Country Profiles

AUSTRIA

Legal Framework

According to the Austrian constitution, responsibility for municipal waste management is split between the federal and provincial governments. The 2002 Waste Management Act is the key federal law that established the countrywide regulatory framework for the management of waste and set out a waste management hierarchy in line with the EU waste policy. The Federal Constitutional Act set forth that legislation on hazardous waste falls exclusively under the jurisdiction of the Federal Government and of the Federal Ministry of Sustainability and Tourism (BMNT), Directorate V "Waste Management, Chemical Policy and Environmental Technology". The Austrian Federal Provinces have jurisdiction over municipal waste collection, the associated levying of waste collection fees and the planning of plants, particularly of plants for the disposal of this waste. All nine Federal Provinces have their own pertinent waste laws, some of which have given rise to associated ordinances. Generally, the laws of the Federal Provinces allocate the obligation to ensure an orderly disposal, especially of residual and bulky waste, to the municipalities. These responsibilities are implemented by the municipalities through appropriate waste collection codes and other means.

Market Structure

The Austrian waste system is characterised by a high level of intervention of the public sector: for instance, 60% of municipal collection is outsourced and 40% is directly managed by municipalities. The public sector holds also a large share of plants treating residual and bulky waste: waste incineration plants are usually fully or partly owned by energy utilities, which in turn are usually owned by the respective Federal Province; on the other side, mechanical-biological treatment plants are usually owned by the municipalities themselves and the associations they belong to. With regard to other types of plants, the share held by municipalities and Federal Provinces is much lower: organic waste treatment, for instance, is in the hands of agricultural composting companies, while sorting and splitting plants as well as physico-chemical treatment facilities are dominated by private disposal management. For what concerns disposal, most of the 850 private companies are small and medium sized companies, in addition to the few relatively large companies that have a domestic turnover of 200 million euros per year (2011).

Price Setting

Municipalities are responsible for setting charges based on the size of a household waste bin and the frequency of collection. The fees levied are typically made up of a system charge, which is used to finance waste management activities such as the removal of litter, and a charge covering the costs of waste collection and treatment. *Pay-as-you-throw* schemes are only provided for single-family houses, with waste collection and treatment fees for apartment buildings being determined by apartment size (per square meter) as opposed to the size of the waste container.

Regulation

There is no National Regulatory Authority responsible for municipal solid waste in Austria. Federal Provinces are those in charge of waste management in general, and also for what concerns regulatory aspects (i.e. authorisations, permits). The Federal Government's jurisdiction (through BMNT) only applies if there is a need to issue uniform requirements (e.g. plant-related measures, complaints, inspections, notification of imports and exports, control of waste shipments).

On the other side, the Federal Competition Authority (*Bundeswettbewerbsbehörde* - BWB), as the responsible entity for ensuring and maintaining competition, is involved in municipal waste regulation for matters concerning the excessive market power of companies (e.g. past cases were about opening the market for collection of waste accumulated in households or monitoring mergers and acquisitions between companies within the waste industry). However, BWB has no specific responsibilities with regard to the waste sector.

Relevant Entities

Federal Ministry of Sustainability and Tourism (BMNT)

Characteristics

- Ministry of the Government of Austria
- Competencies in agricultural policy, forestry, hunting, fishing, viticulture, environmental protection, energy, mining, animal welfare, and tourism industry

Base year

1868

Budget

2,77 billion Euros (2015)

Contacts

Stubenring 1, 1010 Vienna
Tel: +43 1 71100
https://www.bmnt.gv.at/english/

Data

Country

- Area: 83.879 km^2
- Population: 8.783.198
- Population density: 104 $inhab/km^2$
- No. of districts: 84

Sector

- Municipal waste generated: 4,17 million tonnes
- Share of recycling and composting: 59%
- Share of landfill disposal: 3%
- Municipal waste generated (kg/capita): 564
- Municipal waste incineration plants: 11 (2016)
- 11.200 employees (2012)

Federal Competition Authority (BWB)	
Characteristics ▪ Protection of competition in different sectors **Legal basis** Federal Competition Act of 2002 **Number of employees** 45 **Budget** 33 million Euros (2002-2017) **Contacts** Radetzkystraße 2, 1st floor 1030 Vienna Tel: + 43 (0) 1 245 08-0 Fax: +43 (0) 1 587 42 00 www.bwb.gv.at	

BELGIUM

Legal Framework

The Federal Government and the regions have a shared responsibility for environmental matters. The Federal Government has retained limited responsibility for specific environmental matters, while waste management is incumbent upon the three regions of Brussels Capital Region (BCR), Flanders and Wallonia, with independent administration and legislation each. Regional governments are responsible for the waste management planning as well as for the statistical reporting, and they usually offer a range of instruments to guide and steer waste management, including licenses, charges, acceptance obligations, covenants, grants, local controls and environmental policy agreements. The agencies for waste management in these Regions are: the Public Company for Waste Management (OVAM) in Flanders, the Bruxelles Environnement – IBGE in Brussels and the Operational Branch of Agriculture, Natural Resources and Environment (DGARNE) in Wallonia. While in Brussels the task is assigned to a single regional agency, in Flanders and Wallonia municipalities are responsible for organising the waste collection and management in their territory. Public associations have been established in which several municipalities cooperate to fulfil their responsibilities with regard to waste management. For the collection and treatment of industrial waste, responsibility lies with the private sector.

Market Structure

Because Belgium is a small and densely populated country, waste collection, treatment and disposal services are highly developed and sophisticated. Municipal waste has been normally handled by the public sector and industrial waste by private firms. However, the Belgian market for household waste management services offers few opportunities for new operators or foreign firms, since in recent years many public services have been privatized. On the other hand, waste treatment market is already mature and hyper-competitive, involving few multinational waste management groups. In any case, must be considered how the regional differences shape the market: for instance, the Brussel Capital Region's management system is highly service-orientated, with few competencies in treatment and disposal of waste, because of lack of space for the needed infrastructure (e.g. Brussel depends totally on the other regions for landfilling, since there is no capacity within the region).

Price Setting

Typically, municipalities charge households a variable tax through a *pay-as-you-throw* system. Unlike the most common system of paying a charge based on weight, residents are required to distribute their waste between three and five differently colored bags (for general refuse, for plastics, for glass, for compostable material and for paper) with different level of prices. The general bag is the one which costs the most. However, since these revenues are not sufficient to cover all the waste management costs, an additional fixed tax is normally charged to users.

Since 2012, Wallonia applies the principle of cost-truth: municipalities must charge the right price for collection and treatment of household waste, with a ratio between income and expenditure for waste management between 95 and 110%. According to the principle, each municipality will ask its citizens a flat tax to cover the minimum service (ex. the collection and treatment of a certain amount of waste, access to container parks) and of charges for additional services (ex. shopping bags, bulky collection or green waste on call). Citizens will pay their household waste at the costs borne by the municipality, which may differ between different municipalities (ex. according to the modes of collection chosen, the intercommunal association which is in charge of the management, the rural character of the commune).

Regulation

There is no a National Regulatory Agency for municipal solid waste in Belgium. However, each of the three agencies is partly responsible for municipal waste regulation. In Flander, OVAM is responsible for licences to entities that work with waste, for recognitions for specific activities and for subsidies to projects regarding waste prevention and waste management plants (general subsidy 50%). In Brussels, Bruxelles Environnement - IBGE is in charge of legislation, authorisations and inspections (i.e. it grants environmental permits, approvals and certificates as well as monitors compliance with environmental legislation within the waste sector). In Wallonia, the Operational Branch of Agriculture, Natural Resources and Environment (DGARNE) develops the provisions for waste management.

Relevant Entities

OVAM

Characteristics

- semi-governmental institution

Legal basis

Waste Decree of 2 July 1981

Number of employees

385 employees (2011)

Budget

26,292 million Euros (2011)

Contacts

OVAM – Stationsstraat 110
2800 Mechelen
Tel: + 32 15 284 284
www.ovam.be

Bruxelles Environnement - IBGE

Characteristics

- administration for environment

Legal basis

Royal Decree of 8 March 1989

Number of employees

1092 employees (2017)

Budget

158 million Euros (2017)

Contacts

IBGE - Avenue du Port 86C/3000, 1000 Brussels
Tel: + 32 2 775 7629
https://be.brussels/about-the-region/regional-bodies/bruxelles-environnement-ibge

DGARNE

Characteristics

- governmental institution

Contacts

DGARNE - Avenue Prince de Liège 15
5100 Namur (Liége)
Tel: +32 081 33 65 27
http://www.wallonie.be

Data

Country

- Area: 30.536 km^2
- Population: 11.358.357
- Population density: 351 inhab/km^2
- No. of municipalities: 589

Sector

- Municipal waste generated: 4,76 million tonnes
- Share of recycling and composting: 54%
- Share of landfill disposal: 1%
- Municipal waste generated (kg/capita): 420
- Average domestic household charges: 275 €/year (Flanders, 2015)
- Municipal waste incineration plants: 18 (2016)
- 22.800 employees (2012)
- Public associations for waste management: 8 (Wallonie)

BULGARIA

Legal Framework

The Ministry of Environment and Water (MOEW) is responsible for developing and implementing national waste management policy, including drafting and enforcement of legislation, strategies and programs, as well as regulation of activities in the public and private sectors. The MOEW performs some of these activities through the Executive Environmental Agency (EEA) and a network of 16 Regional Inspectorates of Environment and Water (RIEWs) that are specialized control bodies of the Ministry. Municipalities organize the management of the waste generated on their territory according to the requirements of the *Waste Management Act* by providing of favourable conditions so that every holder of municipal waste is served by persons that have concluded written contract for rendering of the service following the procedure of the Public Procurement Act. The municipal mayors are obliged to develop and implement waste management programmes for the territory of the respective municipality.

Market Structure

Partnerships for types of technical infrastructure not mentioned in the Public-Private Partnership Act of 2012, including waste treatment, are awarded under concessions. In Bulgaria, the public sector share in waste management fell sharply in 6 years from 65% in 2003 to 25% in 2009, however a large part of the private sector is still made of little organizations or individual collectors which are not registered or formally authorized (e.g. the individual collectors, buy-back centres, bring about 40 - 50% of collected paper and plastic (2013)). As a consequence, relevant quantities of the total waste are not reported in the official statistics. The collection of urban waste generated is almost comprehensive at 98 %. However, regular removal is not guaranteed in all areas, with rural areas being particularly in need of improvements. In 2013, there were 144 disposal systems in the country, with the largest share to landfills (64%).

Price Setting

The municipal waste tax is determined independently by each municipality on annual basis in accordance with the provisions of the Local Fees and Taxes Act. The tax is cost oriented and shall provide the necessary funds for: municipal waste collection; municipal waste treatment and disposal; cleaning of public areas. The municipal tax is defined according to the quantity of municipal waste. As an exception from this rule, the tax can be determined on a basis per capita covered with the respective services or proportionally to the property tax, when the quantities of municipal waste cannot be defined. In practice all municipalities use this exception and determine the municipal waste tax proportionally to the property tax.

In 2013 Bulgaria has introduced by law that waste collection fees should be calculated on the basis of waste generated (i.e. *pay-as-you-throw* scheme) to replace the method based on the value of the real estate property. It was due to enter into force on 1st January 2015 but the enforcement was postponed twice, last target date being 1st January 2017. There is still no clear indication on how the amount of waste would be calculated.

Regulation

There is no National Regulatory Authority for municipal solid waste in Bulgaria. However, the Ministry of Environment and Water (MOEW), through the Executive Environmental Agency (EEA) and the Regional Inspectorates of Environment and Water (RIEWs), takes an important place in the implementation of economic instruments for environmental protection. In fact, EEA has regulating, controlling and informational functions also in the waste sector but with the main aim of protecting the environment rather than promoting the efficiency of the market. RIEWs control the implementation of the waste management legislation and, in execution of their obligations, they perform sudden, current and periodical inspections of waste management activities. According to an informal information provided directly by the Energy and Water Regulatory Commission (EWRC), it is likely that EWRC will take the responsibility for the economic regulation of municipal solid waste in the next years.

Relevant Entities

Ministry of Environment and Water (MOEW)

Characteristics

- Ministry of the Government of Bulgaria
- Competencies in water, waste, climate, air, nature, soil, noise

Legal basis

Decree N° 873 of the State Council of 1976

Budget

49,858 million BGN (2018)

Contacts

1000, Sofia, bul. M. Luiza 22
Tel: +359 02 940 60 00
https://www.moew.government.bg/en/

Executive Environmental Agency (EEA)

Characteristics

- Administration of the Ministry of Environment and Water

Legal basis

Decree of the Council of Ministers No 162 of 2010

Number of employees

802

Budget

1,469 million BGN (2018)

Contacts

Data

Country

- Area: 110.994 km^2
- Population: 7.101.859
- Population density: 63 inhab/km^2
- No. of municipalities: 264

Sector

- Municipal waste generated: 2,88 million tonnes
- Share of recycling and composting: 32%
- Share of landfill disposal: 64%
- Municipal waste generated (kg/capita): 404
- 18.300 employees (2012)

EEA - 1618 Tsar Boris III Blvd. 251, Sofia Tel: +359 02 940 64 14 Fax: +359 02 955 90 15 http://eea.government.bg/en	

CROATIA

Legal Framework

The Ministry of Environmental Protection and Energy (MZOIP) is a central body responsible for preparation of waste management legislation, national waste management strategy and waste management plan, as well as coordination of co-operation among all involved institutions in waste management in Croatia. The new system for residual waste management divides the country into 17 catchment areas with one center, designated as the Regional Waste Management Center in each area. The 2013 Waste Act removed the regional competence for developing Waste Management Plans, while municipal plans continue to be in place. Towns and municipalities are responsible for managing municipal waste, preparing waste management plans and determining locations for waste management facilities in their areas other than waste management centers, incineration facilities and landfills for hazardous waste. The control over the implementation of the legal regulations and prevention of uncontrolled environmental pollution is conducted by the Croatian Environment Agency (CEA) and by the Directorate for Inspectional Affairs at the Ministry of Environmental Protection and Energy.

