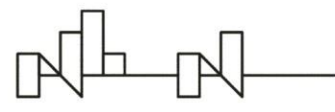


Iceland
Liechtenstein
Norway grants



Norway grants

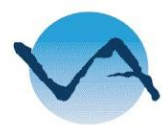
THE CATALOGUE OF GOOD PRACTICES IN THE COLLECTION OF BIO-WASTE



IOŚ-PIB

Institute of Environmental Protection
National Research Institute

Warsaw 2024



**VISTA
ANALYSE**

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INTRODUCTION

INTRODUCTION

The aim of separate collection of municipal waste, including biodegradable waste, is to reduce the amount of waste going to landfills, to reuse products, to obtain secondary raw materials and to reduce the negative impact on the environment. Depending on the available infrastructure, bio-waste can be directed to composting plants or biogas plants, hence the similarities and differences in waste collection systems between municipalities in Poland and in other countries. The quality of the environment we live in depends on the efficiency of the waste management system.

Over recent years, recycling and recovery of waste has been increasing in Poland and other European countries as a result of EU and national regulations. The same regulations bring further challenges to municipalities in terms of increasing levels of recycling and reducing landfilling.

The catalogue presents examples of good practice in bio-waste collection from Poland, Norway and other European countries where efficient biodegradable waste management systems have been in place for many years. We would like these examples to be a guideline for taking action to improve bio-waste collection systems and their further processing.



GOOD PRACTICES IN POLAND

KUTNO

| | |
|---|--|
| Type of municipality | urban |
| Voivodeship/Region | łódzkie |
| Number of inhabitants in 2022 | 41,231 |
| Share of separately collected waste in municipal waste collected in 2022 | 54.5% |
| Share of biodegradable waste in collected municipal waste in 2022 | 42.7% |
| Method of managing biodegradable waste | Directed to mechanical-biological treatment plants and to green waste composting plants |
| Fractions of selectively collected municipal waste | It's separated into 6 fractions: <ul style="list-style-type: none"> – biodegradable waste "BIO", i.e.: cut twigs, grass clippings, leaves – biodegradable kitchen waste "kitchen waste", i.e.: bio-waste excluding waste constituting parts of plants originating from the care of green areas, gardens – plastics and mixed packaging waste – paper and cardboard – glass – mixed waste |
| Municipal waste collection system in households | <ul style="list-style-type: none"> – exclusively bag-based: waste collected selectively (i.e. all except mixed waste), including bio-waste – exclusively bin-based: mixed waste |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door – 1 collection centre (bio-waste accepted; service included in the waste management fee) |
| Municipal waste collection area | Kutno city area – divided into 8 areas (groups of streets) |
| Frequency of municipal waste collection | <ul style="list-style-type: none"> – "BIO" fraction and kitchen bio-waste: once per month (from November to March); twice per month (from April to October) – Plastics: once per month – Paper and cardboard, glass: 7 times per year (approx. once every 2 months) – Mixed: twice per month |
| Fees for residents | PLN 29 per month from each resident of a given property (increased fee for not sorting waste: PLN 58) |
| Discounts for residents | PLN 3 per month from each resident of a property equipped with a composter |
| Total amount of municipal waste collected in the municipality in 2022 | 18,285 Mg, including: <ul style="list-style-type: none"> – biodegradable kitchen waste: 5,092.2 Mg – biodegradable waste (green and other): 2,634.1 Mg Amount of waste generated by 1 resident per year: 443.5 kg |
| The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022 | <ul style="list-style-type: none"> – Income from waste management fees: PLN 12,812,426.86 – Total costs: PLN 14,441,730.83 <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident: PLN 338.21 – Cost per 1 Mg of collected waste: PLN 789.81 |

Additional info:

In 2023, the rate for waste collection was increased to PLN 37 per resident per month, and the fee for not sorting waste increased to PLN 74. The discount for composting was increased to PLN 4 per person per month.

In 2023, the "BIO" fraction was changed to include both kitchen and garden waste (peelings, vegetable and fruit waste, small branches of trees and shrubs, cut grass, leaves, flowers, sawdust and tree bark, coffee and tea grounds).

Sources:

- City of Kutno website dedicated to waste management - <https://um.kutno.pl/system-odbioru-odpadow>
- Public information bulletin of the city of Kutno concerning waste management - <https://umkutno.bip.e-zeto.eu/index.php?type=4&name=bt254&func=selectsite&value%5B0%5D=mnu31&value%5B1%5D=25>
- Informational leaflets and posters from 2024: <https://um.kutno.pl/system-odbioru-odpadowhttps://um.kutno.pl/system-odbioru-odpadow>

KOMORNIKI

| | |
|--|--|
| Type of municipality | rural; Komorniki is part of the intermunicipal association "CZO-SELEKT" |
| Voivodeship/Region | wielkopolskie |
| Number of inhabitants in 2022 | 36,329 |
| Share of separately collected waste in municipal waste collected in 2022 | 88.9% |
| Share of biodegradable waste in collected municipal waste in 2022 | 40.2% |
| Method of managing biodegradable waste | 100% of biodegradable waste was diverted to composting |
| Fractions of selectively collected municipal waste | It's separated into 5 fractions: <ul style="list-style-type: none"> – paper and cardboard – plastics – glass – biodegradable waste "bio-waste" (kitchen and green waste), i.e.: fruit and vegetable leftovers, eggshells, grounds, contents of canned fruit and vegetables, mushrooms, preserves, nuts and fruits also dried, leaves, grass, weeds, small twigs (no thicker than a school pencil), cut flowers, wilted flowers, potted flowers - including their root system without the soil, nutshells, needles, cones – mixed waste |
| Municipal waste collection system in households | <ul style="list-style-type: none"> – bag-based: paper and cardboard, plastics, glass, mixed – bin-based exclusively: bio-waste (thrown loose, not in bags) |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door – 1 collection centre (bio-waste accepted; service included in the fee) |
| Municipal waste collection area | The area of Komorniki municipality – divided into 13 regions along settlements' borders and streets (regions I-VIII - single-family housing, regions IX-XIII - multi-apartment buildings) |
| Frequency of municipal waste collection | <p>Single-family housing:</p> <ul style="list-style-type: none"> – bio-waste: once per month (December-March), twice per month (April-November) – mixed waste: twice per month – plastics, paper: once per month – glass: 8-9 times per year <p>Multi-apartment buildings:</p> <ul style="list-style-type: none"> – bio-waste: twice per month (December-March), once per week (April-November) – mixed waste: once per week – plastics, paper: twice per month – glass: once per month |
| Fees for residents | PLN 35 per month for each housing resident |
| Discounts for residents | PLN 2 per home per month on the monthly fee for families owning and using a composter in their backyard |

