sup> The EPA has published draft end-of-waste guidance, which will be finalised in 2020 following a public consultation period.

## Consumer-led Sustainability Initiatives

The UN SDGs and the EU's Circular Economy Package have put increased focus on prevention of food waste and reducing consumption of single-use plastic products. Many social enterprises and charity and citizen initiatives have been set up to prevent waste and deliver circular economy initiatives (Topic Box 9.6).

### Topic Box 9.6 Examples of Circular Economy Initiatives



#### Refill.ie

Refill.ie is a not-for-profit social enterprise working to make Ireland's towns and cities' tap water 'refill friendly' for everyone while on the go. They work with business communities, public organisations, community groups and local authorities to create and maintain locations where reusable water bottles can be refilled for free. The aim is to prevent plastic waste through reducing the amount of single-use plastic bottles consumed. Over 1300 locations are on Refill.ie's TAP MAP at [www.refill.ie](http://www.refill.ie) or on its app.



#### FoodCloud

FoodCloud is a not-for-profit social enterprise established in 2013 as the first national surplus food redistribution network. FoodCloud connects businesses with surplus, edible food to community groups that can use it, providing the opportunity for businesses and community groups to work together to increase social inclusion while addressing the problem of food waste. FoodCloud has helped to facilitate the redistribution of 30,893 tonnes of surplus food to community groups across Ireland, the UK and internationally, the equivalent of over 37 million meals.<sup>36</sup> <https://food.cloud/>



#### Repairmystuff.ie

Repairmystuff.ie is an online repair directory platform, developed by Monaghan County Council through grant support from the National Waste Prevention Programme's Local Authority Prevention Network. Its purpose is to support repair for reuse, a core ambition of a circular economy. Repair organisations can register for free, and the public can search for repair businesses in their local area by category. <https://www.repairmystuff.ie/>



#### Conscious Cup Campaign

The Conscious Cup Campaign is an environmental non-governmental organisation (NGO)<sup>37</sup> that started in 2016 with the ambition of reducing the use of single-use cups in Ireland by encouraging cafes and other outlets to incentivise, through rewards, customers who bring their own cups. Its Cafe Map shows outlets that provide such discounts or incentives to customers. The campaign also supports the food-to-go industry to eliminate single-use items by implementing reuse solutions for both front and back of house. <https://consciouscup.ie/>

32 Typically known as Article 27 and Article 28 under Irish transposing legislation.

33 Typically produced in excavations for construction.

34 Materials from removing the surface of a road or pavement during maintenance or construction.

35 Decisions can be found here: <http://www.epa.ie/waste/wastereg/art28/>

36 The volume of surplus food redistributed in Ireland to date is 8767 tonnes, the equivalent of 20.9 million meals.

37 Funded by the regional waste management planning offices and supported by VOICE (environmental NGO).



## Waste Awareness and Information Initiatives

Waste data and information is now more accessible online.

The EPA's National Waste Statistics website was established to provide accessible and timely waste data and information for the public: <http://www.epa.ie/nationalwastestatistics/>.



The EPA also provides information on industrial and waste sector licence enforcement in an online resource: <https://www.epa.ie/industrialwastedata/>.



MyWaste<sup>38</sup> is a Government of Ireland initiative, developed by the regional waste management planning offices. The website provides the public with a single national online resource for information on how to manage waste responsibly and efficiently, where to find local waste services and recycling facilities and information on all aspects of the waste hierarchy, from prevention to disposal. Awareness campaigns focus on gaps in citizens' knowledge and are informed by the waste industry and other stakeholders.

