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German-Baltic Chamber of Commerce in Estonia, Latvia, Lithuania

Situation Analysis 2025

Development of Guidelines for the Municipal Management of Biowaste in the Baltic States

Export Initiative Environmental Protection of the Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety

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1. Executive Summary

About this Document

This document has been created in the scope of the project “Development of Guidelines for the Municipal Management of Biowaste in the Baltic States” (German “Entwicklung von Leitlinien für die kommunale Bewirtschaftung von Bioabfall in den baltischen Staaten”) that is conducted as part of the Export Initiative Environmental Protection by the Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN).

The Situation Analysis of the biowaste management in the Baltic states is a join work by the German-Baltic Chamber of Commerce, the network of German companies and institutions in the waste management and recycling industry German RETech Partnership, and the company envero GmbH based in Rostock, Germany.

Motivation for the Project

As the prevention of mixing biowaste with other waste streams improves the capacity to recycle these waste streams, the management of biowaste is an important factor to promote circular usage of resources. As the management of biowaste is done on the municipal level, municipalities in the Baltic states are involved in all stages of the project. Further stakeholders of the management of biowaste are landfill operators, organic waste treatment facilities, as well as private and public waste management companies.

Motivation for the Situation Analysis

The project "Development of guidelines for the municipal management of biowaste in the Baltic States" aims to enhance biowaste management in Estonia, Latvia, and Lithuania. This is done by facilitating knowledge transfer from Germany—recognized for its efficient biowaste management systems. The activities of the project represent this aim (see Figure 1).

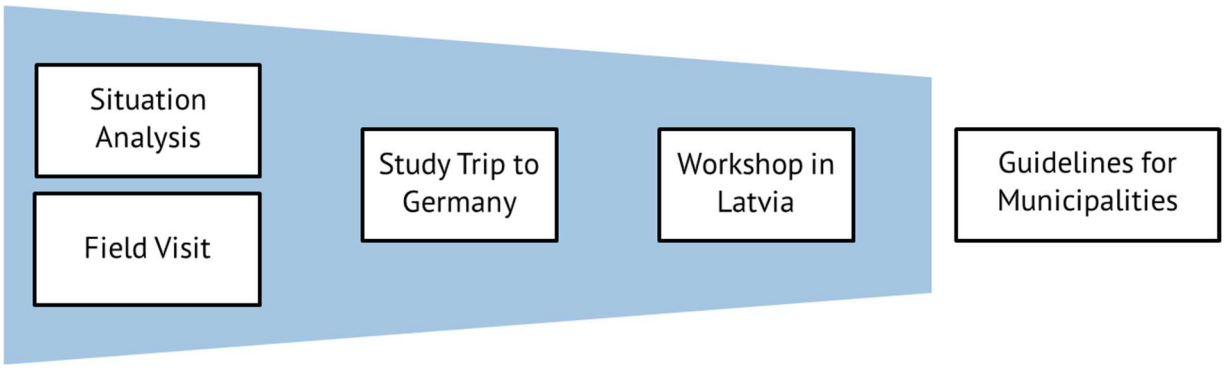

Figure 1: Timeframe of the Work Packages of the Project.

The Situation Analysis serves as a base for further activities of the project. Next actors from the Baltic states will visit selected facilities in Germany (work package 3), a workshop will be held in Riga, Latvia (work package 4). The results of these activities will be condensed and will pave the way for the development of guidelines for municipalities in the Baltic States for the management of biowaste (work package 5).

Status Quo

While all three Baltic States are members of the European Union (EU) and their national laws are aligned with the targets of EU regarding circular economy and recycling. Nevertheless, the management of biowaste in the Baltic States can be improved as according to a Report by EU these states are at the risk to miss the targets for municipal and packaging waste for 2025. According to this report the management of the waste stream biowaste in particular should be improved.

The EU's Directive 2018/851 mandates the separate collection of biowaste from 2024 and its sustainable recycling from 2025.

Methodology

Most of the report was created by the selected consulting team from Germany. First, a questionnaire was created. Second, this questionnaire was filled in by professionals from municipalities in the Baltic States. Third, the results were used alongside literature research to compile and elaborate a comprehensive overview of the status quo.