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| <p>Total amount of municipal waste collected in the municipality in 2022</p> | <p>8,826.2 Mg, including:</p> <ul style="list-style-type: none"> – biodegradable waste: 3,551.3 Mg – 214.5 Mg of biodegradable waste was delivered to the Komorniki collection centre <p>Weight of waste generated by 1 resident of the municipality per year: 244 kg</p> <ul style="list-style-type: none"> – amount of municipal waste collected in the entire association ZM "CZO - SELEKT": 61,223.0 Mg <p>Weight of waste generated by 1 resident in ZM "CZO - SELEKT" per year: 240 kg</p> |
| <p>The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022</p> | <ul style="list-style-type: none"> – "CZO – SELEKT"'s income from fees for municipal waste management: PLN 101,472,745.54 – "CZO – SELEKT"'s total costs: PLN 100,263,602.27 - 88% of the expenses (PLN 88,224,903.11) was the cost of collection and management of municipal waste from residents (including the operation of the collection centre) <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident in "CZO - SELEKT": PLN 393.06 – Cost per 1 Mg of collected waste in "CZO - SELEKT": PLN 1,637.68 – Income of the Komorniki municipality related to municipal waste management: PLN 7,761.70 – Income of the Komorniki municipality in the form of grants received for current tasks carried out on the basis of agreements between local government units (including those resulting from the city's membership in the "CZO - SELEKT" association): PLN 1,112,766.18 – Expenses of the Komorniki municipality related to municipal waste management: PLN 81,946.77 (including the "CZO – SELEKT" membership fee: PLN 64,386.00) |

Additional info:

The municipality of Komorniki is part of the Intermunicipal Association „Waste Management Centre – SELEKT” (in short: ZM "CZO – SELEKT”).

Sources:

- The Komorniki municipality's website concerning waste management - <https://www.komorniki.pl/gospodarka-odpadami.html>
- The "CZO – SELEKT" website - https://selekt.czempin.pl/asp/pl_start.asp?typ=14&menu=1&strona=1&ref=1&schemat and Public information bulletin - <https://czo-selekt.biuletyn.net/?bip=1&cid=1034&bsc=N>
- Aplikacja EcoHarmonogram <https://www.komorniki.pl/harmonogramy-odbioru-odpadow.html>

BIAŁA PODLASKA

| | |
|--|--|
| Type of municipality | urban |
| Voivodeship/Region | lubelskie |
| Number of inhabitants in 2022 | 54,768 |
| Share of separately collected waste in municipal waste collected in 2022 | 95.5% |
| Share of biodegradable waste in collected municipal waste in 2022 | 38.2% |
| Method of managing biodegradable waste | Bio-waste (mainly green waste) is directed to composting |
| Fractions of selectively collected municipal waste | It's separated into 7 fractions: <ul style="list-style-type: none"> – paper – container glass – metals, plastics and multi-material packaging waste – ash – biodegradable waste "Bio-waste", i.e.: cut branches of trees and shrubs, cut grass, leaves, flowers, sawdust and tree bark, flowers along with flower soil – biodegradable kitchen waste "Wet fraction", i.e.: vegetable and fruit waste (including peelings, etc.), food scraps, used paper towels and tissues, disposable nappies and other personal hygiene products, animal bones and leftovers from domestic animals – mixed waste |
| Municipal waste collection system in households | <ul style="list-style-type: none"> – bag-based – bin-based |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door – 2 collection centres ("wet fraction" excluded; service included in waste management fee) |
| Municipal waste collection area | The area of the city of Biała Podlaska – divided into 7 settlements |
| Frequency of municipal waste collection | <ul style="list-style-type: none"> – paper, glass: 6 times per year (once every 2 months) – metals, plastics and multi-material packaging waste, bio-waste, wet fraction: twice per month |
| Fees for residents | <p>PLN 5.72 per 1 m³ of water used at the property (increased fee for not sorting waste: PLN 17.16/m³ of water used)</p> <ul style="list-style-type: none"> – in case a household has its own water source, the average standard of water consumption is considered to be 3 m³/person/month |
| Discounts for residents | <ul style="list-style-type: none"> – 6% of the monthly fee for each resident for composting in a backyard composter (applies to single-family housing) – 50% of the monthly fee for each person whose income does not exceed the amount entitling them to cash benefits from social assistance, in case the average monthly income of the resident in the previous year does not exceed the aforementioned amount. |

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| Total amount of municipal waste collected in the municipality in 2022 | 23,917.6 Mg, including: <ul style="list-style-type: none"> – biodegradable kitchen waste: 5,698.8 Mg – (green and other) biodegradable waste: 3,620.6 Mg Amount of waste generated by 1 resident per year: 436.7 kg |
| The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022 | <ul style="list-style-type: none"> – Income from waste management fees: PLN 9,048,087.32 – Total costs: PLN 10,700,113.60 – 95% of the expenses (PLN 10,184,561.64) was the cost of collection and management of municipal waste from residents (including the operation of the collection centres) <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident: PLN 195.36 – Cost per 1 Mg of collected waste: PLN 447.37 |

Additional info:

The entity responsible for the management of municipal waste collected in the municipality of Biała Podlaska has an installation for composting green waste. This plant produces a soil conditioner (“KOMPOST SELECTOPTYMAL”), which is marketed.

In 2023, 1808 composters were reported in the declarations of payment for municipal waste management in the city; it is estimated that 626.5 Mg of biodegradable waste was disposed of this way.