Market Structure

Along the entire value chain of waste management, there are 572 companies with total revenues around 600 million € (2017). A total of 427 valid permits cover municipal waste management, including separate collection of certain types of municipal waste. These high numbers indicate that the waste services market is highly fragmented. When it comes to waste that is subject to product or manufacturer responsibility, private companies play a major part in collection and recycling. Depending on the local government, separate collection of certain waste fractions is organised through door-to-door collection or by containers for paper, glass and plastics, called green islands, put in public areas near buildings. Although Croatia has invested in improvements to its waste management services, most of the investment has been focused on residual waste treatment, with insufficient funding available to develop and operate source segregated collection services.

Price Setting

The fee for public collection of municipal waste is defined by the Act on Sustainable Waste Management with the purpose of covering the costs of the system of collecting and treating municipal waste. In 2017 the Croatian government adopted the "pay-as-you-throw" (PAYT) regulation for household waste envisaging compulsory waste taxes in all units of local self-government. According to the regulation, the service provider is obliged to set the price of the public service proportionally to the quantity of received waste, where the quantity criterion is mass of received waste or container volume and frequency of emptying. However, the municipal waste disposal fee has not yet been introduced, since the implementing regulation which lays down the method for calculating the municipal waste disposal fee has not yet been adopted.

Regulation

There is no National Regulatory Authority for municipal solid waste in Croatia. The Ministry of Environmental Protection and Energy, in collaboration with the Croatian Environment Agency, is generally responsible for permits and approvals for waste management companies as well as for registers recording relevant waste data (for example, list of waste traders or by-products inventories). The Croatian Competition Authority (CCA) pays great attention to activities on the markets of municipal services, with either direct (i.e. initiating a proceeding to establish distortion of competition) or indirect actions (i.e. reminding competent institutions and wider public on the existence of legislation which limit or prevent competition). However, the rules do not enable the CCA to act in respect of territorial limitations of municipal service operation in the area of a respective local self-government unit, for the reason that this would restrain the independence of that unit as guaranteed by a piece of special legislation. Moreover, the CCA has no competence over the control of prices of municipal services in the territories of local self-government units, since those prices are determined in a manner and by a procedure stipulated by a piece of special legislation.

Relevant Entities

Ministry of Environmental Protection and Energy

Characteristics

- Ministry of the Government of Croatia
- Competencies in energy, water, waste, climate and environment

Legal basis

Law on Organization and Scope of ministries and other central bodies of state administration (Official Gazette No. 93/16 and 104/16)

Number of employees

285 (2015)

Budget

974 million Euros (2015)

Contacts

Radnička cesta 80, Zagreb
Tel: +385 01 / 3717-111
Fax: +385 01 / 3717-149
https://www.mzoip.hr/en/

Data

Country

- Area: 56.594 km^2
- Population: 4.154.200
- Population density: 75 $inhab/km^2$
- No. of counties: 21

Sector

- Municipal waste generated: 1,68 million tonnes
- Share of recycling and composting: 21%
- Share of landfill disposal: 78%
- Municipal waste generated (kg/capita): 403
- Average domestic household charges: 84 €/year
- 11.100 employees (2012)

Croatian Competition Authority **Characteristics** ▪ Protection of competition in different sectors ▪ Regulatory agency with independence **Legal basis** Competition Act (Official Gazette 79/09) and Act on the Amendments to Competition Act (Official Gazette 80/13) **Number of employees** 40 **Budget** 13,87 million Euros (2018) **Contacts** Savska cesta 41/XIV 10000 Zagreb **Tel:** +385 1 617 64 48 **Fax:** +385 1 617 64 50 http://www.aztn.hr/en/	

CYPRUS

Legal Framework

The main legislation that sets the framework for waste management in Cyprus is the waste law N.185(I)/2011 and its subsequent amendments. The main competent Authority for waste management is the Ministry of Agriculture, Rural Development and Environment (MARDE), which is responsible for the development of the waste management policy. However, in relation to specific waste streams, including mixed municipal waste, specific roles are attributed to the Ministry of Interior (MoI), especially in relation to the recycling, treatment and disposal activities of these waste types. The waste Law establishes the Advisory Committee for Waste Management (ACWM), which provides advisory services to the competent authority for the development of waste policy and legislation, the approval of waste management systems and the issuance of permits. Local authorities (municipalities and communities) are generally responsible for waste collection within their territories but without specific requirements or targets to be met.

Market Structure

The waste management system in Cyprus is constrained by a lack of appropriate treatment facilities for municipal and hazardous waste. As a result, the overriding option is landfilling, which accounts for 81% of generated municipal solid waste. Waste at local level is collected in a mixed manner. Separate collection is implemented by Green Dot Cyprus in packaging waste and printed paper, while private recyclers, in collaboration or not with Green Dot, serve businesses and industries. Around 80% of the total population is covered by separate collection of packaging waste and printed paper (2015). But, in general, there are no incentive systems to favour prevention and participation in separate collection and very limited incentives have been provided so far for local authorities to develop separate collection systems.

Price Setting

The costs for municipal waste management are borne by the citizens in the form of fees paid to the local authorities. A *pay-as-you-throw* system is currently implemented only on a very small pilot scale, where the waste truck is equipped with a weighting system in order to register the weight of each bin of each participating household.

Regulation

There is no National Regulatory Authority for municipal solid waste in Cyprus. The competent authority vested with the responsibility of enforcement of national and European regulations is the Ministry of Agriculture, Natural Resources and the Environment. Most of the technical work and assessment in relation to environmental and waste management issues is carried out by the Department of Environment of the Ministry with the competent Minister maintaining specific executive powers assigned by the Law.

Relevant Entities

Ministry of Agriculture, Natural Resources and the Environment

Characteristics

- Ministry of the Government of Cyprus
- Competencies in natural resources, environment, agriculture and fisheries

Founding year

1960

Number of employees

45

Contacts

6 Amphiopoleos Street, 2025, Strovolos, Nicosia
Tel: +357 22408300
www.moa.gov.cy

Data

Country

- Area: 9.250 km^2
- Population: 1.141.166
- Population density: 91 inhab/km^2
- No. of districts: 6

Sector

- Municipal waste generated: 0,54 million tonnes
- Share of recycling and composting: 19%
- Share of landfill disposal: 81%
- Municipal waste generated (kg/capita): 640
- Average domestic household charges: 45-125 €/year
- 700 employees (2012)

CZECH REPUBLIC

Legal Framework

The competent authority responsible for the waste management on national level is the Ministry of Environment (MoE), Waste Management Department. The MoE provides for the implementation of EU provisions in national legislation and elaborates the national waste management plan. The regions have in the area of waste management independent powers, primarily as the producers of Regional waste management plans. Further, the regional authorities are responsible for permitting recovery and disposal operations and for registration of establishments and undertakings. Practical implementation lies in the responsibility of the 6.251 municipalities and communal environmental offices and inspectorates: in this context, each municipality or city creates on its territory a waste management system consisting of the gathering, collection, transportation, sorting, recovery, and disposal of waste.

Market Structure

Municipalities usually offer a collection system for the collection of mixed municipal waste with door-to-door collection. In many cases mingled collection of all wastes is performed, in some cases mingled with industrial waste. In the country, communal tender procedures for the collection of municipal waste are required: even if in large cities there is a preference for municipal owned companies, private waste management industry is increasing (with private market share higher than 60%). Particularly frequent are the cases of public-private partnership (PPP), with the involvement of foreign companies like Becker, Remondis, Rethmann, SITA, A.V.E., A.S.A. In particular, collection of packaging waste is mostly operated by private companies. In 2014, 479 facilities for waste sorting operated in the Czech Republic. Important are the facilities for the treatment of sorted materially recoverable components of municipal waste, especially the facilities for the processing of glass, paper, plastics, and metals.

Price Setting

There are three ways to pay for municipal waste: local fee for operation of a system of collection, transport, separation, recovery and disposal of municipal waste is limited by a maximum of about 40 € per inhabitant per year; not limited optional fee for municipal waste, based on a *pay-as-you-throw* system (15% of municipalities); payment on a contractual basis between the municipality and the inhabitant, including the services of civic amenity sites, thus citizens can deliver special wastes (furniture, bulky waste, hazardous waste, WEEE) free of additional charge.

Regulation

In Czech Republic, there is no National Regulatory Agency for municipal solid waste. Regulatory competencies are shared between different entities. The Ministry of Environment keeps and processes summary records of waste types and quantity and, through inspectors and delegated employees, have inspection powers. According to Law No 154/2010 Coll., municipal waste services' charges could be limited by a maximum of 40 € per year: this represents a price monitoring competence within the powers of the State. However monitoring, controls and inspections are typically within the responsibility of the Czech Environmental Inspectorate (CEI) with its 10 local inspection offices. According to the Waste Act, it is the supreme body of expert supervision and inspection of waste management, including the imposition of sanctions and verification of decisions issued by the ministry or other administration authorities. Finally, the Office for Protection of Competition (UOHS), dealing with services of general interests (i.e. not the ordinary services provided in the market, but services which exhibit special characteristics usually carried out by the state, regions or municipalities), indirectly regulates competition within the municipal solid waste sector.

Relevant Entities

Ministry of Environment

Characteristics

- Ministry of the Government of Czech Republic
- Competencies in air protection, nature and landscape, water, and waste management

Legal basis

Act no. 173/1989 Coll. of 1989

Number of employees

125

Budget

16.304 million CZK (2017)

Contacts

Vršovická 1442/65 Praha 10, 100 10
Tel: +420 267 121 111
Fax: +420 267 310 308
https://www.mzp.cz/en

Czech Environmental Inspectorate

Characteristics

- Executive body within the state administration
- Competencies in air protection, waste

Data

Country

- Area: 78.866 km^2
- Population: 10.553.843
- Population density: 129 inhab/km^2
- No. of regions: 13

Sector

- Municipal waste generated: 3,58 million tonnes
- Share of recycling and composting: 34%
- Share of landfill disposal: 50%
- Municipal waste generated (kg/capita): 339
- Municipal waste incineration plants: 4 (2016)
- 24.000 employees (2012)

management, nature, water and forests management **Legal basis** Act no. 282/1991 Coll. **Number of employees** 536 (2017) **Budget** 418 million CZK (2017) **Contacts** Na Břehu 267/1a, 190 00 Praha 9 Tel: +420 222 860 111 Fax: +420 283 892 662 http://www.cizp.cz/en	

DENMARK

Legal Framework

National authorities set the general strategies and objectives: waste regulation has been shared between the Ministry of Environment and Food and the Ministry of Energy, Utilities and Climate. However, initiatives taken within the area of waste management and separate collection is only partly regulated by national law, since Danish municipalities have a very extensive legal ground for regulating requirements on source separation and separate collection of household and similar waste. In fact, municipalities are key actors in implementing the national targets set in the overall national plans: they must develop their own waste management plan every six years, which describe how they will meet both national and locally defined targets. In general, they are responsible for managing all waste, including municipal waste generated in their territories. Responsibilities include collection, transport, sorting, storage, composting, recycling, incineration, treatment and disposal of waste. Many of their activities, such planning or running an incinerator, compost plant or a landfill, has often been undertaken by inter-municipal waste associations.

Market Structure

Municipalities can choose to carry out the waste management tasks themselves, assign the tasks to an inter-municipal waste association (non-profit waste management company jointly owned by two or more municipalities, IMWA), or contract the tasks to a private waste company. Private enterprise has been very active in the waste management industry, especially in the collection and recycling of waste, but also in the developing and improving waste management technologies in incineration plants, bio-digestion and recycling of tyres. In this perspective, public-private collaboration plays a key role: municipalities indicate one or more waste facilities where the waste should be treated and, in turn, private companies are obliged to use the facilities allotted by the municipalities. The many years of mutual dependence between public and private actors in the sector has ensured efficient collaboration, allowing also leading experts, companies and policy makers to work together to develop constantly innovative waste management solutions. It has been estimated that the total turnover of undertakings active in waste management was 2,6 billion Euros in 2014.

Price Setting

Municipalities can determine a fee that covers the costs of planning, establishing, operating and administrating waste collection schemes, and of establishing and operating waste processing and disposal facilities, the collection and registration of information, and advance payment of planned investments in the field of waste management. In almost all municipalities, the costs of waste management are fully covered by fees. According to Section 48 of the Environmental Protection Act, waste fees must be paid by "the party having a registered right on the property". In fact, waste fees are typically collected on the same bill as the real estate tax, with few exceptions. Around 25% of the municipalities vary the fee paid with the amount of weight set out (*pay-as-you-throw* scheme), while other municipalities charge an additional fee (fixed) if the amount of waste set out by a household exceeds the amount on which the fee is calculated (2014).

Regulation

The Danish Energy Agency (DEA) shares regulatory competencies with the Environmental Protection Agency. DEA is the responsible institution for the economic regulation of waste: it manages the structural and economic framework for the waste sector setting the rules for waste taxes, public and private companies, collection and treatment of waste, and recycling procedures. DEA is also responsible for the National Waste Register, where all operators must be registered before they can work with waste in Denmark, and for the Municipal Regulatory Database (NSTAR), which contains all the regulations on household and commercial waste of each municipality. Finally, the Danish Energy Agency manages incineration industry' standards and the capacity standards for the disposal of hazardous waste.

The Danish Environmental Protection Agency administers the environmental regulation of the waste area, i.e. rules on handling, classification, prevention, producer responsibility.