Outcomes

Across all localities, there is a consensus that expanding the separate collection of biowaste can significantly reduce the amount of residual waste sent to landfills. Funding for infrastructure, whether through EU grants or local partnerships, remains critical.

In many municipalities, introducing or improving home composting programs and community compost sites is seen as cost-effective. However, municipalities must establish fencing, staffing, or monitoring to reduce contamination.

Integrating data collection and sharing across commercial, industrial, and household sectors will allow more targeted strategies and refine fee structures or regulations (e.g., pay-as-you-throw, volume-based incentives).

Regional cooperation —especially for smaller municipalities— can help scale composting, share costs, and create unified regulations or communications strategies, thus overcoming some of the financial and logistical barriers.

Finally, it must be noted that a lot of potential for improvement of the municipal management of biowaste in the Baltic States has been identified. Also, activities of the project in the past have shown that cooperation, even knowledge transfer, among professionals in municipalities in all three Baltic states are rare. Therefore, the project has an excellent starting point with a lot of potential for improvement and a unique feature.

2. Materials and Methods

The following materials and methods were applied to prepare the situation analysis.

Literature Review on the Baltic States

A comprehensive literature review was conducted to gather baseline information on the Baltic States (Estonia, Latvia, and Lithuania). This included an analysis of sources covering geographical and demographic data, political and economic structures, as well as environmental policy frameworks and institutional arrangements.

Literature and Internet Research on Circular Economy Development

Further research was carried out through academic literature and online sources to assess the development of the circular economy in the Baltic States. The primary focus was on the following thematic areas: regulatory frameworks, Waste Management Law, institutional responsibilities, national waste management plans, extended producer responsibility (EPR) schemes, municipal waste plans and targets, key challenges and potential solutions, as well as the monitoring framework provided by the European Commission.

Literature Review on Biowaste Management

An in-depth evaluation of relevant literature was conducted to assess the current status and development objectives of biowaste management in Estonia, Latvia, and Lithuania. Particular emphasis was placed on aspects such as:

- Biowaste and food waste generation (expressed in kilograms per capita per year and total quantities),
- Measures for diverting organic waste from landfilling,
- National and regional legal frameworks and regulations,
- Implementation of separate collection systems,
- Advancement of treatment technologies (e.g., composting, anaerobic digestion),
- Public awareness and education measures,
- Food waste prevention strategies, and
- Challenges associated with biowaste management at the municipal level.

Development and Implementation of a Questionnaire Survey

A structured questionnaire was developed to assess the current state of biowaste management at the municipal level. The questionnaire was designed to collect the following information:

- General structural characteristics of the municipality
- Relevant commercial and industrial sectors present within the municipality
- Organisation and allocation of responsibilities for waste management (covering households, commerce, industry, public services, weekly markets, street cleaning, sewage sludge, construction waste, etc.)
- Quantities, types, and sources of waste generated
- Collection systems, including separately collected waste streams and corresponding responsibilities
- Types of waste bins and collection vehicles used for residual waste, green waste, and biowaste from households, commerce, and industry
- Treatment methods for residual waste, green waste, and biowaste, including facility details (e.g., names, capacities, treatment technologies, commissioning dates)

- Waste fee calculation models for the respective waste streams and corresponding annual revenues
- Planned measures and pilot projects aimed at improving organic waste management within the municipality

The questionnaire was disseminated via email to selected municipalities to obtain primary data directly from local authorities. The responses received were systematically analyzed and integrated into the situation analysis.

3. Basic Information on the Baltic States

The following chapter serves as an introduction to the Baltic States of Estonia, Latvia, and Lithuania. While the three countries are located next to each other and have a similar history and share joint projects (like a common new rail line "Rail Baltica" connecting capital cities of the countries or sharing a common electricity balancing market) it is important to notice differences.

Further, the examination of the management of biowaste and advice for improvements makes it necessary to know the situation of the country in question. The first table provides a comparison between the countries in Geography and Demographics. Due to an extend in the data provided for each country separate tables are used for each Baltic State to describe the Politics, Economics, Environmental Policy and Administration of Estonia, Latvia, and Lithuania.