In 2023 Biała Podlaska won the title of “Polish Recycling Capital” in a national competition of the same name; the Biała Podlaska Elementary School No. 2 received a prize of PLN 50,000 for finishing first place in this competition.

Sources:

- The municipality’s website concerning its waste management system <https://um.bialapodlaska.pl/ps/131>
- Rules concerning waste sorting and collecting in Biała Podlaska <https://um.bialapodlaska.pl/ps/292>

ŁUKÓW

| | |
|--|---|
| Type of municipality | urban |
| Voivodeship/Region | lubelskie |
| Number of inhabitants in 2022 | 27,453 |
| Share of separately collected waste in municipal waste collected in 2022 | 97.4% |
| Share of biodegradable waste in collected municipal waste in 2022 | 37.5% |
| Method of managing biodegradable waste | Bio-waste is transferred to one of two composting facilities |
| Fractions of selectively collected municipal waste | It's separated into 7 fractions: <ul style="list-style-type: none"> – paper and cardboard – plastics and metal – glass packaging – ash – biodegradable kitchen waste, i.e.: vegetable and fruit waste (including peelings, etc.), sawdust, food scraps, eggshells, coffee and tea grounds – biodegradable green waste, i.e.: shredded tree and shrub branches, cut grass, leaves, flowers, tree bark – mixed waste |
| Municipal waste collection system in households | <ul style="list-style-type: none"> – bin-based (exclusively bin-based for biodegradable kitchen waste) – bag-based |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door – 1 collection centre (bio-waste excluded; service included in waste management fee) |
| Municipal waste collection area | Łuków city area – divided into 8 regions (groups of streets) and by days of the week |
| Frequency of municipal waste collection | <p>Single-family housing:</p> <ul style="list-style-type: none"> – kitchen biodegradable waste: twice a month – green biodegradable waste: twice a month (April-November) – glass: 6 times a year – plastics, paper: once per month <p>Multi-apartment buildings:</p> <ul style="list-style-type: none"> – all fractions: once per week |
| Fees for residents | 1-3 residents at a given property: PLN 20/person/month For the 4th and each additional person living on the property: PLN 17/person/month |
| Discounts for residents | <ul style="list-style-type: none"> – PLN 4 per month from each person living on a property that is composting in a backyard composter – PLN 6 per month for each person whose income does not exceed the amount entitling them to cash benefits from social assistance, where the average monthly income of the resident in the previous year does not exceed the aforementioned amount |

| | |
|---|---|
| Total amount of municipal waste collected in the municipality in 2022 | 18,285 Mg, including: – biodegradable kitchen waste: 5,092.2 Mg – (green and other) biodegradable waste: 2,634.1 Mg Amount of waste generated by 1 resident per year: 443.5 kg |
| The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022 | – Income from waste management fees: PLN 7,525,309.13 (total income: PLN 7,536,140.40) – Total costs: PLN 7,952,155.08 - 94% of the expenses (PLN 7,481,076.64) was the cost of collection and management of municipal waste from residents (including the operation of the collection centre) <div style="text-align: right;">DEFICIT/SURPLUS</div> – Cost per resident: PLN 289.70 – Cost per 1 Mg of collected waste: PLN 984.93 |

Additional info:

In 2022, 768 properties composted biodegradable waste in backyard composters. Despite the introduction of a limit in the amount of green biodegradable waste collected per household (between April and November, max two 120-liter containers or bags) and the discount on the waste management fee for households that do their own composting of bio-waste (two regulations that were meant to incite at-home composting), the collected biodegradable waste fraction was still the largest ever in Łuków in 2022.

The city used to be a member of the Union of Municipalities of Radzyń County up until 2020; it is now member of the Union of Municipalities of North-Western Lublin Region, which defines the general Framework for Municipal Waste Management in its 22 member municipalities.

As of January 1, 2024, the limit on green waste collected per household has been lifted; the regulation of mandatory collection of garden waste loosely in containers (instead of bags) has been introduced.

The city allows residents to ask questions to municipal officials in charge of the city's waste management (Municipal Waste Management Department).

Sources:

- The Łuków Municipality Website dedicated to waste management - <http://www.lukow.pl/dla-mieszkancow/gospodarka-komunalna/odpady-komunalne/>
- Municipal yearly waste management reports - <https://umlukow.bip.lubelskie.pl/index.php?id=303>
- Website of the Union of Municipalities of North-Western Lublin Region <https://www.zgpz.pl/>

KONSTANCIN-JEZIORNA

| | |
|--|--|
| Type of municipality | urban-rural |
| Voivodeship/Region | mazowieckie |
| Number of inhabitants in 2022 | 25,151 |
| Share of separately collected waste in municipal waste collected in 2022 | 57.9% |
| Share of biodegradable waste in collected municipal waste in 2022 | 36.9% |
| Method of managing biodegradable waste | Approx. 70% of the collected bio-waste was directed to refuse derived fuel production facilities and 30% to composting plants |
| Fractions of selectively collected municipal waste | It's separated into 5 fractions: <ul style="list-style-type: none"> – paper – glass – metals and plastics – biodegradable waste "BIO" (kitchen and garden waste), i.e.: peelings and crumbs from vegetables and fruits; banana and citrus peels; eggshells; coffee and tea grounds; food scraps (without meat, bones and fats); expired food products; kitchen waste (food scraps, dumplings with fruit, cheese, expired yogurt without packaging); old bread; expired confectionery, cakes, yeast, etc. ; leftover dairy products; cottage and yellow cheese; wilted flowers from the vase and potted plants; tree and shrub branches; cut grass, leaves, flowers; sawdust and tree bark; untreated wood, needles and nutshells – mixed waste |
| Municipal waste collection system in households | – bag or bin-based (bags are provided to households by the company upon collection) |
| Municipal waste pickup system | – door-to-door – 1 collection centre (bio-waste excluded ; service included in the management fee) |
| Municipal waste collection area | Area of the municipality of Konstancin-Jeziorna – divided into 4 sectors (sector I and II are mostly urban areas, more densely built) |
| Frequency of municipal waste collection | Single-family housing: <ul style="list-style-type: none"> – BIO, mixed waste, paper, metals and plastics: twice per month – glass: once per month Multi-apartment housing: <ul style="list-style-type: none"> – BIO, mixed waste: 3 times per week – paper, metals and plastics: once per week – glass: once per month |
| Fees for residents | 36 PLN/person/month (increased fee for not sorting waste: 72 PLN) |
| Discounts for residents | – 30% per month for Large Family Card holders |