Relevant Entities

Danish Energy Agency

Characteristics

- Multi-sector regulator
- Agency under the Ministry of Energy, Utilities and Climate

Legal basis

Founded in 1975 under the Danish Ministry of Transport and transferred in 2007 to the Ministry of Energy, Utilities and Climate

Number of employees

More than 400

Contacts

ENS-DAE – Amaliegade 44 1256 Copenhagen K;
Niels Bohrs Vej 8D 6700 Esbjerg.
Tel: + 45 33926700
Fax: +45 33114743
www.ens.dk

Data

Country

- Area: 43.098 km^2
- Population: 5.781.190
- Population density: 136 inhab/km^2
- No. of municipalities: 275

Sector

- Municipal waste generated: 4,45 million tonnes
- Share of recycling and composting: 48%
- Share of landfill disposal: 1%
- Municipal waste generated (kg/capita): 777
- Average domestic household charges: 200 €/year (excluding VAT)
- Municipal waste incineration plants: 26 (2016)
- 8.600 employees (2012)

ESTONIA

Legal Framework

Until 2007, Estonia had a three-tiered (national, county and municipal) waste management system. The 2007 amendment of the Waste Act changed the system to two tiers – national and local. The Ministry of Environment of Estonia (MoE) is responsible for the waste management policy and implementation of the EU legislations and their transitions into national law, as well as practical enforcement. The Chancellor of Justice supervises the conformity of municipal and city legislation of general application with the Constitution and law of the Republic of Estonia. Local governments organize and prepare waste management plans for their corresponding administrative territory and organize collection, transport, storage, recovery and disposal of waste and technical requirements related to such activities. In particular, municipalities are responsible to ensure municipal solid waste's collection, for which tenders have to be issued. Municipalities have the possibility to issue joint tenders to reduce the number of tenders to be published. The local Waste Management Plans are elaborated by each municipality of the 15 counties.

Market Structure

Approximately 95% of the population is covered by a door-to-door waste collection service and 96% of the municipalities have introduced a waste collection scheme including collection points or civic amenity sites. Even if collection and treatment services are provided only by private companies, the system that tenders are issued by municipalities is highly criticised because the free-market is limited by only few waste companies and no real competition is given, and the system is not flexible and cannot react in case a service provider fails to offer a service on the expected level (2012). For what concerns packaging waste, its collection is organised by three producer responsibility organisations and is carried directly by companies and retailers through the collection point system (2017). In addition, an efficient deposit-refund system for glass, plastic and aluminium beverage containers is in place, and it is organised by a single deposit organisation.

Price Setting

The service fees are fixed in the contract between the municipality and the contractor, differentiated in different service packages, whereas the minimum package is mandatory for the given type of house. The waste holder can choose if he needs more and then has to pay more. The fee covers collection, transportation and disposal services, and includes all the waste management costs, also disposal costs and the landfill tax. The fee is directly paid to the service company. Municipalities have the right to establish the limits of the fees.

Regulation

Economic regulation of waste is a shared competence in Estonia. Under the Ministry, the Environmental Board and its six regional offices are responsible for issuing permits, and organising the removal and recycling of waste (i.e.working with a large number of production companies and local governments, monitoring the implementation of their waste treatment regulations and their organisation of waste transport tenders). Its other effective means of regulating waste management are environmental fees and charges. However, the Board does not have any monitoring power on tariffs and on quality of service to households. On the other side, environmental supervision of the compliance with the Waste Act is performed by the Environmental Inspectorate. Then, the Estonian Competition Authority (ECA) is also involved in municipal solid waste regulation. Past cases help in highlighting its role: in 2013 and in 2016 ECA intervened by checking whether price's increases of organised waste collection were cost-based and whether the firms abused their dominant position; in 2017, ECA investigated the compliance of the waste transport prices. Therefore, in general, ECA has a price monitoring competence within the waste sector.

Relevant Entities

Environmental Board

Characteristics

- Entity under the Ministry of Environment

Base year

2009

Number of employees (of the Ministry of Environment)

198

Budget (of the Ministry of Environment)

182 million Euros (2014)

Contacts

Narva manatee 7a, 15172 Tallinn
Tel: +372 680 7438
Fax: +372 680 7427
https://www.keskkonnaamet.ee/en

Estonian Competition Authority

Characteristics

- Protection of competition in different sectors
- Regulatory agency with independence

Data

Country

- Area: 45.228 km^2
- Population: 1.341.140
- Population density: 28 inhab/km^2
- No. of municipalities: 226

Sector

- Municipal waste generated: 0,49 million tonnes
- Share of recycling and composting: 32%
- Share of landfill disposal: 12%
- Municipal waste generated (kg/capita): 376
- Average domestic household charges: 60 €/year
- Municipal waste incineration plants: 1 (2016)

Legal basis Competition Act of 2001 **Number of employees** 45 **Budget** 1,99 million Euros (2013) **Contacts** Tatari 39, 10134 Tallinn Tel: + 372 667 2400 http://www.konkurentsiamet.ee/index.php?	

FINLAND

Legal Framework

The Ministry of the Environment (MoE) formulates waste management policies, carries out strategic planning and makes decisions in its own sphere of interest. It is also responsible for preparing legislation, setting binding standards, and drawing up a national waste plan. The 15 Centres for Economic Development, Transport and the Environment (ELY Centres), made of several regional authorities, guide and monitor the waste management carried out by municipalities and companies, monitor compliance with environmental permits as well as granting approval for professional waste transporters. On the other side, the six Regional State Administrative Agencies (AVIs) grant environmental permits for significant waste management facilities, such as landfills and incineration plants. Municipalities are responsible for organising the management of household waste and waste generated in public administration, services and education. They organise the collection, recovery and disposal of household refuse and other similar waste, and supervise waste management in general in their own area. They also set local regulations on waste management, ensure advice on waste matters is freely available, and issue waste permits to small firms and operations. However, in practice, most municipalities have outsourced the main part of municipal waste management to regional waste organisations that may contract private waste management companies for needed services.

Market Structure

According to the Finnish Waste Act, municipal waste management authorities decide whether waste collection is contracted by the regional waste company or directly by real estate owners. Approximately half of the Finnish municipalities have chosen to retain their exclusive rights for the collection of household waste. The other half, which covers about 40% of the Finnish population, has chosen to decentralise the organisation. In those municipalities the collection of household waste is performed by private waste collection firms under individual contracts with the property holders. Cooperation between municipalities in waste management in built-up areas has expanded considerably in recent years. Mixed municipal waste is typically dealt with by door-to-door collection whereas recyclables are either collected door-to-door or subject to bring-site systems. Treatment and final disposal of municipal waste are principally carried out by the municipal sector, excluding dry recyclables, which are treated by the appropriate materials organisation. For what concerns waste transportation, contractors may be hired by local authorities or directly by housing corporations or individual households. In general, companies offering a broad range of environmental services and plants recovering and treating waste have also been set up in the private sector. It has been estimated that the total turnover of undertakings active in waste management was 1,5 billion Euros in 2013.

Price Setting

According to the Waste Act, waste management fees are set and collected by the municipalities, and they must cover the full cost of waste management. The fees are dependent on waste type, quality, quantity and number of pick-ups, as well as conditions for collection and transportation. The basis of measuring of amounts of different waste fractions is normally based on volume. The fee can also be based on the number of people living at a property if the quality and quantity of waste cannot be otherwise defined. Municipalities may charge a separate basic fee, *eco-tariff*, that covers the costs of providing waste information, keeping registers and other similar tasks related to waste management.

Regulation

Economic regulation of municipal solid waste is a shared competence in Finland. The Ministry of the Environment is responsible for the guidance, monitoring and development of operations under the Finnish Waste Act. Local and regional authorities are entrusted with supervising the functioning of the system. The Centres for Economic Development, Transport and the Environment (ELY Centres) monitors compliance with environmental permits. Finally, the Finnish Competition and Consumer Authority (FCCA) has the authority to intervene if the competitive parameters used or operating structures of government-owned undertakings prevent or distort competition on the market, as it is the case for the municipal solid waste (MSW) sector. In general, FCCA plays a role in promoting the markets for and competition over waste management, and influencing legal reforms. As of 2018, FCCA has not any specific monitoring power on tariffs nor on quality of service in the MSW sector, however the attribution to the authority of such special powers is currently under discussion.

Relevant Entities

Ministry of the Environment

Characteristics

- Ministry of the Government of Finland

Founding year

1983

Number of employees

280 (2017)

Budget

256 million Euros (2013)

Contacts

Aleksanterinkatu 7, Helsinki
Tel.: +358 (0)295 16001
Fax +358 9 1603 9320
http://www.ym.fi/en-US

Data

Country

- Area: 338.424 km^2
- Population: 5.489.322
- Population density: 18 inhab/km^2
- No. of regions: 19

Sector

- Municipal waste generated: 2,77 million tonnes
- Share of recycling and composting: 42%
- Share of landfill disposal: 3%
- Municipal waste generated (kg/capita): 504
- Municipal waste incineration plants: 8 (2016)
- 6.300 employees (2012)

Finnish Competition and Consumer Authority **Characteristics** ▪ Protection of competition in different sectors ▪ Regulatory agency with independence **Legal basis** Act on the Finnish Competition and Consumer Authority of 2012 **Number of employees** 127 (2016) **Budget** 4,738 million Euros (2016) **Contacts** Finnish Competition and Consumer Authority, P. O. Box 5, FI-00531 Helsinki, Finland Tel: +358 (0)29 505 3000 www.kkv.fi/en	

FRANCE

Legal Framework

The Ministry for the Ecological and Inclusive Transition (MTES) is responsible for the realisation of the National Waste Prevention Plan, which addresses generally all the stakeholders involved in waste management: public institutions, producers, distributors, and consumers. Then, regions are involved in waste disposal planning but do not have actual responsibilities over collection and disposal. While the responsibility for municipal waste collection and disposal lies with the municipalities or with associations of municipalities (EPCIs). The grouping of municipalities within larger units for waste management is encouraged by the national authorities. They can take the responsibility over waste management overall or, as an alternative, collection and treatment can remain under the responsibility of two different local authorities. For instance, half of the municipality groupings in charge of waste treatment have kept their responsibility over waste collection. The French Environment and Energy Management Agency (ADEME) provides expertise and advisory services to businesses, local authorities and communities to help them to establish and consolidate their waste management action.

Market Structure

Collection and disposal operations can be carried out either directly by the municipality, through its services, or by a private company under contract with the local authority. There exist three types of waste management in the country: the *régie*, in which the investment and operations belong directly to the local authority; the *marché public*, in which the investment is made by the local authority and operations are responsibilities of a private company; and the *délégation de service public*, where both the investment and operations belong to a private or a mixed company, independent from the local authority. In the first case, waste management is a service totally integrated within the local authority, its accounting is mixed with that of the local authority, while in the *délégation* model the risk is entirely assumed by the private operator. Both upstream (collection) and downstream (disposal) phases are characterised by a high concentration of companies. Finally, it has to be noted that, in 2012, 4 of the 15 largest waste companies in Europe were French.

Price Setting

Local authorities in charge of waste management can choose between two ways to finance municipal waste management. In the first case, it might be set a local tax (TEOM), either as a part of the general municipal budget or through a tax specific to waste management. This is decided by the Municipal Council or, in the case of groupings, the assembly of the authority, paid by people subject to the tax on buildings, and collected in the same conditions. As an alternative, a service fee (REOM) might be established. This is not a tax revenue, it is the financial counterpart for a service and has to cover the total cost of the service. In this case, additional financing through the municipal budget is not permitted. As of 2011, TEOM was adopted by 71% of municipalities (89% of population) and REOM by the remaining 29% (11% of population).

Regulation

Following the Law NOTRe 991 of 2015, regulatory competencies are shared between the Ministry for the Ecological and Inclusive Transition, regions and municipalities (or EPCIs). The Ministry, through the Ministerial Decree of 15 February 2016, is responsible for containment of waste as well as for design and construction measures for landfills, using several safety barriers to prevent emissions and the risks of pollution of groundwater and soil. Regions, through waste plans, should define maximum permissible capacities for waste that can be landfilled and incinerated without energy recovery at the regional level.

To ensure the application of the regulations in the field, different methods of control are deployed to verify that regulation is correctly implemented and, if necessary, to sanction the defaulters. Many actors are involved depending on the type of control: classified facilities that produce or process waste are regularly monitored by environmental inspectors; transport activities are controlled by road transport control officers; cross-border shipments of waste are controlled by the customs services; municipal police is empowered to carry out inspections on the municipal territory as part of the municipality's mission to ensure public safety in the commune (e.g. search for the authors of a wild deposit of waste).

Relevant Entities

Ministry for the Ecological and Inclusive Transition (MTES)

Characteristics

- Ministry of the Government of France
- Competencies in the field of sustainable development and environment

Legal basis

Decree n° 2017-1071 of 24th of May 2017

Budget

15.763 million Euros (2016)

Contacts

Hotel de Rôquelaure 246, boulevard Saint-Germain, Paris 7e
Tel: +33 01 40 81 21 22
https://www.ecologique-solidaire.gouv.fr/

Data

Country

- Area: 640.679 km^2
- Population: 65.058.000
- Population density: 116 inhab/km^2
- No. of EPCIs: 1200

Sector

- Municipal waste generated: 34,14 million tonnes
- Share of recycling and composting: 42%
- Share of landfill disposal: 22%
- Municipal waste generated (kg/capita): 510
- Average public waste management service cost (per capita): 93 €/year (2014)
- Municipal waste incineration plants: 126 (2016)
- 112.100 employees (2015)

GERMANY

Legal Framework

According to the German constitution, waste management belongs to the field of concurrent legislation. Responsibility for waste management and environmental protection is shared between the national government, Federal States and local authorities. The Federal Ministry of Environment, Nature Conservation and Nuclear Safety sets priorities, participates in the enactment of laws, oversees strategic planning, information and public relations and defines requirements for waste facilities. Federal States (*Länders*) and local authorities are responsible for implementing legal requirements set by the EU and national law. Each Federal State has the right to adopt the waste management legislation, which have to include descriptions of the aims of waste avoidance and recovery and list the authorised waste disposal facilities and suitable areas for waste disposal facilities. For waste generated by households, the Recycling Management and Waste Act of 1996 assigns responsibility to the local public waste disposal authorities, in most Federal States these are districts and municipalities, unless otherwise regulated in national legislation. Their responsibility covers collecting and transporting waste, measures to promote waste prevention and recovery, and planning, constructing and operating waste disposal facilities in line with national and regional legislation. In many cases municipalities form associations which own and operate disposal facilities.