The first table provides basic facts to give a comparison of the Baltic states. Due to the extent of facts like "International Economic Relations" separate tables for each country are used later.

Geography and Demographics			
	 Estonia	 Latvia	 Lithuania
Area (km²)	43,110 (Destatis, 2025)	62,113 (Central Statistical Bureau of Latvia, 2025)	65,284 (European Union, 2025)
Population	1.37 M (Statistics Estonia, 2025)	1.87 M (Latvijas Vēstnesis, 2024)	2.89 M (Central Statistical Bureau of Lithuania, 2025)
Climate	maritime; wet, moderate winters, cool summers (CIA, 2025)	temperate climate zone (Latvian Centre for Environment, 2025)	Humid continental (Wikipedia, 2025a)
Age structure	0-14 years: 15,2% of the population 15-64 years: 62,2% of the population 65 years and over: 22,6% of the population (CIA, 2025)	0-14 years: 15.1% of the population 15-64 years: 62.5% of the population 65 years and over: 22.4% of the population (World Population Review, 2025)	0-14 years: 14.9% of the population 15-64 years: 65.1% of the population 65 years and over: 20% of the population (Centre for Eastern Studies, 2025)
Urbanity	69.8% Source (CIA, 2025)	80.3% (Central Statistical Office of Latvia, 2025)	68.2% (Statista, 2025)
Population of the Largest Cities	Tallinn: 453,864; Tartu: 100 724 (Statistics Estonia, 2025a)	Rīga (605 273), Daugavpils (77 799), Liepāja (66 680), Jelgava (54 701), Jūrmala (52 154), Ventspils (32 634). (Latvian Public Service, 2025)	Vilnius 581 475 Kaunas 305 120 Klaipėda 158 420 Šiauliai 104 300 Panevėžys 87 913 (Central Statistical Bureau of Lithuania, 2025)

Geography and Demographics			
Education	Higher education: 37.5% Secondary education: 41.6% Primary or basic education: 19.2% (Statistics Estonia, 2025a)	Literacy Rate: 100% Education Rank (WT20 2024): 25 (World Population Review, 2025)	Lithuania has a high level of education, with a literacy rate close to 100%. Specifically, the total adult literacy rate in Lithuania is 99.7%, and for the age group of 15-24 years, the literacy rate is 99.8% (Borgen Project, 2025)
Human Development Index (HDI) of United Nations	0.899 (Countryeconomy 2025)	0.879 (Countryeconomy 2025)	0.879 (Countryeconomy 2025)

3.1. Estonia

Politics and Economics	
Form of Government	Parliamentary republic (CIA, 2025)
Current Political Developments	• integrating with the EU power grid to foster energy independence (Financial Times, 2025) • modernizing military infrastructure and fortifying borders, including hosting NATO allies as a deterrent (Reuters, 2025) • reinforcement of pro-EU policies and firm stance against external pressures. (Deutsche Welle, 2025) • ongoing stengething of digital government services and cybersecurity measures to address emerging global threats. (e-estonia, 2025) • reforms in green technology and digital infrastructure with EU support to foster sustainable growth (European Union, 2025)
Currency	Euro (€) (CIA, 2025)
Gross Domestic Product (GDP) (EUR)	38 Mrd. Euro (2023) (Destatis, 2025)
Growth	-3.02% (2023 est.) 0.06% (2022 est.) 7.25% (2021 est.) (CIA, 2025)
Inflation	9.16% (2023 est.) 19.4% (2022 est.) 4.65% (2021 est.) (CIA, 2025)
Employment	Unemployment rate at 6.2% (2023) (Destatis, 2025)
Income	1,959 Euro (Q3 2024) (Statistics Estonia, 2025)