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| | <ul style="list-style-type: none"> – PLN 3 per month from each person residing in a given real estate for self-segregation in a home composter |
| Total amount of municipal waste collected in the municipality in 2022 | 14,314.9 Mg, including: <ul style="list-style-type: none"> – biodegradable kitchen waste: 4,913.4 Mg – wood (live Christmas trees): 53,02 Mg Amount of waste generated by 1 resident per year: 569 kg |
| The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022 | <ul style="list-style-type: none"> – Income from waste management fees: no data (no deficit stated) – Total costs: PLN 11,666,494.37 - 93% of the expenses (PLN 10,843,521.26) was the cost of collection and management of municipal waste from residents (including the operation of the collection centre) <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident: PLN 463.88 – Cost per 1 Mg of collected waste: PLN 814.99 |

Additional info:

A waste collection reminder app is advertised on the Konstancin-Jeziorna municipality's website: <https://www.konstancinjeziorna.pl/news/srodowisko/pobierz-aplikacje-przypomni-o-wywozie-odpadow>

Sources:

- The municipality's website concerning waste management in the city - <https://www.konstancinjeziorna.pl/page/jak-segregowac-odpady> and Public information bulletin - <https://bip.konstancinjeziorna.pl/artykuly/100/gospodarka-odpadami>
- Municipal yearly waste management reports - <https://www.konstancinjeziorna.pl/page/obowiazujace-akty-prawne>

BIELSKO-BIAŁA

| | |
|--|---|
| Type of municipality | urban |
| Voivodeship/Region | śląskie |
| Number of inhabitants in 2022 | 166,776 |
| Share of separately collected waste in municipal waste collected in 2022 | 76.0% |
| Share of biodegradable waste in collected municipal waste in 2022 | 33.3% |
| Method of managing biodegradable waste | 100% of the bio-waste was directed to a composting plant |
| Fractions of selectively collected municipal waste | <p>It's separated into 7 fractions:</p> <ul style="list-style-type: none"> – glass – paper – metals and plastics – ash – biodegradable kitchen waste "Bio", i.e.: kitchen waste, leftovers from meals; fruit and vegetable scraps and peelings; coffee and tea grounds; eggshells; potted plants, balcony plants; cut flowers and flower soil from pots; greased paper and cardboard (e.g. soiled with organic residues and mould, soaked packaging or parts thereof, e.g. white cheese paper, kitchen towels); used greased paper bags and pouches; paper kitchen towels and napkins; live Christmas trees without ornaments and pots – biodegradable waste "Green waste", i.e.: bulkier garden waste – mixed waste |
| Municipal waste collection system in households | <ul style="list-style-type: none"> – bag-based ("green waste" collected only in bags) – bin-based ("bio" waste collected only from bins) |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door – 2 collection centres, a third one is planned (kitchen waste excluded; service included in management fee) – collection points exclusively (with bell-shaped bins) for glass waste collection |
| Municipal waste collection area | Bielsko-Biała city area - divided by type of housing and by street |
| Frequency of municipal waste collection | <p>Single-family housing:</p> <ul style="list-style-type: none"> – metals and plastics, glass, paper: once per month – bio, mixed waste: twice per month – green waste: once per month (April-November) <p>Multi-apartment buildings:</p> <ul style="list-style-type: none"> – metals and plastics, bio, mixed waste: twice per week – glass, paper: once per week |
| Fees for residents | 1-3 residents in a property: PLN 26/person/month |

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| | <p>4 residents: PLN 91/property/month (PLN 22.75/person/month)</p> <p>5 residents: PLN 92/property/month (18.40 PLN/person/month)</p> <p>6 residents: PLN 93/property/month (PLN 15.50/person/month)</p> <p>7 residents and more: 94 PLN/property/month (increased fee for not sorting waste: the above amounts multiplied by 2)</p> |
| Discounts for residents | PLN 10 per month for composting in a backyard composter (applies to single-family housing) |
| Total amount of municipal waste collected in the municipality in 2022 | <p>70,076.2 Mg, including:</p> <ul style="list-style-type: none"> – biodegradable kitchen waste: 13,776.6 Mg – (green and other) biodegradable waste: 6,369.8 Mg <p>Amount of waste generated by 1 resident per year: 420.2kg</p> |
| The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022 | <ul style="list-style-type: none"> – Income from waste management fees: no data (no deficit stated) – Total costs: PLN 59,718,692.68 - 95% of the expenses (PLN 56,456,910.12) was the cost of collection and management of municipal waste from residents (including the operation of the collection centre) <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident: PLN 358.09 – Cost per 1 Mg of collected waste: PLN 852.20 |

Additional info:

A third collection centre in the western part of the city is planned for construction since 2022.

The city takes part in the selective collection of used cooking oil, providing the citizens with containers in collection points, in order to reduce the risk of damages and blockages in drain pipes as well as to reduce the cost of wastewater treatment; the treated and recycled fats and oils are later used as an additive in biofuel production or as raw material for jet fuel production.