Market Structure

Overall, waste services represent an economic sector with an annual turnover of around 70 billion euros (2018, Federal Ministry). The collection process is usually carried out by the local authority itself, by a public waste management company or by private companies under contract to the Local Authority. German households are serviced by door-to-door collection of residual waste. In urban areas recyclables are usually also collected door-to-door whereas in rural areas collection points are the main collection method for recyclables, although many different collection systems exist. All households are served by kerbside collection or bring scheme services for packaging (Green Dot System); many municipalities offer bring systems for many different wastes. As of 2016, there are 10 competing producer responsibility organisations in place for packaging in Germany, with one organisation accounting for around 50% of the market. For what concerns landfills, they are typically owned by public bodies, whereas incineration is in the hands of both public or private companies (31% respectively, while the remaining 38% is represented by mixed companies (2012)).

Price Setting

Local regulations vary a lot in Germany, however there is a general legal framework on fees by municipalities which has to be respected. The collection services for residual and bulky household waste as well as organic waste are funded through a fee paid by households and defined by each municipality. This is typically made of a fixed and a variable fee. The latter is based on number of household members, on size of land, on amount or volume of waste or on service asked for. Collection of packaging waste, either door-to-door or through collection points, is free of charge for citizens and is funded by EPR schemes, although collection points are partly paid for by municipalities.

Regulation

The main regulatory responsibilities fall on *Länders* and municipalities: the latter are responsible for setting tariffs on municipal waste services and, together with *Länders*, for enforcing environmental regulation. Thus, the Federal Ministry and the Umwelt Bundesamt (UBA), the German environmental agency, have limited competencies over the monitoring of municipal waste practices. Then the Bundeskartellamt, the independent competition authority, is involved in municipal waste regulation. Cooperation between waste management companies is closely monitored by the Bundeskartellamt, with a special focus on joint ventures and consortiums in which large waste management providers are involved: for example, firms planning concentrations subject to merger control must fulfil their obligation to notify such projects to the Authority. In particular, the Bundeskartellamt is devoting considerable attention to competition between providers of compliance schemes for packaging disposal.

Relevant Entities

Federal Ministry of Environment, Nature Conservation and Nuclear Safety

Characteristics

- Ministry of the Government of Germany
- Competencies in climate protection, water management, nature conservation, air quality, nuclear safety.

Founding year

June 6th 1986

Number of employees

1000

Budget

1.978 million Euros (2018)

Contacts

Stresemannstraße 128-130, 10117 Berlin
Tel: + 49 030 18 305-0
https://www.bmu.de/en/

Bundeskartellamt

Characteristics

Data

Country

- Area: 357.030 km^2
- Population: 82.200.000
- Population density: 228 inhab/km^2
- No. of Federal States: 16

Sector

- Municipal waste generated: 51,63 million tonnes
- Share of recycling and composting: 66%
- Share of landfill disposal: 1%
- Municipal waste generated (kg/capita): 626
- Average domestic household charges: 250-300 €/year (2018, Federal Ministry)
- Municipal waste incineration plants: 121 (2016)
- 270.000 employees (2018, Federal Ministry)

▪ Protection of competition in different sectors ▪ Regulatory agency with independence **Legal basis** Law Against Restraints of Competition (GWB) of 1958 **Number of employees** 345 **Budget** 30,4 million Euros (2017) **Contacts** Kaiser-Friedrich-Str. 16, 53113 Bonn Tel: + 49 0228 9499-0 Fax: +49 0228 9499-400 https://www.bundeskartellamt.de	

GREECE

Legal Framework

The Ministry of Environment, Energy, and Climate Change (YPEKA) is responsible for policy making, national planning, and technical matters, as well as licensing and regulating the financing of large waste treatment and disposal facilities. According to the National Waste Management Plan, the operation of transfer stations and the processing and disposal of waste lie within the jurisdiction of waste management authorities. The operation of the Hellenic Environmental Inspectorate (EYEP), under YPEKA, contributes considerably to the enforcement of environmental legislation in Greece, with particular focus on sound waste management. The 13 Administrative Regions represent the second level of local self-government and are responsible for the administration of local matters at regional level. The responsibilities of Regions include planning, economic development, social development, culture and quality of life. Responsibility for the implementation of the Regional Plans falls under each Region and the respective Management Bodies of Solid Waste of each Administrative Unit. Regional Waste Management Bodies can be Intermunicipal Associations, for which it is mandatory the participation of all municipalities of each region. Finally, according to the country's legal framework, collection and street sanitation lie within municipalities' responsibilities.

Market Structure

Municipal waste is currently collected through a collection point system (no door-to-door system is in place). All households are covered by collection systems for mixed residual waste, while this is not the case of recyclables collection, for which around 80% of the population is covered, equivalent to around 240 local authorities (2011). Companies from the private sector may carry out collection and transfer of municipal waste following contract with the local authorities. Private companies are also called upon for the collection of commercial waste, particularly when a facility is a large waste producer or is not located on a programmed waste collection itinerary. There are limited Extended Producer Responsibility (EPR) schemes or equivalent systems in place, not able to cover the full costs of separate collection and recycling of the main waste streams. However, with regard to packaging waste, there are three authorised organisations for its management: Hellenic Recycling and Recovery Corporation (HE.R.R.CO.), Keped S.A, and AB-Vasilopoulos.

Price Setting

Fees are part of the municipal fees system and are based on the surface area of residential buildings. The fee's level is set by the municipal council and it varies from city to city. In most cases, the fees for waste management are a fixed amount of money related to the services provided by the municipality. Because of that, the revenues from the fees are not used only for waste management but also for other municipal services. The fee is usually set to such a level as to cover the expenses for all the services provided by the municipality. There is no direct connection between the fees paid and the amount of waste disposed of, hence there are no incentives for households to participate in separate collection or to reduce their waste.

Regulation

Economic regulation of municipal solid waste is a shared competence in Greece. The Ministry of Environment, Energy, and Climate Change (YPEKA), through the Directorates of the Environment and Spatial Planning of Decentralised Administrations, issues the mandatory permits for collection and transport operations. Moreover, the Ministry keeps a Business Register of Non-Hazardous Waste Management.

The Hellenic Environmental Inspectorate (EYEP), under YPEKA, carries out inspections monitoring the achievement of environmental quality standards, examining reports, assessing the activities and work carried out in the controlled installation, checking the premises and associated equipment and the suitability of the environmental management as well as checking the relevant records maintained by administrations. Its main responsibility is to control and monitor the implementation of the environmental legislation in force and the environmental conditions imposed for the implementation of projects and activities of public and private sectors.

Relevant Entities

Ministry of Environment, Energy, and Climate Change (YPEKA)

Characteristics

- Ministry of the Government of Greece
- Competencies in green growth, environment, energy, climate change, water resources, forests, regional planning & urban development

Legal basis

Decision of the Prime Minister N. 2876 on October 7th 2009

Contacts

17 Amaliados str.115 23 Athens
Tel: + 30 213 15 15 000
Fax: +30 210 64 47 608
http://www.ypeka.gr/

Hellenic Environmental Inspectorate

1-3 Kifisias Ave, 115 23 Athens
Tel: +210 870 1800
Fax: +210 870 1883

Data

Country

- Area: 131.940 km^2
- Population: 10.768.477
- Population density: 82 inhab/km^2
- No. of municipalities: 325

Sector

- Municipal waste generated: 5,36 million tonnes
- Share of recycling and composting: 17%
- Share of landfill disposal: 82%
- Municipal waste generated (kg/capita): 497
- 20.200 employees (2012)

HUNGARY

Legal Framework

The Ministry of Agriculture (FM) has the responsibility for waste management. According to the National Waste Management Plan there are two Deputy State Secretaries that have the responsibility to lead and monitor the national waste management system. The National Waste Management Directorate (OKTF-NHI) is a separate unit within the National Inspectorate for Environment and Nature (OKTF) and is responsible for the coordination and the control of selective waste management. Regional authorities are responsible for the design of the waste regional plans that guide waste management of municipalities. These and associations of municipalities are the key bodies responsible for organising the collection and treatment of municipal waste. Since 2013 exclusively public service companies with a minimum of 51% ownership by the state or municipal are allowed to carry out the collection services. The service providers procured by the municipalities choose how the collection is to be carried out, sometimes together with the municipality.

Market Structure

As the public waste management is an obligatory service in Hungary, the involved companies are non-profit with at least 51% municipal or state ownership, with a consequent low competition of the market. Public service operators have to devise the separate collection of several waste streams, and to arrange for their door-to-door collection. Waste collection points for municipal waste are only provided in densely populated areas where door-to-door services for the separate collection of municipal waste cannot be provided. In the current system, most of the publicly owned non-profit companies are responsible only for the collection and they transport the waste to the treating companies. Besides this structure, there are also some larger service providers, who can cover the whole process from collection until recovery or disposal. Trough governmental regulation, the number of waste services providers have been decreased in recent years: in 2012 there were more than 200 service providers, while in 2017 the number of service providers felt to 86 companies.

Price Setting

Since the Act on Waste of 2012, tariffs are fixed at around 90% of the previous level and are determined at the national level and no longer by municipalities. This move was part of government efforts to reduce the financial burden on households. Besides the fixed prices, the waste collector companies can get extra income from the waste treatment and from selling treated waste for recovery. Since 2016, the National Coordination of Waste Management and Asset Management (NKHV) has been billing and collecting public waste management services fees from the population and paying for the service operators. The new system was introduced to eliminate wide discrepancies in tariffs and waste performance between municipalities. The standard fee can be corrected depending on the quality of the waste management services and fulfilment of waste management targets.

Regulation

I. Structural regulation: sector organization and rules. Monitoring the costs and incomes of the companies.

II. Behavioral regulation:

- economic regulation: price control, price regulation and fee reallocation between service providers;
- legal monitoring: customer protection regarding fees and technical elements;
- quality of services (i.e. environmental licenses, minimal service requirements).

The Hungarian Energy and Public Utility Regulatory Authority (HEA) is the public authority in charge of regulating public waste management among other public services. Since the Act on Waste (2012), HEA got the responsibility of price control and customer protection regarding prices in the waste sector. In particular, HEA carries out functions in relation to price determination, price preparation and price revision relating to public waste management services. Among the other competencies, HEA has to assemble a price recommendation in each year to the Ministry, which coordinates the state ownerships in the sector, based on economic and quantity data.

The Regulator

Hungarian Energy and Public Utility Regulatory Authority

Characteristics

- Multi-sector regulator
- Regulatory agency with independence

Legal basis

Act XXII of 2013

Number of employees

321 approved, 302 at present

Budget

22,5 million Euros (2015)

Contacts

HEA – H-1054 Budapest, Bajcsy-Zsilinszky út 52
Tel: +36 1 459 7777
Fax: +36 1 459 7766
http://www.mekh.hu

Data

Country

- Area: 93.030 km^2
- Population: 9.797.561
- Population density: 105 inhab/km^2
- No. of municipalities: 3.155

Sector

- Municipal waste generated: 3,72 million tonnes
- Share of recycling and composting: 35%
- Share of landfill disposal: 51%
- Municipal waste generated (kg/capita): 379
- Average domestic household charges: 54 €/year
- Municipal waste incineration plants: 1 (2016)
- 17.200 employees (2012)

IRELAND

Legal Framework

Under the 1996 Waste Management Act, the central government and local authorities share responsibility for implementing waste policy objectives. The Department of Communications, Climate Action and Environment (DCCAE) develops national waste policies, which are implemented through the Waste Management Acts, governing the management of waste and outlining the responsibilities of waste generators and waste management organisations. Three Waste Enforcement Regional Lead Authorities (Eastern-Midlands, Southern and Connacht-Ulster regions - WERLAs) have been established with the responsibility for coordinating waste enforcement actions within regions, setting priorities and common objectives for enforcement in the waste area, ensuring consistent enforcement of waste legislation. The work of the WERLAs is overseen by a National Steering Committee which includes representatives from a wide range of regulatory authorities. The role of local authorities has gradually evolved from the traditional collection of household waste and operation of landfills to regulation and monitoring of waste services. Tasks of local authorities include preparing waste management plans, promoting waste reduction and recycling and enforcing packaging regulations. Enforcement of the waste sector regulations is carried out by the Office of Environmental Enforcement (OEE) in the Environmental Protection Agency (EPA), which works with local authorities to bring about an overall improvement in the level and consistency of enforcement of environmental protection legislation.

Market Structure

The waste sector is almost exclusively operated by the private sector and its market structure is known as side-by-side competition. This type of model means that, subject to licensing, waste operators can offer their services in any location and so there may be more than one operator in a given area. However, the household waste collection market exhibits characteristics of a natural monopoly and there are six firms that dominate the industry: AES, City Bin, Oxigen, Thorntons, Greenstar and Panda. In 2016, there were 63 active household waste collection operators in Ireland. The majority of these operators are relatively small, with the top 20 providers collecting waste from the 90% of the households who avail of a service in Ireland. In the period 2012 to 2016, the number decreased from 82, representing a 23% decrease. According to the County and City Management Association (CCMA), the market is a "mature market in consolidation phase" and the number of suppliers in the market is expected to further reduce in the future.

Price Setting

Prices are directly set by private companies. A non-mandatory *pay-as-you-throw* system, with variable charges according to weight or volume, is in place since 2005. However, many operators continue to offer flat rate charges. As of 2018, operators are permitted to offer banded pricing structures which charge households per kilogramme, only after the household exceeded a predefined weight allowance. In practice, this has meant that if the pre-defined allowance is set at a high level then households will effectively be on a flat fee or non-incentivised charging structure. A phase-out of flat fee contracts is current under discussion.