# mywaste

## Incentivising Household Waste Management

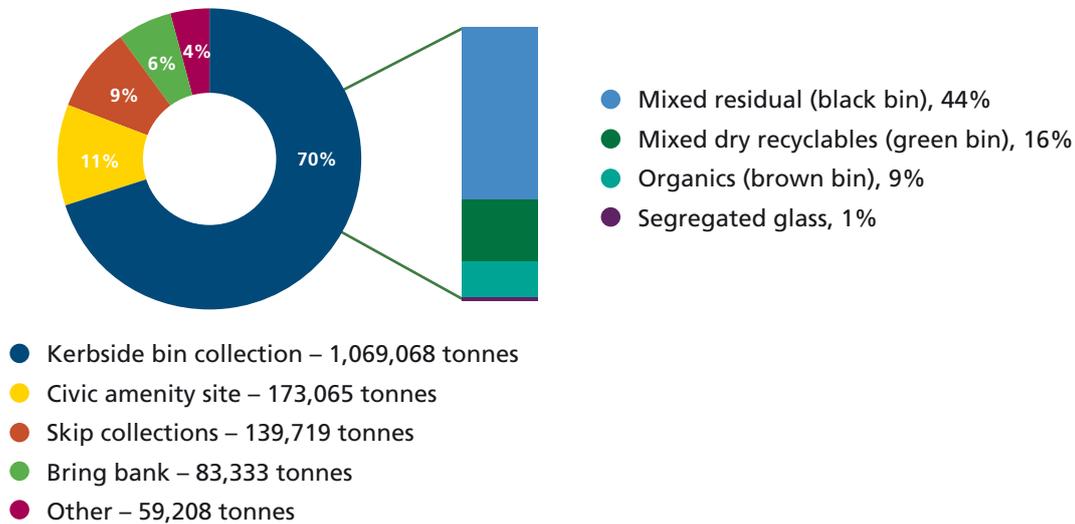
Waste bye-laws have been introduced, obliging households and commercial premises to provide proof of how they manage their waste.

Local authorities have introduced waste bye-laws obliging all households, apartments and commercial premises to participate in an authorised waste collection service or provide documentary proof of alternative means they use to dispose of their waste. The latest available estimates are that 84 per cent of households have kerbside bins or share kerbside bins, 4 per cent use a pre-paid bag collection service, 8 per cent bring it to a recycling centre and 1 per cent bring it to work (CSO, 2016).





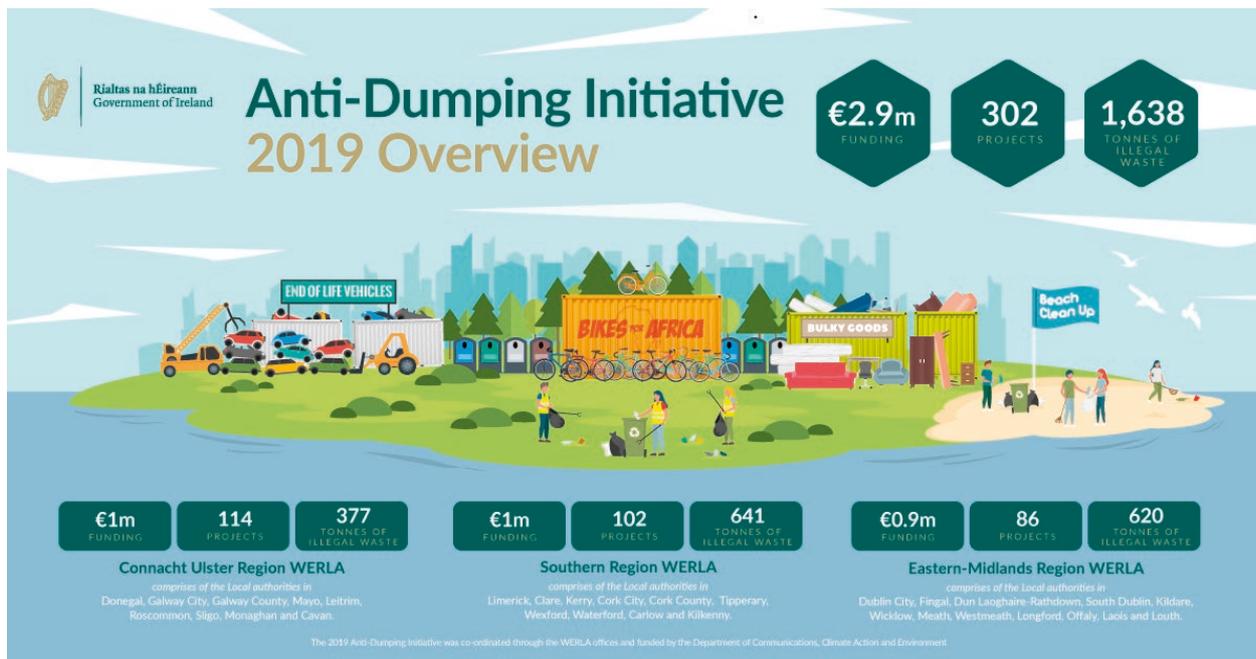
**Figure 9.11** Collection of household waste in Ireland, 2018 (Source: EPA)



Since September 2017, all household waste collection contracts must be weight based.<sup>39</sup> A price monitoring group is tracking pricing in the market quarterly and has found that costs have remained broadly stable (Government of Ireland, 2019). The objective of weight-based contracts was to prevent waste by raising householders' awareness of the waste they generate and to improve segregation of waste. National waste statistics show, however, that household waste increased between 2016 and 2018 (305 kg per person in 2016, 312 kg per person in 2017, 315 kg per person in 2018). There is also room for improvement in the segregation of household waste, as shown in characterisation studies.