Sources:

- <https://bip.um.bielsko.pl/m,225,gospodarka-odpadami-komunalnymi.html>
- <https://czystemiasto.bielsko-biala.pl/>
- <https://zgo.bielsko.pl/system-gospodarki-odpadami.html>
- <https://prezero-bielsko.pl/harmonogram-odbioru-odpadow/>
- Public Information Bulletin of the City of Bielsko-Biala regarding waste management - <https://bip.um.bielsko.pl/m,225,gospodarka-odpadami-komunalnymi.html>
- Informational website about waste management in the City of Bielsko-Biala - <https://czystemiasto.bielsko-biala.pl/>
- The website of the Municipal Waste Management Facility <https://zgo.bielsko.pl/system-gospodarki-odpadami.html>
- Website of the waste collection company with the collection schedule <https://prezero-bielsko.pl/harmonogram-odbioru-odpadow/>
- Map of collection points for used cooking oil <https://www.segregujolej.pl/mapa/>



GOOD PRACTICES IN EUROPE

DRAMMEN (NORWAY)

| | |
|---|--|
| Name of municipality or group, type of municipality/ies | Drammen, urban municipality |
| Voivodeship/Region | Buskerud county |
| Number of inhabitants in 2022 | 102,273 |
| Share of separately collected waste in municipal waste collected in 2022 | 69.0% |
| Share of biodegradable waste in collected municipal waste in 2022 | 34.2% |
| Method of managing biodegradable waste | Directed to a waste treatment facility |
| Fractions of selectively collected municipal waste | <p>It's separated into 5 fractions:</p> <ul style="list-style-type: none"> – biodegradable kitchen waste "kitchen waste", i.e.: bio-waste excluding waste that is parts of plants from care of green areas, gardens – plastics – paper and cardboard – glass and metal – residual waste - that which cannot be sorted <p>Green (garden) waste is collected separately and delivered independently by residents to recycling points.</p> |
| Municipal waste collection system in households | <ul style="list-style-type: none"> – exclusively bag-based ("kitchen waste") – bag and/or bin-based (other selectively collected fractions) – bin and/or bag-based (residual waste) |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door – 5 recycling stations ("kitchen waste" excluded; service included in management fee) – garden waste fraction: self-delivery to a recycling point (max. 2000 kg per household) |
| Municipal waste collection area | Area of the municipality of Drammen and surrounding areas |
| Frequency of municipal waste collection | <ul style="list-style-type: none"> – kitchen waste" and residual waste fractions: twice per month (every two weeks) – "paper" and "plastics" fractions: once per month – "glass and metal" fractions: once every 2 months |
| Fees for residents | Annual fee for the waste collection service: NOK 3,038 (PLN 1095/year; PLN 91/month) |
| Discounts for residents | <i>Does not apply</i> |
| Total amount of municipal waste collected in the municipality in 2022 | <p>45,460.0 Mg, including:</p> <ul style="list-style-type: none"> – biodegradable kitchen waste 5,446.0 Mg – (green and other) biodegradable waste 10,114.0 Mg <p>Amount of waste generated by 1 resident per year: 444.5 kg</p> |
| The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022 | <ul style="list-style-type: none"> – Income from waste management fees: NOK 121,007,000 (financial coverage: 91%) – Total costs: NOK 132,019,000 <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident: NOK 1,290.85 – Cost per 1 Mg of collected waste: NOK 2,904.07 |

Additional info:

Backyard composting is a recommended solution for those residents who want to produce compost to use in their own gardens. When composting, all household food waste should be placed in a separate compost bin approved by the company (RfD). It is important that home composting is done according to set criteria and that composting continues throughout the year so that food waste does not end up in residual waste.

To start home composting, you need to get a composter that is approved by the RfD and for which you have received approval.

In order to receive new bags for food waste and plastic packaging, the system provides for two types of action: tying the bags to the handles of the bins (then, at the next pickup, the resident will receive new bags) or collecting them in person at the recycling centre or company office.

The purchase of an additional bag for residual (mixed) waste costs about NOK 115 (PLN 42) a piece.

Sources:

- Website of the RfD company, managing waste in Drammen - <https://www.rfd.no/avfallshenting#/adresse> and the subpage about at-home composting - <https://www.rfd.no/sorteringsguide/hjemmekompostering#/>
- Norway's statistics - <https://www.ssb.no/en>

BRUSSELS (BELGIUM)

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| Name of municipality or group, type of municipality/ies | Brussels and the other urban municipalities belonging to the Brussels-Capital Region (Anderlecht, Auderghem, Berchem-Sainte-Agathe, city of Brussels, Etterbeek, Evere, Forest, Ganshoren, Ixelles, Jette, Koekelberg, Molenbeek-Saint-Jean, Saint-Gilles, Saint-Josse-ten-Noode, Schaerbeek, Uccle, Watermael-Boitsfort, Woluwe-Saint-Lambert, Woluwe-Saint-Pierre), handled by the municipal utility company Bruxelles-Propreté |
| Voivodeship/Region | Brussels-Capital Region |
| Number of inhabitants in 2022 | 1,222,637 |
| Share of separately collected waste in municipal waste collected in 2022 | 44.0% |
| Share of biodegradable waste in collected municipal waste in 2022 | 5.6% |
| Method of managing biodegradable waste | Half of the collected bio-waste (mainly green waste, from private gardens and urban green spaces) was directed to composting and the other half to biomethane plants. In Brussels, there is a strong emphasis on reducing the production of bio-waste - zero waste principles and composting are promoted by the City and are popular. It is possible to obtain financing (up to 100% of the purchase amount) for individual composting - a composter for a home garden or a vermicomposter for apartments - or collective composting. In Brussels, there is a network of 214 collective composting facilities (most of them public, with individual ones destined for a specific neighborhood or district), and each is the responsibility of a designated person who inspects the waste brought in and ensures the proper condition of the composting process. |
| Fractions of selectively collected municipal waste | It's separated into 6 fractions: <ul style="list-style-type: none"> – kitchen bio-waste (déchets alimentaires), i.e.: leftover food (including meat, fish), leftover raw dough, peelings, sweets without foil and packaging, grounds (including from tea in bags as long as they are paper), paper cloths and tissues used to wipe off food scraps, tissues, expired products without their packaging – green bio-waste (déchets verts), i.e.: branches (up to 8 cm in diameter and 1.5 m in length), leaves and wilted flowers, weeds, plants (including diseased and treated with protection products), residues from cutting and lawn mowing, sawdust and bark, small tree stumps – papers and cardboard boxes – "PMC" packaging, i.e. plastic (P), metal (M), beverage cartons (C) – glass – residual waste |