Regulation

In Ireland, regulation of municipal solid waste is a shared competence. The OEE-EPA exercises a supervisory role in respect of the environmental protection activities of local authorities. The WERLAs have responsibility for coordinating waste enforcement actions within regions, setting priorities and common objectives for waste enforcement and ensuring consistent enforcement of waste legislation. Local authorities are the responsible organizations for authorisation and control of commercial waste collection activities, authorisation of waste exports and monitoring of internal movements of hazardous wastes, waste permits for small-scale recovery and disposal activities, and monitoring and inspection of waste activities generally. For what concerns the quality of service, in 2015 were introduced regulations which mandated an operator customer charter as a form of consumer protection tailored to the household waste collection sector. The regulations included a requirement that operators prepare a customer charter before a permit would be issued, providing a range of information that an operator has to include in relation to customer service standards. According to the report assessing the household waste collection market of September 2018, the Competition and Consumer Protection Commission (CCPC) recommends the introduction of an economic regulator for household waste collection, in relation to economic licensing, data collection and analysis, market design and consumer protection.

Relevant Entities

Environmental Protection Agency

Characteristics
- Independent public body

Legal basis
Environmental Protection Agency Act of 1992

Number of employees
321 (2011)

Budget
60 million Euros (2011)

Contacts

Data

Country
- Area: 70.273 km^2
- Population: 4.761.865
- Population density: 65 inhab/km^2
- No. of counties: 32

Sector
- Municipal waste generated: 2,62 million tonnes (2014)
- Share of recycling and composting: 42% (2014)
- Share of landfill disposal: 22% (2014)
- Municipal waste generated (kg/capita): 567 (2014)

EPA - PO Box 3000 Johnstown Castle Estate, Wexford, Y35 W821 Tel: +353 053-916 0600 www.epa.ie	▪ Average domestic household charges: 262 €/year (2011) ▪ Municipal waste incineration plants: 1 (2016) ▪ 8.200 employees (2012)

ITALY

Legal Framework

Central government and local authorities share responsibility for implementing waste policies in a multi-tier governance structure. The State is responsible for addressing and coordinating the national waste sector as well as, through the Ministry of Environment and Land and Sea Protection (MATTM), for supervising it. Since 2014, the State should also identify the strategic infrastructures (i.e. incinerators and organic fraction recovery plants) to implement an efficient integrated system of waste management. Regions are responsible for environmental regulation and approval of waste services planning, as well as for authorizing large waste treatment plants. In 2009, regions were asked to create the Optimal Area Authorities (*Enti di Governo degli Ambiti Territoriali Ottimali* - EGATO), according to the principles of self-sufficiency and proximity, in order to maximise economies of scale and the efficiency of waste services. EGATOs are entities grouping municipalities with the aim of setting an optimal organisation of service providing, tariff setting and contract tendering. Then, municipalities are responsible for organising and managing collection, treatment, recovery and disposal of urban waste, applying at local level tariffs and quality criteria established by EGATOs.

Market Structure

As of 2016, services along the entire chain are carried out by 575 operators, of which 75% were mono-utilities and 25% multi-utilities, for a total of 12,2 billion euros of revenues: 47% of companies operate in the North of Italy (54% of tot. revenues), 20% in the Center (25% of tot. revenues), and 33% in the South (21% of tot. revenues). In terms of types of ownership, 45% are entirely public-owned (37% of tot. revenues), 34% entirely private-owned (29% of tot. revenues), and the remain part handled through public-private partnerships; moreover, according to a study of 2013, 1043 municipalities directly managed its waste (i.e. *in-house* model). The majority of companies focus on collection or on the other integrated services (73%), while operators of plants represent the 27%. Finally, the Italian market results particularly fragmented: more than a half of companies are small but represent less than 10% of total revenues; on the contrary, 8% of operators account for 53% of the revenues.

Price Setting

Municipalities are responsible for raising a waste management tax. The tax has evolved over the years with regard to its name, calculation method and related deadlines for application. The waste tax (TARI), which has been applied since January 2014, is a component of a unified municipal tax, the Imposta Unica Comunale (IUC). The variable part of TARI can be calculated both considering the multiple criteria established by the so-called standardized method (Presidential Decree 158/1999) or based on *pay-as-you-throw* schemes (PAYT). In 2014, of the 1.900 surveyed municipalities, only 5 % applied the PAYT method (2015).

Regulation

The Italian Regulatory Authority for Energy, Networks and Environment (ARERA) has regulatory and control functions over the waste cycle, including urban and related waste. In particular, ARERA must establish rules for: administrative and accounting unbundling; minimum standard of quality of waste services; minimum content for service contracts awarded by local authorities to services operators; introducing a cost-reflective and efficiency-driven tariff structure; approval of tariffs put forward by local and regional authorities; ensuring consumers' protection, awareness and information. These responsibilities are performed with the same powers and within scope of the principles, purposes and assignments, including those of a sanctioning nature, provided for by Italian Law No. 481/1995.

The Regulator

Regulatory Authority for Energy, Networks and Environment

Characteristics

- Multi-sector regulator
- Regulatory agency with independence

Legal basis

Law no. 481 of 1995

Number of employees

226 employees

Budget

62,97 million Euros

Contacts

ARERA - Piazza Cavour, 5 - 20121 Milano (HQ);
Via dei Crociferi 19 - 00187 Rome
Tel: + 39 02655651
Fax: + 39 0265565
www.arera.it

Data

Country

- Area: 302.072 km^2
- Population: 60.483.973
- Population density: 200 inhab/km^2
- No. of EGATOs: 57

Sector

- Municipal waste generated: 30,12 million tonnes
- Share of recycling and composting: 51%
- Share of landfill disposal: 28%
- Municipal waste generated (kg/capita): 497
- Average domestic household charges: 190 €/year (for municipalities with > 50.000 inhab., 2016)
- Municipal waste incineration plants: 41 (2016)
- 148.500 employees (2012)

LATVIA

Legal Framework

The competent authorities for waste management on national level comprise the Ministry of Environmental Protection and Regional Development (MEPRD) and its aligned institutions, which are responsible for preparing the National Waste Management Plan. Latvia is characterized by a centralised administration structure conserving major waste policy issues. However, local authorities have strong waste control and general influence on the waste management sector in their respective territory, which leads to overall liberalisation of the waste market. Latvia is divided into 10 Waste Management Regions (WMR) and 110 municipalities. According to the Waste Management Act, local governments organise the management of household waste, including hazardous waste produced by households, in compliance with the national and regional waste management plans within their administrative territories. In addition, they adopt decisions regarding landfills, pass binding regulations designating municipal waste management and draw up local waste management plans.

Market Structure

The collection system is equally organised by private companies and by municipalities (50 % each in 2015). In 2014, there were 3.071 collection points serving inhabitants for the separate collection of waste and 65 civic amenity sites for municipal waste. The collection coverage was 86 % leaving 14 % of the population without formal waste collection services. Of particular importance is the Latvian Association of Waste Management Companies (LASUA), a public organization established in April 1996 and operating under its Articles of Association, which accounts for more than 50 members in the Association who together cover almost 90% of the total Latvian market (2018). Members are professional companies engaged in management, collection, depositing, processing, handling, burying of household and hazardous waste and removal of industrial waste, and also providing for other utilities.

Price Setting

Local authorities are responsible for setting tariffs. According to the Waste Management Law, local governments are entitled to review and adjust tariffs for municipal waste in such amount in which they are affected by relevant changes. However, waste costs might vary from municipality to municipality sometimes as much as five times. No incentive systems to favor prevention and participation to separate collection, *pay-as-you-throw* schemes, are in place.

Regulation

The Public Utilities Commission (PUC) is the responsible body for carrying out regulation of public services in energy, electronic communications, post, municipal waste management and water management sectors. However, for what concerns municipal waste, the PUC regulates only the disposal of waste at landfill sites. Among its competencies, PUC has to: approve regulations on general authorization for provision of waste disposal service at landfill and supervise implementation of set conditions; register the service providers; determine methodology for calculation of tariffs; evaluate and approve tariffs; examine complaints and disputes between service users and service providers. Other activities related to the organisation and the supervision of services of municipal waste management are within the competence of local governments.

The Regulator

Public Utilities Commission

Characteristics

- Multi-sector regulator
- Regulatory agency with independence

Legal basis

Law "On Regulators of Public Utilities" of the 7th of November 2000.

Number of employees

The Board (the Chairman and 4 Commissioner) and 8 Departments

Contacts

SPRK-PUC – 45 Unijas Street, Riga, LV-1039
Tel: +371 67097200
Fax: +371 6709727
www.sprk.gov.lv

Data

Country

- Area: 64.589 km^2
- Population: 1.986.705
- Population density: 31 inhab/km^2
- No. of Waste Management Regions (WMR): 10

Sector

- Municipal waste generated: 0,80 million tonnes
- Share of recycling and composting: 28%
- Share of landfill disposal: 72%
- Municipal waste generated (kg/capita): 410
- Municipal waste incineration plants: 0
- 5.200 employees (2010)

LITHUANIA

Legal Framework

The Ministry of Environment (MoE) is the main institution responsible for legislation and administration in the field of waste management, coordinating the activities of the State, regional and local institutions and preparing the National Strategy Waste Management Plan. Other relevant bodies in the field include the Environmental Protection Agency (EPA) and regional waste management centres, legal entities established by several municipalities for the coordination of waste management in municipalities under their jurisdiction. Those municipalities, who are owners of regional waste management centres, cooperate in order to improve waste management system and to create waste management infrastructure. Municipalities are the main institutions organising municipal waste management, with the main responsibility to create effective waste management systems. Local authorities set out the terms of municipal waste collection, transport and treatment, and are also responsible for reaching EU targets regarding recycling and recovery.

Market Structure

According to a study on waste management in Lithuania conducted by the Competition Council (2015), one third of Lithuanian municipalities ignore competition and grant exclusive waste management rights to municipal companies. In some of the municipalities' public tenders for waste management, services have not been organised for more than 7 years.
In 2013, 97 % of the total population was connected to formal waste collection systems and the remaining population was provided with other forms of waste disposal, such as civic amenity sites. Door-to-door waste collection is mainly limited to residual waste, while recyclables are normally collected through collection point systems. Collection and transport are largely carried out by public entities and on a small scale by private entities. Around 40% of the total municipal waste is represented by green waste, with 15 waste treatment companies that handled composting and digestion, and with 49 composting sites in 2014. In general, the majority of the costs for the collection and treatment of the main waste streams are covered by producers.

Price Setting

Municipalities are responsible for billing and collection of fees for residual waste management. In the past, residents paid a monthly fixed fee for residual waste management. Since 2015, fees consist of fixed and variable components: the first according to the surface and the category of the real estate, and to the number of inhabitants; the latter according to *pay-as-you-throw* schemes, based on waste volume, collection frequency or weight of waste. The rates for municipal waste management fees shall be set in such a way that the total costs of the municipal waste management system will be paid for the collection, including the costs of investments, operating, decommissioning and post-closure of these waste management facilities. The funds received for municipal waste management services are used only for the financing of the municipal waste management system. Collection and management of recyclables is free of charge for households and at least partly financed by Extended Producer Responsibility schemes.

Regulation

The Government, through the Ministry of Environment, sets the regulatory framework for municipal solid waste management. In particular, it provides the recommended methodology for calculation of waste management tariffs and the conditions for the procurement of municipal waste collection and transportation services. Then, the Ministry keeps the registers of waste operators.
The Competition Council has the authority to intervene if the competitive parameters used or operating structures of government-owned undertakings prevent or distort competition on the market, as it is the case for the municipal solid waste (MSW) sector. In 2015, the Competition Council provided a set of recommendations addressed to municipalities for MSW, including: to ensure transparent and open conditions for all suppliers; to organise public tenders; to organise tenders for well waste management and transportation services only.

Relevant Entities

Ministry of Environment

Characteristics

- Ministry of the Government of Lithuania
- Competencies in waste, water, air quality, chemicals and protection of the environment

Legal basis

Law 1138 of 1998

Budget

241 million Euros (2017)

Contacts

A. Jakšto g. 4, LT-01105 Vilnius
Tel: +370 5 2663661
Fax: +370 5 2663663
www.am.lt

Competition Council

Characteristics

- Protection of competition in different sectors
- Regulatory agency with independence

Legal basis

Law on Competition no. VIII-1099 of 1999

Number of employees

Data

Country

- Area: 65.200 km^2
- Population: 2.849.000
- Population density: 54 inhab/km^2
- No. of municipalities: 60

Sector

- Municipal waste generated: 1,27 million tonnes
- Share of recycling and composting: 50%
- Share of landfill disposal: 31%
- Municipal waste generated (kg/capita): 444
- Municipal waste incineration plants: 1 (2016)
- 6.000 employees (2012)

58 (2018) **Budget** 2,19 million Euros (2017) **Contacts** Jogailos g. 14, Vilnius LT-01116 Tel. +370 5 262 7797 Fax. +370 5 212 6492 http://www.kt.gov.lt/en	

LUXEMBOURG

Legal Framework

The Ministry of Sustainable Development and Infrastructure, Department of the Environment, is responsible for issuance of permits, supervision of waste prevention and management plans, movements of waste, data collection and dissemination, cross-border cooperation, supervision of government and EU policy, and coordination among the different levels of government. All the *communes*, the Luxembourgish municipalities, are part of one of the three large Inter-Communal Syndacates (SIC) that handle waste disposal and recovery. *Communes* are responsible for managing household, bulky and similar waste, including organic waste, supporting the collection of "problem waste", and the collection of waste from housing construction. They have communal autonomy in defining waste management measures, including collection, recovery and disposal methods. In addition, they can delegate all or part of their responsibilities for waste management to syndacates and they set the waste management charges.