Kerbside collection is the primary route for managing household waste, with 70 per cent collected at the kerbside in 2018 and smaller quantities collected at civic amenity sites, bring banks and in skips (Figure 9.11). Almost half of household kerbside waste was placed in the residual bin (44%), 16 per cent in the recycling bin and 9 per cent in the organic waste bin. From waste characterisation studies the EPA estimates that the amount of residual waste could be reduced by half with proper segregation of recyclable and organic waste and that almost one-third of the waste placed in the recycling bin belongs in the residual or organic bin.

<sup>39</sup> The planned introduction of pay-by-weight charges for household kerbside collections in 2016 was met with public opposition and the policy focus shifted to the phasing out of flat-rate fees.



## Enforcement Initiatives

Dumping and littering remain significant issues that are being tackled through government initiatives.

The Department of Communications, Climate Action and Environment introduced an anti-dumping initiative in 2017, which is coordinated by the WERLAs. Initiatives have included the use of drones to identify illegal dumping spots; a pilot initiative in Sligo to create and maintain a register of how households are managing their waste using Eircode information; and mattress/bulky waste amnesties (WERLA, 2020). In 2019, €2.9 million in funding was provided for 302 projects that managed to clean up 1638 tonnes of waste. In April 2020, the government announced that €1 million of the anti-dumping initiative's funds would be ring-fenced to allow local authorities to respond quickly and decisively to incidents of illegal dumping during the COVID-19 crisis (EPA, 2020c).

### Topic Box 9.7 EPA Waste Research Programme

Research into waste-related topics provides valuable solutions and information.

Since 2016, the EPA has funded up to 53 new research projects relevant to the Waste area, representing a commitment of €7.2 million. These projects were funded mostly under the Sustainability (Resource Efficiency) Pillar of the EPA Research Programme 2014-2020 and the EPA Green Enterprise Scheme.

Areas of waste research include:

- commercial food waste arisings
- supporting preparation for reuse of WEEE
- measuring persistent organic pollutants in waste
- sustainable compostable and recyclable plastics
- packaging waste statistics
- end-of-waste standards for good-quality compost and digestate
- potential use of wastes as geopolymer construction materials
- managing waste amalgam dental fillings.

Reports are available from:

<http://www.epa.ie/pubs/reports/research/waste/>



## 6. Conclusions

### Waste Management in Ireland

Ireland's waste management landscape changed radically with the implementation of the Waste Management Act in 1996. From a low base, our country made great strides in reducing disposal to landfill, providing an infrastructure for the collection of recyclables and developing expertise in waste management and regulation. Ireland showed innovation by being the first country to introduce a plastic bag tax and to launch a National Waste Prevention Programme. However, Ireland has reached a plateau in relation to waste management; to further deliver the necessary waste prevention and circular economy ambitions will be a challenge.

The latest waste statistics indicate that waste generation is increasing in many waste streams, including municipal, C&D waste, hazardous waste, WEEE and ELVs. The link between economic growth, consumption levels and waste generation has not been broken.

### Waste Infrastructure

National municipal landfills and waste-to-energy facilities are operating at capacity and Ireland has some significant waste infrastructure deficits, as evidenced by its high dependence on export markets for treating municipal and hazardous wastes. There is a risk to the state in the event of export markets closing at short notice and the planned contingency landfill capacity needs to be secured without delay. Developing new recycling industries and markets in Ireland would build its self-sufficiency, while recognising that viability may be an issue given the volumes produced here. Civic amenity sites and bring banks serve an important function in Ireland's waste management infrastructure, and there is potential to increase their number, aligned with population density, and for the role of civic amenity sites to be expanded to include opportunities for reuse and repair activities.<sup>40</sup>

### Waste Legislative Targets

While Ireland is meeting current legislative targets for waste collection, recovery and recycling, and diversion from landfill, future targets will be a significant challenge given our current performance, particularly municipal and packaging recycling targets for which rates have plateaued or are declining. National waste statistics indicate that much municipal and packaging waste is sent for energy recovery. While this waste management option is preferred over disposal to landfill, there is a risk that it may disincentivise extraction of recyclable

materials from residual waste. Future EU legislative targets are for recycling (none for recovery) and reuse targets are expected in future. While waste prevention has been central to national waste policy since the 1990s, circular economy policy is making prevention and reuse more urgent and necessary.