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| Municipal waste collection system in households | <ul style="list-style-type: none"> – bag-based – official bags are mandatory for kitchen bio-waste, biodegradable bags are mandatory for green bio-waste; official bags are available for purchase in most shops – bin-based – it is possible to obtain small containers for storing kitchen bio-waste (in addition to the mandatory bag itself) free of charge from the city, mainly to avoid street animals ripping the bags open on the day of collection – external – at collection points exclusively in the case of glass waste, divided into transparent and coloured glass (collection points equipped with bell-shaped waste containers) |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door (residual waste, bio-waste, paper, plastic) – small collection points (glass, used kitchen oils and fats, cork plugs, chemical waste) spread all over the city – 5 collection centres, called "Recypark" (kitchen bio-waste excluded) – Mobile collection centre, called "Parc à conteneurs mobile" (for problematic waste, such as electric appliances) - one in each 14 of the 19 municipalities, stationing for several days at a designated location |
| Municipal waste collection area | Area of the Arrondissement of Brussels-Capital – divided according to the administrative borders of the 19 urban municipalities belonging to the District |
| Frequency of municipal waste collection | Both multi-family and single-family dwellings: <ul style="list-style-type: none"> – bio-waste and other selectively collected waste – once per week; – residual waste: 1-2 times a week |
| Fees for residents | In Brussels, there is no separate fee for collecting and managing municipal waste - it is included in the real estate tax ("précompte immobilier," i.e., an advance tax on income from real estate assets) and in the price of the official, mandatory waste bags, sold in most stores (other bags will not be collected), which residents must buy themselves |
| Discounts for residents | <i>Does not apply</i> |
| Total amount of municipal waste collected in the municipality in 2022 | 457,815 Mg, including: <ul style="list-style-type: none"> – biodegradable kitchen waste: 5,261 Mg – biodegradable garden waste: 8,661 Mg – mixed biodegradable waste: 5,655 Amount of waste generated by 1 resident per year: 374 kg |
| The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022 | <ul style="list-style-type: none"> – Income from waste management fees: EUR 17,700,000 (Total income: EUR 262,771,000) – Total costs: EUR 247,983,000 <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident: EUR 203.27 – Cost per 1 Mg of collected waste: EUR 747.57 EUR |

Additional info:

Bruxelles-Propreté suggests downloading the belgian waste info app - <https://www.recycleapp.be/intro> ; their website allows individuals to download a personalized schedule for their home address - <https://www.arp-gan.be/fr/calendrier-sorties-de-sacs>. There is an application called "Fix My Street" in Brussels, where one can report wild dumps - <https://fixmystreet.brussels/>

When the separation of the kitchen bio-waste fraction was made mandatory (previously it was voluntary), the frequency of residual waste collection was reduced in order to motivate residents to implement the new habit; an informational website was then created: <https://dechetsalimentaires.brussels/>. The city does not provide the residents with waste bags, but it offers containers for free for those who want them: <https://www.bruxelles.be/poubelles-rigides-gratuites>

The city encourages self-composting: <https://www.bruxelles.be/composter-bruxelles> - the website explains the rules and methods of composting. They encourage composting both individually (informing about financing and discounts on equipment – a composter for garden owners, a vermicomposter for garden-less homes: <https://www.bruxelles.be/prime-vermicompostiere>), as well as collectively (map of collective composting facilities: <https://www.wormsasbl.org/reseau-compost-collectif/> ; guide on how to encourage your community to compost together <https://inspironslequartier.brussels/en-pratique/> ; information on where to get funding <https://www.bruxelles.be/appels-projets-climat> ; information on where to get knowledge, free training and workshops on composting <https://www.wormsasbl.org/nos-formations/>). The city encourages residents to reduce the amount of waste they produce - the "ZÉRO-DÉCHET" (zero waste) project (<https://zero-dechet.bruxelles.be/>) gives us information on rental places like "Prêterie", charities and "Troc & Brol" which collect and sell second-hand items, "plogging" and how to picnic without leaving waste behind, "zero waste" tips and tricks, etc. During the autumn period, the city encourages residents to deliver collected leaves to garbage bins set up at designated points, which the city's greenery department uses to mulch and cover plants in city parks from frost: <https://www.bruxelles.be/treillis-pour-les-feuilles-mortes>. The collection of textile waste is handled only by selected foundations, verified and approved by the municipal sector and marked with a "label solid'r" certificate: <https://www.res-sources.be/fr/solidrweb/>

Brussels has implemented severe penalties for improper waste sorting or management: <https://www.arp-gan.be/fr/les-amendes>. There is a special municipal department with the ability to track down and punish those responsible for a "waste infraction", mainly through fines (from €50 up to €62,500). The most common fines are: EUR 75 for incorrect waste sorting, EUR 100-125 for glass found in waste collected door-to-door, EUR 50-75 for putting out waste bags for collection at the wrong time.

Sources:

- Site of the municipal company responsible for cleanliness in the region - <https://www.arp-gan.be/>
- Annual activity reports of Bruxelles-Propreté - <https://www.arp-gan.be/en/annual-reports> (2021)
- Kitchen bio-waste collection website - <https://dechetsalimentaires.brussels/>
- Brussels statistics <https://ibsa.brussels/themes/environnement-et-energie/environnement-et-societe>
- Article from 2024 in The Brussels Times about organic waste collection in Brussels - <https://www.brusselstimes.com/1140762/brussels-rubbish-collection-route-changes-to-optimise-organic-waste-management>
- Brussels' composting facility website: <https://bru-compost.be/>
- Brussel's "Golden Rules of a Clean City" - <https://www.bruxelles.be/regles-or>

OMMEN (THE NETHERLANDS)