Market Structure

In 2015, there were 11 companies responsible for waste collection in Luxembourg. The collection and transportation of waste may only begin upon receipt of a permit granted by the Ministry. Since 2010 almost 100% of the population is covered by at least one separate collection system operated either by public or private companies. Particularly interesting is that more than 95% of the municipal waste recycled is exported for treatment, mainly to Belgium, France, Germany and the Netherlands.

Price Setting

The funding of municipal waste management is based on a combination of local council taxes and government subsidies. The 2012 Waste Management Law established that municipal waste fees must cover waste management costs and be based on the weight or volume of waste generated (i.e. *pay-as-you-throw* scheme). Until 2011, 37% of the population were charged PAYT fees. However, many of the municipalities are still calculating their charges without reference to real costs.

Regulation

The Environment Agency supervises and controls the application of legal, regulatory and administrative requirements and the exercise of the related policy on municipal waste as well as the implementation of national and Community laws and regulations, including authorization, notification, approval or registration procedures. In particular, collection and transportation of waste may only begin upon receipt of a permit granted by the Ministry. The aim of the Agency is to develop efficient management to provide quality service to citizens, businesses and other stakeholders in society. Then, the Competition Council, as the administrative authority for ensuring the respect of competition rules, is also involved in municipal waste regulation. In 2016 the Competition Council issued an opinion on the interpretation of certain provisions of the amended law of 21 March 2012 on waste management, highlighting the criticalities for effective competition.

Relevant Entities

Environment Agency

Characteristics

- Administration of the Ministry of Sustainable Development and Infrastructure

Legal basis

Law of November 27 of 1980

Number of employees

111

Contacts

1, Rock'n'Roll Avenue L-4361 Esch-sur-Alzette
Tel: +352 40 56 56 1
https://aev.gouvernement.lu/en.html

Data

Country

- Area: 2.586 km^2
- Population: 549.680
- Population density: 212 inhab/km^2
- No. of municipalities: 102

Sector

- Municipal waste generated: 0,36 million tonnes
- Share of recycling and composting: 48%
- Share of landfill disposal: 17%
- Municipal waste generated (kg/capita): 614
- Municipal waste incineration plants: 1 (2016)

MALTA

Legal Framework

The Ministry for the Environment, Sustainable Development and Climate Change (MSDEC) holds overall responsibility for waste policy. Among its duties, it has to draft and implement the National Waste Management Plan. The Ministry is supported by the Malta Environment and Resources Authority (ERA), the competent authority responsible for environmental regulation in Malta, with the main role of issuing planning permits that allow development in the interest of safeguarding the environment with a set of standards and directives. Local councils are responsible for municipal waste collection and management on their territory, and they receive public funds allocated by government. The councils in Malta and Gozo have individual responsibility for setting up separate collections in law, and in turn contract these services out to the private sector through publicly awarded contracts.

Market Structure

A public company, WasteServ Malta, dominates the collection of municipal waste. Entirely owned by the government, it was set up as a private company in 2002 to provide facilities and services in relation to waste management, with management and administration of the company vested in an independent board of directors. However, other few private companies operate the market. In principle, WasteServ was intended as a "last resort company" that should operate only in such cases where the market would have failed or is unable to penetrate, but the private companies claim they would be able to run WasteServ's operations at a cheaper cost to government. For what concerns the capacity of the market, waste shipment for treatment is crucial for the country, especially for hazardous waste, as there are limited domestic treatment facilities. In addition, the domestic market for recycled materials is limited, calling for export of these materials.

Price Setting

Under the current system, it is the Local Councils who manage the costs for waste management through public funds allocated by Government. In turn, such funds are provided through the national income tax regime. Local Councils set up agreements with contractors for the collection of solid waste from their locality and also pay the gate fees stipulated by private waste facilities. There is no *pay-as-you-throw* legislation in place at present in Malta.

Regulation

The Environment and Resources Authority (ERA) is the competent authority for regulating waste management in Malta. ERA provides for the regulation of all waste management facilities and activities. According to the Waste Regulations published by Subsidiary Legislation 549.63, "any facility carrying out any waste management operations should be permitted by the Environment & Resources Authority". The Waste Management team within the Ambient Quality and Waste Unit of ERA is primarily responsible for the monitoring and implementation of waste legislation and policy. The team gathers and collects data on waste management, compiles reports for both national and European purposes, and participates in onsite inspections together with the Compliance and Enforcement Unit as necessary.

Relevant Entities

Environment and Resources Authority

Characteristics

- National regulator for the environment

Legal basis

Act 1 of 2016

Number of employees

161 (2016)

Revenues

5,67 million Euros (2016)

Contacts

Hexagon House, Spencer Hill Marsa MRS 1441, La Valletta
Tel: +356 2292 3500
https://era.org.mt/en/Pages/who-we-are.aspx

Data

Country

- Area: 316 km^2
- Population: 436.947
- Population density: 1.318 inhab/km^2
- No. of local councils: 68

Sector

- Municipal waste generated: 0,28 million tonnes
- Share of recycling and composting: 8%
- Share of landfill disposal: 92%
- Municipal waste generated (kg/capita): 647

NETHERLANDS

Legal Framework

The Ministry for Infrastructure and Water Management is responsible for the policy and regulatory framework for waste management at the central government level. The ministry draws up the Waste Management Plan once in every six years, in which the policies for the management of all waste covered by the Environmental Management Act are stipulated. The Ministry ensures implementation of EU directives and international obligations as well as establishes detailed rules for the implementation of waste legislation. It also authorises collection of several specific waste streams, manages exemptions and enforces landfill ban. Provincial authorities set rules concerning the disposal of commercial waste and supplementary regulation by means of provincial environmental bylaws on household waste collection by local authorities. In the Environmental Management Act, municipalities are designated as responsible for financing and organising collection of municipal waste. They have also legal duties concerning the licensing and enforcement of waste treatment facilities, including incineration and landfilling. For some packaging waste, the Ministry of Environment, the Association of Municipalities and the Recyclers Organisations have signed covenants, binding municipalities to finance and organise the collection of some dry recyclables and hand them over to the companies affiliated to the organization.

Market Structure

Waste market in the Netherlands is highly regulated with a mature and effective framework of laws and regulations, resulting in an efficient waste system. Waste services are managed by municipalities, or associations of municipalities, equally either through a commonly owned public collection company or through contracting the services out to private companies. In the first case, collection is usually carried out by local authorities through their own collection services (e.g. *in house* services) or through publicly owned companies. There are many examples of public companies that, through mergers and acquisitions, grew in the national panorama and that even competed and succeeded at international levels. In general, Dutch companies possess the expertise to get the maximum from their waste in a smart and sustainable manner. For what concerns treatment and incineration plants, typically they operate in competitive markets, while landfills are strictly regulated.

Price Setting

The level of fees for waste collection and treatment are set by the municipalities according to the Environmental Law. The local tax on municipal waste covers most of the financing need for all waste collected at kerbside. There are three main types of charging systems in Dutch cities: a fixed amount for each household; a levy that depends on the size of the household; a *pay-as-you-throw* levy that depends on the amount of residual and separated waste collected (called Diftar). In 2013, 53% of municipalities used a levy based on the household size, 40% used Diftar systems and only 7% charged the same rates to each household. In Diftar system, payment is determined by weighing the waste presented for collection or by settlement on the basis of the number of times a household presents waste for collection. This means that households pay in proportion to the quantity of their waste arisings.

Regulation

There is no a National Regulatory Authority in the Netherlands. In general, the government does not steer or has influence on tariffs of waste collection and on the quality of the service. The Ministry for Infrastructure and Water Management ensures the implementation of national regulations at local level through strict cooperation with local authorities which, in turn, have the power and the financial mean to develop and implement those regulations. The Netherlands Environmental Assessment Agency (PBL) assists the Ministry in environmental law enforcement, including the waste sector. Moreover, the Authority for Consumers and Markets (ACM), the independent authority for the protection of competitive markets, indirectly regulates waste management: for example, past cases were about mergers and acquisitions between municipal waste companies or about the permission of recycling agreements.

Relevant Entities

Ministry for Infrastructure and Water Management

Characteristics

- Ministry of the Government of the Netherlands
- Consists of 3 sections: policy, implementation and inspection

Founding year

2010

Budget

15,7 billion Euros (2018)

Contacts

Rijnstraat 8, 2515 XP The Hague
Tel: +31 (070) 456 00 00
www.rijksoverheid.nl

Data

Country

- Area: 41.543 km^2
- Population: 17.200.671
- Population density: 415 inhab/km^2
- No. of provinces: 12

Sector

- Municipal waste generated: 8,84 million tonnes
- Share of recycling and composting: 53%
- Share of landfill disposal: 1%
- Municipal waste generated (kg/capita): 520
- Municipal waste incineration plants: 12 (2016)
- 21.600 employees (2012)

POLAND

Legal Framework

The Ministry of Environment (MoE) has primary responsibility for drawing up national policies and plans, preparing legislation and monitoring policy implementation in almost all environmental areas, including waste. The Ministry of Economic Development supports the MoE to implement regulations on waste and other ministries are involved in regulating specific waste types. The administrations of the 16 regions (*Voivodeship*) prepare regional waste management plans and issue most permits for waste treatment. Since the reform of 2013, the responsibility for municipal waste management was given to municipalities. Collaboration between municipalities is encouraged and 88 waste regions for joint management of MSW facilities were designated, based on *Voivodeship*'s waste management plans. Municipalities are responsible for monitoring and enforcing municipal waste legislation for the collection and treatment companies they contract with.

Market Structure

Both private and municipally-owned companies operate in municipal waste collection and treatment in Poland. In 2011, private firms had about 58% of the market for municipal waste collection, while municipally owned firms holding about 40% and the remaining 2% going to mixed-ownership firms. Private firms have also provided recycling and other treatment services, along with public enterprises (2015). Through producer responsibility organisations, producers have organized treatment for waste streams, including packaging waste. In terms of investments, the National Fund for Environmental Protection and Water Management plays a leading role in financing waste management, working closely with the 16 *voivodship*'s funds. The national fund supports projects above 25 million euros while regional funds support smaller projects.

Price Setting

Since 2013, municipalities have to set and collect fees from residents and service sector businesses to cover the full costs of municipal waste collection and treatment. According to Polish legislation, municipalities may base fees either on the number of people per household, on the area of the house or on water consumption. No *pay-as-you-throw* systems are currently in place for municipal waste collected from households.

Regulation

Municipal solid waste regulation is a shared responsibility in Poland. Among its competences, the Ministry of Environment issues permits and licences, and keeps registers of operators of specific types of waste. The Act on Communes of 1996, together with its amendments, regulates municipal tenders for waste operators as well as over-payment of waste management fees by households. Moreover, according to this provision, the entity collecting municipal waste is obliged to prepare semi-annual reports, which are forwarded to the municipality competent for entry in the register of regulated activities. The Chief Inspectorate for Environmental Protection (GIOS) and *voivod* inspectorates monitors and enforces waste management legislation. However, GIOS has responsibility only for packaging and special waste.

Relevant Entities

Ministry of Environment

Characteristics

- Ministry of the Government of Poland
- Competencies in protection of natural resources and landscape, forest management and use of natural resources

Legal basis

Act of the 29th of March 1972

Budget

2,07 million PLN (2018)

Contacts

ul. Wawelska 52/54 Warsaw 00-922
Tel: + 48 22 36 92 900
https://www.mos.gov.pl/en/

Data

Country

- Area: 312.679 km^2
- Population: 38.433.600
- Population density: 123 $inhab/km^2$
- No. of municipalities: 2.478

Sector

- Municipal waste generated: 11,65 million tonnes
- Share of recycling and composting: 44%
- Share of landfill disposal: 37%
- Municipal waste generated (kg/capita): 307
- Average domestic household charges: 42 €/year (2013)
- Municipal waste incineration plants: 5 (2016)
- 67.000 employees (2012)

PORTUGAL

Legislative Framework

Decree-Law No. 379 of 1993, Decree Law No. 194 of 2009, Decree-Law No. 195 of 2009 and Law No. 10/2014 provide the main legal framework for municipal solid waste regulation in Portugal. The Ministry of the Environment develops the general legislation for waste policy and grants the necessary authorisation for the collection, recovery, treatment and disposal of waste. Municipalities ensure the collection of municipal solid waste of up to 1.100 litres per producer per day; larger amounts of waste may be separately charged by the municipality (and they are not accounted as municipal waste). Municipal waste collection from households is covered by contracts with the municipality or with private collectors operating on their behalf. Typically, municipalities are responsible only for mixed waste, while separate collection is carried out by the 23 Urban Wastes Management Systems (SGRUs).

Market Structure

Nowadays, there are 277 urban waste management operators for 10 million consumers. The urban waste market structure is unbundled into bulk operators (23), responsible for waste treatment at the regional level, and retail operators (254), responsible for waste collection at municipal level. These operators (bulk and retail) also make the selective collection of recyclables, regarding urban waste, although there are sectoral operators responsible for managing specific recyclable waste streams (extended producer responsibility schemes).

Price Setting

The tariff setting process should comply with ERSAR's tariff regulation. The tariff system adopted by operators usually consists of a fixed part and a variable part based on the volume of water consumed. There are special tariffs for large families (in a small number of cases), for social service institutions and low-income customers (quite generalized throughout the country). There are specific tariff charges for non-domestic consumers and usually there is cross-subsidisation between them. The regulator is involved in the definition of both bulk and retail tariffs.

Regulation

In Portugal, there is a regulatory agency, the Water and Waste Services Regulation Authority (ERSAR), which according to its statutes, exercises important regulatory functions over all operators of mainland Portugal in urban waste. Its primary duties are to protect consumer rights and to safeguard technical and economic sustainability of the systems. ERSAR adopted the sunshine regulation model as the main method of quality of service regulation, which relies on making publicly available the performance of regulated operators. To this end, it publishes an annual report, where it presents and compares between operators the quality of service provided, using a set of 16 performance indicators. Since 2014, ERSAR has a statute of independence towards governmental intervention and more attributions in terms of tariff definition and economic regulation of operators.