Politics and Economics	
Key Economic Sectors	Food, engineering, electronics, wood and wood products, textiles; information technology, telecommunications (CIA, 2025)
International Economic Relations	Member of the EU and eurozone Source (CIA, 2025)
Environmental Policy and Administration	
Goals and Measures	(United Nations, 2025a): • Reduce pollution and waste • Promote sustainable resource use • Improve energy efficiency • Conserve biodiversity • Enhance climate resilience • In relation to waste, in addition to legislation such as the Waste Act and the Packaging Act, targets are set in the national waste management plan: (Ministry of Climate of Estonia, 2025) • More broadly: (Government of the Republic of Estonia, 2025a, 2025b, Ministry of Climate of Estonia, 2025, Department of the Environment, 2025, Ministry of Climate of Estonia, 2025)
Environmental Protection Agreements	(United Nations, 2025b): • Estonia has joined several international environmental protection agreements, such as the Paris Agreement and various sectoral conventions etc. • Committed to EU and international agreements (e.g., European Landscape Convention) • Engages in regional environmental cooperation • Benefits from EU-funded projects for environmental infrastructure
Financing	• Environmental financing mainly relies on EU funds and national budget allocations. Key organization on environmental financing is the Environmental Investment Centre (KIK). • Some links with more information: (EIC, 2025, Statistics Estonia, 2025b, Statistics Estonia, 2025c) • Examples: • 300M EIB loan (2023) – Green & digital transition investments (European Investment Bank, 2025a) • €180M EIB funding – Estonia's largest wind farm (Sopi-Tootsi) (European Investment Bank, 2025b)

Politics and Economics	
	• Environmental Investment Centre (EIC) – Grants for energy, biodiversity, circular economy projects (EIC, 2025)

3.2. Latvia

Politics and Economics	
Political System	Parliamentary Republic, parliament (Saeima) with 100 members (Directorate-General for Communication, 2025)
Current Political Developments	• Energy Independence: Latvia is reducing reliance on Russian energy by integrating with the EU power grid. (LSM, 2025) • The country is modernizing its military infrastructure and fortifying borders, including hosting NATO allies as a deterrent. (NRA, 2025) • Ongoing coalition talks and leadership reviews indicate potential shifts in government, reinforcing Latvia's pro-EU policies and firm stance against external pressures. (Delfi, 2025) • With EU support, driving reforms in green technology and digital infrastructure to foster sustainable growth. (LA, 2025)
Currency	Euro (€) (Trading Economics, 2025)
Gross Domestic Product (GDP) (EUR)	43.63 billion US (2023) (Trading Economics, 2025)
Growth	- 0.30% YoY (2023) (Trading Economics, 2025)
Inflation	3.3% (2023) (Latvian Public Service, 2025)
Employment	64.2 % (2023) (Statista, 2025)
Income	Average annual wage was at around 20,000 euros (2022) (Ministry of Economics of Latvia, 2024)
Key Economic Sectors	Public services (19%), Other commercial services (19%), Trade and accommodation (14%), Manufacturing industry (13%) (Ministry of Economics of Latvia, 2024)
International Economic Relations	Lithuania, Germany, Poland, Estonia, Finland (Central Statistical Bureau of Latvia, 2025)
Environmental Policy and Administration	
Goals and Measures	• Coordination of waste management is striving towards a circular economy (Latvian Cabinet of Ministers, 2021)

Politics and Economics	
	• In alignment with EU directive 2008/98 the proportion of municipal waste recycled and prepared for reuse must be at least 65% (by weight) by 2035 • (Latvian Public Service, 2025) • Opening of 4 waste incineration plants till 2029 • (Latvian Cabinet of Ministers, 2024) • Increase the share of biomethane between energy sources by 2030. This is especially interesting as most of biomethane will come from agricultural waste and biological waste. • (Parliament of Latvia, 2006)
Environmental Protection Agreements	• Environmental Protection Law (22) • separate authorities • Environmental Protection Fund, State Environmental Service • (Environmental Protection Fund, 2025)
Financing	Waste sort dependent waste collection fee for households, separate fees for industry, Natural Resources Tax for textile and plastic waste according to EU directives (Parliament of Latvia, 2010, Parliament of Latvia, 2005)