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| Name of municipality or group, type of municipality/ies | Ommen - is one of the 23 municipalities served by the public municipal waste collection and processing company ROVA, established in 1996 by an association of initially 21 municipalities; it is a rural municipality |
| Voivodeship/Region | Overijssel |
| Number of inhabitants in 2022 | 18,457 |
| Share of separately collected waste in municipal waste collected in 2022 | 90% |
| Share of biodegradable waste in collected municipal waste in 2022 | 27.1% |
| Method of managing biodegradable waste | The collected bio-waste is transferred to a biogas plant and to a composting plant; the biogas produced is used as fuel for the waste collection trucks, while the digestate, along with some of the garden waste fraction, is converted into a high-quality compost |
| Fractions of selectively collected municipal waste | It's separated into 6 main fractions: <ul style="list-style-type: none"> – biodegradable waste "GFT" ("Groente-, Fruit- en Tuinafval", which means: vegetable, fruit and garden waste), i.e. garden waste from pruning and plant remains, including grass and hay, bark and sawdust, twigs, wilted flowers, small amounts of soil, bones and bones, peelings, food scraps, animal food, grounds also in paper bags, food soiled paper – paper and cardboard – "PMD" meaning plastic, metal, beverage packaging – glass – textiles – residual waste |
| Municipal waste collection system in households | <ul style="list-style-type: none"> – bag-based – bin-based (bins are provided for free by ROVA) <p>A "reverse collection" system has been introduced in the municipalities served by ROVA - in the first phase, the frequency residual waste collection was reduced (from twice to once a month) while the frequency of bio-waste collection was increased (to twice a month), later in the second phase, the aim is to stop the door-to-door collection of residual waste altogether, collecting it only from collection point instead (spread in various places all over the city), where underground "intelligent" waste containers are installed. The introduction of this system has successfully increased the amount of selectively collected waste fractions in all municipalities of the association, including Ommen</p> |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door: GFT (bio-waste) and PMD waste – dispersed collection points: at charities and public facilities for paper; underground tanks and containers for glass (near clusters of commerce), textiles (8 containers in the city), residual waste |

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| | (25 underground tanks in the city, that can be only opened with a card assigned to a household, thus registering the weight and the owner of the residual waste thrown in – this is used to calculate the fee) The nearest collection centre accepting waste from Ommen residents is located outside the city, about 10 km away |
| Municipal waste collection area | Ommen municipality area – which is part of the Zwolle district, one of the 4 districts of ROVA's waste collection |
| Frequency of municipal waste collection | <ul style="list-style-type: none"> – GFT waste: twice per month – PMD and residual waste: once per month |
| Fees for residents | The principle of DIFTAR ("Differentiated Waste Rates") is applied in Ommen - the waste collection fee is composed of a fixed rate (that is included in the property tax) and a variable rate; the latter is zero when it comes to the collection of selectively collected waste, including bio-waste (this collection is considered economically balanced by ROVA thanks to recycling and recovery processes) and depends solely on the amount of residual waste discarded by an individual household. The average annual fee per household in Ommen in 2022 was EUR 203 (approx. EUR 17/month) |
| Discounts for residents | <i>Does not apply</i> |
| Total amount of municipal waste collected in the municipality in 2022 | 10,470 Mg, including: <ul style="list-style-type: none"> – biodegradable waste: 2,838 Mg Amount of waste generated by 1 resident per year: 567 kg |
| ROVA Group's income from resident fees and costs of maintaining the municipal waste management system in 2022 | <ul style="list-style-type: none"> – Income from waste management fees: EUR 65,580,000 (Total income: EUR 100,805,000) – Total costs: EUR 95,132,000 <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident: EUR 109.16 – Cost per 1 Mg of collected waste: EUR 245.19 |

Additional info:

Each household is assigned a personalized "ROVA-pass" card which allows access to the underground waste tanks: <https://www.ommen.nl/direct-regelen/wonen-en-leefomgeving/afval-ophalen-of-wegbrengen/afvalinzameling/>. ROVA's website lets people obtain a personalized collection calendar and a map of the nearest collection points, including the underground tanks: <https://rova.nl/>. ROVA offers the option of increasing or decreasing the collection frequency of a particular fraction upon request, which is also advertised on the municipality's website: <https://www.ommen.nl/direct-regelen/wonen-en-leefomgeving/afval-ophalen-of-wegbrengen/afvalinzameling/>. The city of Ommen encourages people not to leave behind garbage in public spaces: <https://www.ommen.nl/direct-regelen/wonen-en-leefomgeving/afval-ophalen-of-wegbrengen/zwerfafval/>

Sources:

- Interactive map of waste management indicators in the Netherlands <https://www.benchmarkafval.nl/tools/vang-kaart/>
- All about the bio-waste fraction in the collection system in the association of ROVA municipalities <https://rova.nl/inwoners/pagina/55/Alles-over-groente-fruit-en-tuinafval-gft>
- ROVA Group annual reports <https://www.rova.nl/pagina/9/jaarverslag-2023>

- More information about the DIFTAR system and Reverse Collection:
<https://www.rova.nl/diensten/18/afval-en-grondstoffen-in-ommen>

LIPOR (PORTUGAL)

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| Name of municipality or group, type of municipality/ies | LIPOR - Municipalities Association for Sustainable Waste Management of Greater Porto; the municipalities are mostly urban or urban-rural |
| Voivodeship/Region | Grande Porto |
| Number of inhabitants in 2022 | 974,386 |
| Share of separately collected waste in municipal waste collected in 2022 | 27% |
| Share of biodegradable waste in collected municipal waste in 2022 | 10.0% |
| Method of managing biodegradable waste | Directed mainly to composting facilities, part is directed to a micro biogas plant |
| Fractions of selectively collected municipal waste | It's separated into 6 fractions: <ul style="list-style-type: none"> – green bio-waste and green cemetery bio-waste – kitchen bio-waste, i.e.: leftovers from the cooking process, vegetable food scraps (in some municipalities also meat and bones), bread and dough – paper and cardboard – plastic and metal – glass – mixed waste |
| Municipal waste collection system in households | <ul style="list-style-type: none"> – bag or bin-based – in some municipalities exclusively bin-based for kitchen bio-waste, the containers (110-140 L) are in those cases provided for free by the city |
| Municipal waste pickup system | <ul style="list-style-type: none"> – door-to-door (green bio-waste excluded) – smaller collection points "Ecopoints", spread all over the cities – 19 collection centres "Ecocenters" (most not accepting kitchen bio-waste, only green bio-waste) – mobile collection centres in each municipality (not accepting biowaste at all): https://www.lipor.pt/en/recycling/mobile-drop-off-site/ – picked up upon request (free of charge up to 1 m³) – only in some municipalities, mainly for heavier garden waste and other bulky waste |
| Municipal waste collection area | Area of the municipalities belonging to the LIPOR association – the waste collection area is divided according to the borders of 8 of the 17 municipalities belonging to the Metropolitan Area of the City of Porto, namely: Espinho, Gondomar, Maia, Matosinhos, Porto, Póvoa de Varzim, Valongo, Vila do Conde; some municipalities are further divided internally into up to 3 collection sectors |
| Frequency of municipal waste collection | Depends on individual municipalities – approximately: <ul style="list-style-type: none"> – 1-3 times a week - mixed waste – 2-3 times a week - plastics and metal, kitchen bio-waste |