The Regulator

Water and Waste Services Regulation Authority

Characteristics

- Multi-sector regulator
- Regulatory agency with independence

Legal basis

Law no. 10 of 2014

Number of employees

74 employees

Budget

9,8 million Euros

Contacts

Rua Tomás da Fonseca, Torre G - 8º, 1600-209 Lisbon
Tel: + 351 210 052 200
Fax: + 351 210 052 259
http://www.ersar.pt

Data

Country

- Area: 92.212 km^2
- Population: 10.291.027 million
- Population density: 111 inhab/km^2
- No. of municipalities: 308

Sector

- Municipal waste generated: 4,90 million tonnes
- Share of recycling and composting: 30% (2014)
- Share of landfill disposal: 49% (2014)
- Municipal waste generated (kg/capita): 453 (2014)
- Average domestic household charges: 58 €/year
- 400 thousands of waste containers (of different types)
- Incineration plants: 4 (2016)
- 380 infrastructures used for waste collection
- 13.400 human resources

ROMANIA

Legal Framework

Municipal waste management in Romania is the responsibility of three levels of authorities: the Ministry of the Environment (MoE) and the Ministry of Administration and Interior (MAI), County Councils and municipalities. At national level, MoE develops strategies in the waste management field and approves legal standards and norms for waste management. County Councils are responsible for managing final disposal facilities and transfer stations, including contracting for investments and operations. In small towns and rural areas, where solid waste management infrastructure is difficult to sustain, the County Council may also carry out procurement and other administrative functions. Then, Local Public Authorities (ATUs), made of municipalities or associations of municipalities (Intercommunity Development Associations), are responsible for waste collection. They may delegate the operation of sanitation services only to certified sanitation operators or, alternatively, they may operate services on their own. Municipalities must also ensure that all non-complying landfills and illegal dumps are closed, existing municipal landfills rehabilitated or extended, and new landfills constructed where needed. Enforcement of environmental standards is guaranteed by the National Environmental Protection Agency (NEPA) which, alongside Local Environmental Protection Agencies (LEPAs), provides technical support for legal norms, strategies and policies.

Market Structure

Local councils can operate the collection services themselves or they can contract private operators (around 800 municipal waste recycling or recovery authorised companies (2016)). In most cases, waste collection is directly managed by the private sector, with some exceptions in the rural areas. As a consequence, house owners typically contract collection companies individually. Formal municipal waste collection services reportedly covered 70% of the total population in 2010, 85% of the urban population and 52% of the rural population. As a consequence, participation of the informal sector is still very significant and concerns collection of valuable recyclables which can be sold on the market from landfills and industrial areas: direct collection and trade of recyclables is the main source of income for the significant portion of the poor population in cities.

Price Setting

Funding of collection services varies between municipalities. The residents either pay fees directly to the municipality or to the collection company, or alternatively through the rent in blocks of flats. In any case, tariffs are established and modified by means of order of the president of ANRSC. Thus, based on a substantiation note, which includes all the costs related to the service, the operator proposes a tariff that can be changed or adjusted only in accordance with the terms set forward by the normative act. A *pay-as-you-throw* scheme has not been implemented yet.

Regulation

The National Authority Regulating Public Community Services (ANRSC) authorises and controls sanitation operators. Its aim is regulation, monitoring and control, at the central level, of the specific activities of the sanitation service of the localities. ANRSC exercises its prerogatives of public authority in conditions of equidistance and equilibrium towards the operators (monitoring, evaluation and control) and local public administration authorities (cooperation, methodological guidance and control). Among its main competencies, ANRSC sets a methodology of calculation for the establishment, adjustment and modification of the tariffs.

The Regulator

Characteristics

- Multi-sector regulator
- Subordinated to the Ministry of Regional Development and Public Administration

Legal basis

Law no. 51 of 2006

Number of employees

96 employees (besides President and Vice President)

Budget

1,227 million Euros

Contacts

Stavropoleos St. 3, 4th floor, 3rd sector, Bucharest, Romania
Tel: + 40 213 179 751
Fax: + 40 213 179 752
www.anrsc.ro

Data

Country

- Area: 238.391 km^2
- Population: 22.194.000
- Population density: 84 inhab/km^2
- No. of counties: 41

Sector

- Municipal waste generated: 5,14 million tonnes
- Share of recycling and composting: 15%
- Share of landfill disposal: 80%
- Municipal waste generated (kg/capita): 261
- Average domestic household charges: 18 - 144 LEI/year (2017)
- 34.800 employees (2012)

SLOVAKIA

Legal Framework

The competent authority responsible for waste management on national level is the Ministry of Environment (MoE), with its regional and district branches. MoE is responsible for the preparation and the implementation of waste legislation and, since 1993, for developing National Waste Management Plans, including quantitative targets and measures to achieve them. MoE is supported by the Slovak Environmental Agency, an expert organisation which supports the ministry through data analysis and preparation of Waste Management Plans. Regional Environmental Offices prepare Waste Management Plans for regions, while the District Environmental Offices issue permits to waste management operations and activities, approve Waste Management Plans of municipalities and waste producers, and control activities. The organisation of waste collection services is a responsibility of municipalities which, *inter alia*, are required to assure separate collection of paper, plastic, metal and glass.

Market Structure

In the territory of the municipality, collection, including mobile collection, and transport of municipal waste, with the exception of biodegradable kitchen and restaurant waste from kitchen operators, may be performed by the municipality itself or by an entity which has concluded a contract for performing this activity with the municipality.
Waste management spending from 2010 to 2016 amounted to 400 million euros, with the main objective of completing the infrastructure and reducing the negative impacts of the generation and management of waste on human health. Since 2010, all municipalities are obliged to organise separate collection, both through door-to-door collection or containers, so investments in separate collection increased significantly: in 2017, a total of 35 million euros was used to promote sorted municipal waste collection. The private sector, through the Recycling Fund, is an important source of financing for separate collection: producers and importers pay charges on products to be separated, and the revenues go to the fund. Then, there are 11 authorised organisations in Slovakia for supporting packaging waste collection, of which the Green Dot scheme is one of them.

Price Setting

Since 2004, municipalities have collected local charges for managing municipal waste and small construction waste. Charges must be proportionate to the waste generated by the municipality's population and in line with the cost incurred in providing waste management services. In fact, the municipality is to use the revenue from the local fee for municipal waste and minor construction waste exclusively for collecting, transporting, recovering and disposing of municipal waste and minor collection waste
A *pay-as-you-throw* scheme (PAYT) has been introduced in some parts of the country, with the lowest fee compared to other EU member states with PAYT schemes (not incentivising separate collection).

Regulation

Municipal solid waste regulation is a shared competence in Slovakia. According to the Act 79 of 2015, the Ministry of Environment manages and inspections the performance of state administration in waste management, keeps registers and issues permits for specific waste operators. The Slovak Inspectorate of the Environment (SIE) is a specialised supervisory authority providing for the state supervision and imposing fines on the matters concerning environment protection and carrying out the municipal administration also in the field of waste management, with several powers of inspection.
The Antimonopoly Office deals with municipal waste, as it already issued several fines in the field of waste management. It actively engages in advocacy activities that are primarily aimed at removing barriers to the waste sector in order to develop competition for the benefit of consumers.

Relevant Entities

Ministry of Environment

Characteristics

- Ministry of the Government of Slovakia
- Competencies in air, water, geology, nature and landscape protection, waste management, renewable energy sources

Legal basis
Act 575 of 2001

Budget
193,16 million Euros (2018)

Contacts
Námestie Ľ. Štúra 1, 812 35 Bratislava
Tel: + 421 2 5956 1111
https://www.minzp.sk/en/

Slovak Inspectorate of the Environment

Characteristics

- Specialised supervision authority

Legal basis
Act of September 1991

Contacts
Jeséniova 17D, 831 01 Bratislava
Tel: +421 2 593 04 107 (waste department)
https://www.sizp.sk/slovak-environmental-inspectorate/about-us

Data

Country

- Area: 49.037 km^2
- Population: 5.421.349
- Population density: 112 inhab/km^2
- No. of districts: 79

Sector

- Municipal waste generated: 1,89 million tonnes
- Share of recycling and composting: 23%
- Share of landfill disposal: 66%
- Municipal waste generated (kg/capita): 348
- Municipal waste incineration plants: 2 (2016)
- 14.600 employees (2012)

SLOVENIA

Legal Framework

The Ministry of Environment and Spatial Planning (MESP) is responsible for the review of operational programs and other measures to reduce quantities of waste, setting up the legislative frame for waste management and national waste management plans for specific waste groups. These waste management plans ensure waste management strategies in general by giving guidelines and setting up qualitative and quantitative goals on a national level. At a local level, municipalities are responsible for collection of municipal waste and treatment of mixed municipal waste. They are free to associate as regards the implementation of mandatory municipal public services, as treatment of mixed municipal waste and disposal of residues from the recovery or disposal of municipal waste. Then the Environmental Agency of the Republic of Slovenia (ARSO) is the enforcement body for waste legislation, issuing permits, certificates, and authorisations on the base of waste regulations.

Market Structure

In 2012, municipalities were served by 60 operators for municipal waste collection and transport, and by 49 operators for treatment and disposal. For what concerns recycling waste, there were 31 companies registered for collection of paper and glass and 30 for collection of plastic and metal. Considering that 50% of the municipalities have fewer than 5000 inhabitants and that 10 local authorities manage 50% of the waste, waste management services are so provided by a large number of relatively small public authorities, which can only address the issue of residual waste management through cooperation to establish treatment facilities with sufficient economies of scale. The Public Utility Act envisages four different types of organisations for waste management: a service unit, in the case of smaller service requirements; a public utility organization; a public company; and a private company operating through a concession. Public utilities and companies represent the great majority.

Price Setting

Slovenian municipalities have introduced elements of variable charging for those on the-door-to-door system: users are charged by container size (those opting to use smaller residual waste bins are charged less, while biowaste bin are not charged) and by collection frequency. Commercial producers use the same services as households, with their prices being similarly set by container size and frequency of emptying. However, *pay-as-you-throw* schemes are currently in place in some areas of the country and are linked solely to the cost of the residual waste bin.

Regulation

In the field of waste management, the Environmental Agency (ARSO) has the following responsibilities: issuing administrative acts (permits, certificates, authorisations) on the basis of regulations on waste management; issuing decisions on the assessment of tax and exemption from taxes in the field of waste disposal, management of registers (e.g. registers of persons providing recovery, disposers, collectors, transport operators, dealers and brokers in waste management, and a register of suppliers of batteries and accumulators); collection and management the data on waste management.

Relevant Entities

Environmental Agency

Characteristics

- Body of the Ministry of Environment and Spatial Planning
- Competencies in air, water, environmental protection, nature, climate change, weather, and seismology

Legal basis

Official Gazette of the Republic of Slovenia No. 58/03

Contacts

Vojkova 1b, Sl-1000 Ljubljana
Tel: +386 1 4784 000
Fax: +386 1 4784 052
http://www.arso.gov.si/en/

Data

Country

- Area: 20.273 km^2
- Population: 2.062.874
- Population density: 102 inhab/km^2
- No. of municipalities: 212

Sector

- Municipal waste generated: 0,96 million tonnes
- Share of recycling and composting: 58% (2015)
- Share of landfill disposal: 24% (2015)
- Municipal waste generated (kg/capita): 449 (2015)
- Average domestic household charges: 96 €/year (2014)
- 8.100 employees (2012)

SPAIN

Legal Framework

Responsibilities for waste administration in Spain are shared between national, regional and local authorities. At the national level, the Ministry for Ecological Transition (MITECO) is responsible for implementing, amending and enforcing the waste laws at the national level. It is also responsible for developing a Prevention Program and National Waste Management Plans which set out the policy orientation, minimum targets, objectives and measures. The autonomous communities are responsible for issuing strategic waste management plans for each specific region, and for deciding which financial resources are available and how the budget will be allocated. Finally, at the local level, municipalities are responsible for the management of municipal waste from households, commerce, offices and services, including separate collection and transport of municipal solid waste. They generally perform these responsibilities by grouping themselves into associations of municipalities (Mancomunidades, Consorcios, etc). At the intersection of these three administrative levels sits the Commission for the Coordination on Waste (*Comisión de Coordinación en Materia de Residuos*), which is formed by representatives from the three main administrative levels in order to trigger cooperation and collaboration between them.

Market Structure

The waste management industry accounts for 40 percent of all environmental sector-related activity, for a total of over 7.8 billion euros of revenues (2017). The collection is contracted generally through contracts under the Law of Contracts of the Public Administrations. The most common procedure is through public tender, in which the technical and economic aspects of the proposals are considered. The Spanish system is peculiar with regard to treatments' plants, which are directly owned by private enterprises (differently from the majority of EU countries which typically adopt PPPs). As a consequence, most of these companies offer integrated services which encompass the whole production chain because of their great competitive advantage when controlling the entire process. In general, about 50 percent of the market is controlled by a handful of big companies, such as FCC Services, Urbaser, Cespa and Valoriza Medioambientals (in 2012, 3 of the 15 largest waste companies in Europe were Spanish). However, there are still over 10.000 companies operating in Spain's waste management sector (2017), and only a relatively small portion is represented by municipally-owned companies.

Price Setting

Funding for the overall waste management system is gathered through fees by municipalities. In some communities there is a separate fee for waste management whereas in others the fee is of a general nature covering other municipal services. The basis for calculating the fee varies across regions, one example being square metres of dwelling. In such cases, there are no incentives for households to prevent waste or to sort it at source. *Pay-as-you-throw* schemes have been studied and implemented by some local authorities, mainly in Catalonia. The waste management fee in these cases has consisted of a fixed annual fee and an additional fee per bag of packaging or mixed waste.