3.3. Lithuania

Politics and Economics	
Form of Government	Semi-presidential democratic republic with multi-party parliamentary system. Parliament (Seimas) with 141 members; Executive power shared between President and Prime Minister (Wikipedia, 2025b)
Current Political Developments	Recent shift from center-right to center-left government; Coalition stability concerns. Controversial coalition including nationalist party; Leadership transition challenges. (Heinrich-Böll-Stiftung, 2025)
Currency	Euro (€) (Trading Economics, 2025)
Gross Domestic Product (GDP) (EUR)	Lithuania's economy demonstrates strong resilience and consistent growth. Lithuania's annual GDP in 2024 grew by 2.7% to €77.9 billion. (Verslo zinios, 2025). Projected real GDP growth of 2.2% for 2024 and 3% for 2025. (Federal Reserve Bank, 2025)
Growth	Forcasted GDP growth at 2.6% for 2025 (International Monetary Fund, 2025a)
Inflation	International Monetary Fund (IMF) offers inflation projections (2.4% for 2025)

Politics and Economics	
	(International Monetary Fund, 2025b)
Employment	Unemployment rate of 7.1% as of January 2025. (Lithuanian National Data Agency, 2025)
Income	The average monthly salary €2,100, and minimum wage €924 (European Commission, 2025b)
Key Economic Sectors	Lithuania's economy is diverse, with services dominating at 61% of GDP, followed by industry at 24.9% and agriculture at 3.2%. The country is experiencing significant growth in the IT and fintech sectors. Lithuania is also a global leader in laser technology, holding 80% of the world's market share for high-energy pico-second lasers. The energy sector is undergoing transformation as the country completely cut off dependence on Russian energy. (EasyLink, 2025)
International Economic Relations	Exports from Lithuania valued at €36.68 billion and imports at €41.35 billion in 2024. The country's main trading partners are Latvia, Poland, and Germany. Recent challenges include reduced trade with Russia due to geopolitical tensions and trade issues with China following Lithuania's support for Taiwan. In response, Lithuania is strengthening its partnerships within the EU (Wikipedia, 2025c).
Environmental Policy and Administration	
Goals and Measures	• Goal to reduce greenhouse gas emissions by 30% by 2030 compared to 1990 levels (Bertelsmann Stiftung, 2024) • Goal to achieve net-zero emissions by 2050 (Bertelsmann Stiftung, 2024) • Goal to increase the share of renewable energy to 45% of total final energy consumption by 2030 (National Energy and Climate Plan (NECP, 2022) • The country has set targets to align with the EU's "Fit for 55" package and European Green Deal to reduce emissions by 55% in 2030 and climate neutrality by 2050 (EPTA Network, 2022) • Lithuania has implemented a range of measures to achieve its environmental objectives like investment of over €800 million in climate projects through the "New Generation Lithuania" plan, representing 37.8% of EU funding (Bertelsmann Stiftung, 2024a)

	• Energy efficiency improvements through building renovation programs (National Energy and Climate Plan (NECP, 2022)
	• Transport sector emission reduction initiatives, addressing the largest of greenhouse gas emissions in the country (National Energy and Climate Plan (NECP, 2022)
	• Promotion of environmentally friendly agricultural practices to tackle emissions from the agriculture sector, which accounts for 21% of total emissions (EU CAP Network, 2024)
	• Peatland restoration efforts as part of broader climate action (NECP, 2022)
	• The Ministry of Environment leads the environmental administration, responsible for policy formation and implementation (European Environment Agency, 2025)
	  ○ Specialized agencies support implementation, including: Lithuanian Environmental Protection Agency, State Forestry Service, Climate Policy Group, National Committee on Climate Change
	  ○ Inter-ministerial coordination across agriculture, transport, health, finance, and energy sectors ensures a comprehensive approach to addressing environmental challenges.

4. Circular Economy

The Baltic States - Estonia, Latvia, and Lithuania - have made significant strides in waste management, each adopting specific approaches to enhance sustainability and environmental protection. As they transition towards a circular economy, their focus lies on sustainable growth and efficient resource utilization.

Estonia has made significant progress in integrating circular economy practices into its waste management system. By developing tailored strategies that address national challenges and opportunities, the country demonstrates a strong commitment to waste reduction and recycling.

Building on a similar commitment, Latvia has also implemented effective waste management practices. With targeted measures to minimize waste and increase recycling rates, Latvia is fostering a more sustainable future. Collaboration and shared goals remain key drivers in shaping a cleaner and greener environment.