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| | <ul style="list-style-type: none"> – once a week - paper and cardboard, glass, green bio-waste |
| Fees for residents | The fee for waste collection and management is set by each municipality - in all of them it is included in the water management fee and depends on the amount of water used. |
| Discounts for residents | <i>Does not apply</i> |
| Total amount of municipal waste collected in the municipality in 2022 | 518,157 Mg, including: <ul style="list-style-type: none"> – biodegradable waste: 51,909 Mg (kitchen waste: 26,981 Mg; garden waste: 24,928 Mg) Amount of waste generated by 1 resident per year: 532 kg |
| The municipality's income from resident fees and costs of maintaining the municipal waste management system in 2022 | <ul style="list-style-type: none"> – Total income: EUR 53,439,498.29 – Total costs: EUR 58,744,704.20 <p style="text-align: right;">DEFICIT/SURPLUS</p> <ul style="list-style-type: none"> – Cost per resident: EUR 60.29 EUR – Cost per 1 Mg of collected waste: EUR 113.37 |

Additional info:

LIPOR is working to reduce the amount of bio-waste generated in partnership with many companies (e.g. Too Good To Go and other similar initiatives in Portugal), both locally (promoting composting individually, communally and publically - "green waste composting parks") and regionally.

LIPOR collects bio-waste from 5 different sources: kitchen waste from households, the catering sector, the "events" sector (markets, festivals, pilgrimages), green waste collected at source, at points and centres for selective waste collection, green waste from cemeteries. LIPOR owns an installation for separating green bio-waste from waste from cemeteries: <https://www.lipor.pt/en/recover/organic-recovery/automatic-sorting-unit-for-green-waste-from-cemeteries/>. LIPOR has a composting complex in Laúndos (Laúndos Green Waste Composting Park) and a micro biogas plant (Waste Microdigestion Unit) at the Póvoa de Varzim Transfer Station: <https://www.lipor.pt/en/recover/organic-recovery/biowaste-composting-park-and-microdigestion-unit/>. LIPOR plans to build a biogas plant by 2030.

LIPOR also manages the collection of used cooking oils and fats: <https://www.lipor.pt/en/recycling/used-cooking-oil/>. In addition to the mobile collection centre, LIPOR also offers waste collection from the service and commercial sector and public facilities, especially schools – upon request, a service called "Ecofone": <https://www.lipor.pt/en/recycling/ecofone-eco-phone/>

The ECOSHOP/Adventure Park card - a "loyalty" card that allows you to collect points for delivering (properly) sorted waste to designated points, then exchange the points for shopping vouchers or access to the LIPOR-owned amusement park and playground, built on a 19-acre reclaimed landfill: <https://www.lipor.pt/en/awareness/eco-shop-parque-aventura-adventure-park/what-is-it/>

LIPOR has undertaken the matter of odours in the cities (thus far unregulated by law) into its own hands, creating the "N-ODORES" project: <https://www.lipor.pt/en/awareness/n-odores/>; <https://dnoses.eu/team/lipor/>

The "RECICLA-TE" educational project - <https://recicla-te.pt/ultrapassa-o-problema>; an educational campaign on reducing waste production: <https://www.lipor.pt/en/awareness/practical-guides-on-the-food-cycle/> and other LIPOR actions and good practices: <https://www.lipor.pt/en/lipor-internacional/our-services/>

It is possible to visit some LIPOR facilities: <https://www.lipor.pt/en/1-4-584/our-visits/>. LIPOR publishes statistics on their waste collection and management on an ongoing basis: <https://portal.lipor.pt/pls/apex/f?p=2020:1:0>

Sources:

- LIPOR bio-waste reduction and recovery information page - <https://www.lipor.pt/en/recover/organic-recovery/bio-waste-reduction-and-recovery/>
- LIPOR bio-waste strategy - https://www.lipor.pt/fotos/editor2/PORTAL_2020/VALORIZAR/UNIDADES/cvo_estrategia_valor_portal_2020_EN.pdf
- The evolution of bio-waste recovery at LIPOR - https://www.lipor.pt/fotos/editor2/PORTAL_2020/VALORIZAR/UNIDADES/cvo_historia_portal_2020_EN.pdf
- About LIPOR's compost "Nutrimais" and composting plant - <https://www.lipor.pt/en/recover/organic-recovery/composting-plant/> ; <https://nutrimais.pt/>
- 2022 article on Portugal's efforts on the road to better municipal waste management <https://www.eib.org/en/stories/portugal-sustainable-waste-management>
- 2024 article on Portugal's mandatory bio-waste collection starting January 1, 2024 <https://www.dafabrica4you.pt/l/portuguese-municipalities-have-to-collect-organic-waste-from-1-january-2024-onwards/>
- Launch of the Green Waste Park in Laúndos in 2024 - <https://www.thewastetransformers.com/2024/06/07/official-launch-green-waste-park-portugal/>
- Waste management and treatment in Porto Metropolitan Region – a case study - https://www.lipor.pt/fotos/editor2/PORTAL_2020/INTERNACIONAL/CASE_STUDY/AF_LIPOR_EN.pdf
- Article from 2018 about LIPOR's pioneering initiative - <https://www.letsrecycle.com/news/lipor-porto-an-example-for-southern-europe/>
- Article from 2022 about Porto's success in waste sorting - <https://www.porto.pt/en/news/porto-breaks-all-recycling-records-in-2022>