Regulation

In Spain, there is no National Regulatory Agency for municipal waste. According to Article 12 of Law 22/2011, regulatory responsibilities are shared between: the Ministry for Ecological Transition (MITECO), which is the competent institution for the general enforcement of national law on municipal waste; the General Administration of the State, which shall exercise the power of supervision and inspection, and powers to impose penalties in the field of its competences; Autonomous Communities, responsible for authorization, surveillance, inspection and sanction the activities of production and management of waste (i.e. companies that produce hazardous waste and non-hazardous waste in quantity of more than 1.000 t per year and waste treatment operators are subject to the regime of authorisation by the Autonomous Community or by its competent environmental body).

In addition, the National Commission on Markets and Competition (CNMC) is the responsible entity for investigating anti-competitive practices among companies, abuses of dominant positions, and other prohibited practices that have a negative impact on competition in the markets, including municipal waste companies. Its functions vary from the supervision of the functioning of installations, to the resolution of conflicts for access to the network, and to settlement of the economic incentive they receive.

Relevant Entities

Ministry for Ecological Transition

Characteristics

- Ministry of the Government of Spain
- Competencies in energy, water, waste, biodiversity, climate change and protection of the environment

Legal basis

Royal Decree 355/2018 and Royal Decree 862/2018 of 2018

Budget

5.473 million Euros (2018)

Contacts

Plaza San Juan de la Cruz, s/n., 28071 Madrid
Tel: +34 91 597.5812/6354
Fax: +34 91 597.5857
https://www.miteco.gob.es

National Commission on Markets and Competition

Characteristics

- Public entity with its own autonomous legal status

Founding year

October 7th 2013

Budget

373,69 million Euros (2017)

Contacts

Calle Alcalá 47, 28014 Madrid
Tel.: +34 91 432 9600
https://www.cnmc.es/en

Data

Country

- Area: 504.645 km^2
- Population: 46.539.026
- Population density: 92 $inhab/km^2$
- No. of municipalities: 8.118

Sector

- Municipal waste generated: 20,58 million tonnes
- Share of recycling and composting: 30%
- Share of landfill disposal: 57%
- Municipal waste generated (kg/capita): 443
- Average domestic household charges: 85 €/year (2016)
- Municipal waste incineration plants: 12 (2016)
- 140.000 employees (2017)

SWEDEN

Legal Framework

The parliament and the government, through the Ministry of Environment and Energy, issue laws and ordinances drawing up national strategies and objectives, which guide the municipalities in shaping their practices around collection and handling of waste. While, the responsibility for managing waste lies within municipalities, which are overall autonomous with the right to choose their own waste management system. In fact, under the Swedish Environmental Code, each municipality is responsible for ensuring that household waste is transported and recycled or disposed. They are required to have their own waste and sanitation ordinance, which consists of a waste plan and regulations for waste management, based on national environmental objectives and strategies for reducing the amount of dangerous waste. Then, municipalities can collaborate and draw up common regional waste plans and also have also the duty to inform about the content of their waste plans. The plans are coordinated by the County Administrative Board, which analyses the waste treatment capacity and ensures that there is sufficient treatment capacity within the region. Finally, the Swedish Environmental Protection Agency may issue complementing regulations for specific issues, and it is responsible for guiding the authorities responsible for inspection and enforcement.

Market Structure

The waste sector has a long history of collaboration between municipalities. As the sector has faced greater and greater demand, collaboration has grown in scope and has undergone development and expansion. Municipalities must choose themselves how waste management is organised. There are several organisational structures available: self-administration systems account for 44% of the organizational structures (128 municipalities); municipal enterprises, owned independently or jointly with other municipalities, represent 37% of the total (108 municipalities); municipal associations are the 16% (47 municipalities); and finally, only a residual part is organized through joint boards (7 municipalities) (2018). Waste treatment is either undertaken by the municipalities themselves, or by an external contractor, which can be a different municipality, a different municipal enterprise or a private company. The distribution between the various structures depends on the method of waste treatment. In the end, along the entire chain the Swedish system is characterised by high levels of public intervention; private undertakings participate in the collection and treatment of waste covered by the municipalities' exclusive rights through public procurements. It has been estimated that the total turnover of undertakings active in waste management was 8,5 billion Euros in 2013.

Price Setting

Costs to municipalities are recouped through a waste collection charge, set by the municipal council. The waste collection charge covers the total costs of municipal waste management, but any deficits that occur may be funded through taxation. In 2014, several municipalities have introduced weight-based charges under which households pay an additional fee per kilogram of waste collected, in addition to the basic fee (*pay-as-you-throw* scheme). For recyclable waste, the system is financed through packaging fee for producers per quantity of packaging material produced (extended producer responsibility), therefore there is not a fee paid directly by households. According to the prime cost principle in the Local Government Act, municipalities' revenue from the waste collection charges may not exceed their costs for waste management. The underlying reason for the prime cost principle in the Local Government Act is that the municipalities shall not be able to exploit their position in markets which can sometimes be compared to legal or natural monopolies.

Regulation

Economic regulation of municipal solid waste is a shared competence in Sweden. The Ministry of Environment and Energy is responsible for the guidance, monitoring and development of operations under the Swedish Environmental Code. The Swedish Environmental Protection Agency is the national administrative authority that, amongst other things, is tasked with the issuing of regulations and permits, along with the monitoring and evaluation of waste management in Sweden. The Swedish Competition Authority (KKV) is empowered to enforce the prohibition of anti-competitive agreements and abuses of a dominant position, forbidding agreements between competitors that limit competition, and forbidding undertakings enjoying a dominating position in a market from unduly restricting competition or exploiting their customers: both of these rules apply to the waste management sector. Furthermore, KKV has recommended that public entities should be required to separate the financial accounts of their competitive activities from their non-competitive activities and also that the accounts should be made public to improve transparency. This recommendation is considered especially important in the waste management sector where there is a perceived risk for cross-subsidisation and below cost pricing because of the municipal exclusive rights to household waste.

Relevant Entities

Ministry of Environment and Energy

Characteristics

- Ministry of the Government of Sweden
- Competencies in environmental (regarding chemicals, natural environment and biological diversity) and energy policies

Founding year

1987

Budget

15,431 million TKR (2018)

Contacts

Herkulesgatan 17, 103 33 Stockholm
Tel: +46 08-405 10 00
Fax: +46 08-24 16 29
https://www.government.se/government-of-sweden/ministry-of-the-environment/

Swedish Competition Authority

Characteristics

- Protection of competition in different sectors
- Regulatory agency with independence

Legal basis

New Competition Law of 1992

Number of employees

158 (2017)

Budget

147.783 TKR (2017)

Contacts

Competition Authority, 103 85 Stockholm
Tel: +46 08-700 16 00
http://www.konkurrensverket.se/en

Data

Country

- Area: 450.295 km^2
- Population: 10.014.900
- Population density: 23 $inhab/km^2$
- No. of municipalities: 290

Sector

- Municipal waste generated: 4,39 million tonnes
- Share of recycling and composting: 49%
- Share of landfill disposal: 1%
- Municipal waste generated (kg/capita): 443
- Average domestic household charges: 1329-2094 SEK/year
- Municipal waste incineration plants: 34 (2016)
- 14.100 employees (2012)

UNITED KINGDOM

Legal Framework

National waste regulation in the UK is devolved separately to the administrations of England, Wales, Scotland, and Northern Ireland, which are responsible for their own waste management strategies and policies, while local authorities have the duty to prepare waste recycling plans for household and commercial waste as well as to arrange for collection and disposal of household waste in their areas.

In England and Wales, according to the Waste Regulations of 2011, the English Secretary of State (with the Department for Environment, Food & Rural Affairs - DEFRA) and the Welsh Government are responsible for drawing up their respective waste management plans and waste prevention programmes, setting national strategies for managing waste and reducing it as much as possible. In Wales, there is a single-tier system for local government, while in England most local government administration is in two-tiers, at District and County Councils' levels: districts, through the Waste Collection Authorities (WCAs), are responsible for waste collection; counties handle waste disposal through the Waste Disposal Authorities (WDAs). However, in some metropolitan areas, there exist Unitary Authorities which are obliged to undertake both activities. In both England and Wales, licensing and regulation of waste management facilities are responsibilities of the Environment Agency (EA).

In Scotland, the Scottish Government (with the Environment and Forestry Directorate) has responsibility for national waste policy, while the primary function undertaken by local authorities is the collection and disposal of household and some commercial waste. A single-tier system is in place and, in order to bring together similar local authorities into groups which are more viable for strategy development, Waste Strategy Areas have been formed. Environmental regulatory responsibility falls upon the Scottish Environment Protection Agency (SEPA).

In Northern Ireland, the Ministry of Environment, Department of Agriculture, Environment and Rural Affairs (DAERA), assisted by the Waste Programme Board and by the Waste Co-ordination Group, drafts waste legislation and implements waste management policy. Due to the small size of each authority, joint contracting occurs too. The competent environmental regulator is the Northern Ireland Environment Agency (NIEA).

Market Structure

All households in the UK receive door-to-door collection of mixed municipal waste, and some level of collection of recyclables, usually carried out under contract to local authorities. The private sector plays the dominant role, however councils are increasingly turning to larger joint procurements or transitioning to "in-house" or "arms' length" delivery models to reduce costs and meet strained budgets. With regard to treatment and disposal, these phases are typically under the control of PPP or private companies. On the other side, companies of recyclable products operate in free markets, with the possibility of grouping in voluntary associations. In general, along the entire chain, large integrated trade players continue to focus on strategic acquisitions of smaller regional and mid-market companies, which suffer in the current trading environment in light of the strong competition for customers.

In 2016, the UK waste management contracting market was estimated to be slightly down on 2015, due to the impact of Central Government cuts to local authority environmental services budgets and the impact of falls in global commodity prices on recyclables materials. However, it has been noticed substantial growth in contractors' annual revenues, and so in investments, driven by the development of relatively new income streams as segregated recycling collections, organic waste collections and the development of energy-from-waste plants. In any case, it has to be said that the Brexit vote has created uncertainty about the future direction of UK waste policy, especially on recycled products, with the risk of removal of some of the prescriptive elements of EU waste legislation, jeopardising the growing business of recyclates.

Price Setting

Fees for waste collection and treatment, as well as for streets' cleaning, are part of the multi-services (e.g. police and fire services, recreation projects, education, transport, environment, administration, waste) Council Tax in England, Wales and Scotland, and of the District Rate in Northern Ireland, levied by local authorities on the basis of property values. Funds are not hypothecated to specific services, however the expenditure on each item is usually revealed by the local authority in literature explaining the composition of the tax. *Pay-as-you-throw* schemes are not in place in the UK.

Regulation

The English Secretary of State (with the Department for Environment, Food & Rural Affairs - DEFRA) in England, and the Welsh Government in Wales, must establish qualitative or quantitative benchmarks and may establish qualitative or quantitative targets and indicators to assess the value of waste programmes. On the other side, the Environment Agency (EA) regulates waste thorough environmental permits and its movement via waste carrier registration and duty of care requirements.

In Scotland, the Government (with the Environment and Forestry Directorate) is responsible for the regulatory and legislative framework and providing policy advice and guidance. Treatment and disposal of waste is regulated by the Scottish Environment Protection Agency (SEPA), giving duties to local authorities to provide a municipal waste service and make plans for disposal of the waste. SEPA can also take enforcement action on large scale and hazardous fly-tipping, while local authorities investigate small scale incidents.

In Northern Ireland, the Ministry of Environment, Department of Agriculture, Environment and Rural Affairs (DAERA) does not have any monitoring power over the District Rate neither assesses the quality of service. However, according to the 1997 Waste and Contaminated Land Order, DAERA stipulates minimum requirements for waste management, with powers of

	investigation and enforcement. On the other side, the Northern Ireland Environment Agency (NIEA) monitors, audits and regulates licensed and exempt waste facilities and activities in order to protect and minimise impacts to the environment and human health.
Relevant Entities **Department for Environment, Food & Rural Affairs (DEFRA)** **Characteristics** UK government department **Founding year** 2001 **Number of employees** 3500 (2018) **Budget** 2.2 billion £ (2018) **Contacts** Nobel House, 17 Smith Square, London Tel: +44 20 7238 6951 https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs **Environment Agency (EA)** **Characteristics** ▪ Executive non-departmental public body, sponsored by DEFRA ▪ Competencies in England and Wales **Founding year** 1995 **Number of employees** 11.200 **Contacts** Horizon House Bristol BS1 5AH United Kingdom Tel: +44 (0) 114 282 5312 https://www.gov.uk/government/organisations/environment-agency **Scottish Environment Protection Agency (SEPA)** **Characteristics** Non-departmental public body of Scottish Government **Legal basis** Environment Act 1995 **Number of employees** 1300 **Website** https://www.sepa.org.uk/ **Department of Agriculture, Environment and Rural Affairs (DAERA)** **Characteristics** Northern Ireland government department **Founding year** 1921 **Number of employees** 3.836 (2011) **Budget** 197,9 million £ (2016) **Contacts** Dundonald House, Upper Newtownards Road, Ballymiscaw, Belfast BT4 3SB Tel: +44 0300 200 7852 https://www.daera-ni.gov.uk/ **Northern Ireland Environment Agency (NIEA)** **Characteristics** Executive agency within DAERA **Contacts**	**Data** **Country** ▪ Area: 242.521 km^2 ▪ Population: 65.648.100 ▪ Population density: 266 $inhab/km^2$ ▪ No. of constituencies: 650 **Sector** ▪ Municipal waste generated: 31,68 million tonnes ▪ Share of recycling and composting: 45% (2014) ▪ Share of landfill disposal: 28% (2014) ▪ Municipal waste generated (kg/capita): 482 (2014) ▪ Average domestic household charges: 163£/year (Wales) ▪ Municipal waste incineration plants: 46 (2016) ▪ 118.600 employees (2012)

Klondyke Building, Cromac Avenue, Gasworks Business Park, Lower Ormeau Road, Belfast BT7 2JA Tel: +44 0845 302 0008 https://www.nidirect.gov.uk/contacts/contacts-az/northern-ireland-environment-agency	