### Composition of Household and Commercial Waste

Municipal waste characterisation studies have given us valuable evidence on the composition of household and commercial waste bins. On the positive side, the roll-out of organic bins has had an impact in terms of diverting food and garden waste to recycling but there are stark results regarding poor segregation, and correct segregation could reduce residual waste by half and increase Ireland's recycling rates. Education and awareness play a role as well as enforcement activities.

### Regulating the Waste Sector

Non-compliance in the regulated waste sector is an ongoing issue, and the EPA and local authorities are responsible for enforcement. A risk-based approach is taken and resources directed to national priority areas. There is a significant level of enforcement activity and, given that enforcement responsibilities are shared across regulators, it is important to maintain a high level of interagency cooperation to ensure consistent approaches are taken and information and data shared efficiently and effectively. Waste crime is a significant cost to the state, from staff resources to remediation costs, and illegal activity ranges from littering to backyard burning to large-scale unauthorised waste disposal. Waste legislation needs to be effective and enforceable and the range, level and application of penalties for breaches of waste management legislation sufficient to deter unwanted behaviours. A review of litter legislation and the regulation of by-products and end-of-waste materials would be useful to ensure that provisions and regulatory processes are efficient and effective. The forthcoming EPA-led study on the nature and extent of waste crime in Ireland is welcome as a way of identifying the current status, as the last report on unauthorised waste activity was published in 2005.

<sup>40</sup> A review of civic amenity site operations carried out by the regional waste management planning offices will be published shortly.



## A Circular Economy

The government can leverage a circular economy approach and influence behaviour change through multiple activities: policy signals, legislation, national targets, economic levies, restrictions on placing on the market, improved labelling, extended producer responsibility, and incentivising new circular economy business models and initiatives to reduce consumption of single-use items. While it is a challenge to influence citizens to change their consumption and waste management behaviours, there is increasing public appetite, as evidenced by citizen-led sustainability initiatives. The level of environmental taxes is low in Ireland and the plans to introduce for new levies under new waste policy is welcomed – we know that the existing landfill and plastic bag levies have been important drivers of change. GPP also has significant potential for the public sector to show leadership in procuring sustainable products and services.

## Waste and the Pandemic

The full impact of the COVID-19 pandemic on waste in Ireland is yet to be determined. Initial data indicate that waste management services operated well, although reports of illegal dumping and backyard burning increased.

## Waste Policy and Planning

This is a pivotal time, as *A Waste Action Plan for a Circular Economy* is published by government, circular economy legislation is being transposed into national law and national waste management and prevention plans are in a review phase. Ireland has the opportunity to introduce systemic change in waste management through policy and planning to drive circular economy and climate action in Ireland. While plans and programmes provide important frameworks, statutory obligations and targets are needed to drive change, as well as effective enforcement and penalties to deter illegal behaviours. We have shown our capacity in the past to be innovative, creative and open to change in terms of waste prevention and management. We have the potential through this next phase of change to positively impact not only our terrestrial and marine environments but also our health and wellbeing.



## Chapter Highlights for Waste



Ireland needs to do more to prevent waste at all stages of a product's life cycle, incentivise reuse and repair, increase recycling and extract the maximum resources from waste that cannot be recycled. Implementing the policy initiatives under the *Waste Action Plan for a Circular Economy* will be central to delivering the systemic changes needed.



Strong, consistent, multi-agency enforcement and campaigns to change public behaviour are needed to effectively target littering in urban and rural areas, to prevent waste crime and to ensure that those who break the law are held accountable.



How we manage and recycle our waste needs to be reviewed. Municipal and packaging waste recycling rates have stagnated or declined but improved segregation of kerbside bins could bring about significant improvement in rates. Landfill and waste-to-energy treatment in Ireland is at capacity and the country is highly dependent on export markets to treat residual, recyclable and hazardous wastes. We need to build in resilience to Ireland's waste management capacity in the event of emergencies.



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