Lithuania, in turn, has reinforced its waste management system through a comprehensive legal framework. The 'Law on Waste Management' clearly defines the responsibilities of waste producers, municipal authorities, and waste management companies. With a recycling rate exceeding 50%, the country shows the success of regulatory measures and public engagement in recycling initiatives. Investments in modern waste management facilities further support Lithuania's progress.

A key common element across all three Baltic States is the implementation of Deposit Return Systems (DRS) for beverage packaging, similar to Germany's deposit system. These systems effectively reduce litter and promote recycling by requiring a small deposit for plastic and glass bottles as well as aluminum cans. Notably, Estonia has integrated circular economy practices particularly well into its DRS, reflecting a commitment to sustainable waste management.

Beyond national efforts, regional cooperation has played a vital role in advancing waste management across the Baltic States. The Baltic Environmental Forum, active since the early 1990s, has fostered collaboration among environmental authorities in Estonia, Latvia, and Lithuania. This collaboration has centered on developing efficient waste management systems, exchanging experiences, and tackling emerging waste streams driven by the rise in consumer goods. Efforts have included building legislative frameworks, defining institutional responsibilities, and coordinating large-scale investments to upgrade or construct environmentally sustainable landfills.

Through these collective initiatives, Estonia, Latvia, and Lithuania continue to enhance their waste management systems, strengthening their commitment to a circular economy and contributing to a more sustainable Baltic region.

4.1. Circular Economy in Estonia

Estonia's waste legislation follows EU directives and is based on a broad set of national laws and regulations (EEA, 2022). These include the Waste Act (2004), Packaging Act (2004)[1], Packaging Excise Duty Act (1997), Environmental Supervision Act (2001), Environmental Charges Act (2005) and Local Government Organisation Act (1993). In addition, various regulations have been issued by the Ministry of the Environment (now Ministry of Climate), including "Procedure for sorting municipal waste and basis for classification of sorted waste" (2007), "Methodology for calculating quantities of municipal waste prepared for re-use, recycled and disposed of" (2021), "Methodology for calculating the reuse of packaging and the recovery and recycling of packaging waste" (2021) and "Statute of the Packaging register" (2018). Estonia has also established national End-of-Waste (EoW) criteria for compost from biodegradable waste (Minister for the Environment, 2013) and biogas digestate generated from biodegradable waste (Minister for the Environment, 2016).

To align with revised EU legislation, amendments to the Waste Act and Packaging Act came into force in May 2021. They introduced new obligations related to separate collection, waste prevention, improved recycling, Extended Producer Responsibility (EPR), and municipal and state-level waste management planning. The amendments also clarified liability provisions and sanctions. Key targets include reducing landfilling of municipal waste to 10% by 2030. Recycling targets for municipal waste are set at 55% by 2025, 60% by 2030, and 65% by 2035. Packaging waste recycling must reach 65% by 2025 and 70% by 2030, with additional material-specific targets.

Waste management plan(s) (EEA, 2022)

Estonia had a National Waste Management Plan (NWMP) covering 2014–2020, which was extended to 2022. The new NWMP (2023–2028), along with the Food Waste Prevention Plan (Ministry of Climate Estonia, 2025), builds on the waste hierarchy and focuses on waste prevention, recycling, and recovery. The biggest challenge is increasing the recycling of biodegradable waste, addressed by expanding treatment capacity and establishing a national biowaste network. Another priority is improving coverage for recyclables collection.

The NWMP sets three strategic objectives (ETC-CE, 2024): promoting sustainable and informed production and consumption, increasing safe material circulation, and reducing environmental and human impacts of waste management. A new NWMP is currently being developed.

Estonia is also advancing a waste reform based on the NWMP and the World Bank's sector analysis. Draft legal amendments focus on key circular economy aspects including packaging tax reforms aiming to incentivize less and more recyclable packaging. In addition, municipalities will be assigned targets for sorted waste collection, potentially supported by waste fees while packaging waste collection will shift towards point-of-generation systems.

To prioritize recycling, the reform includes increased landfill fees, a new incineration fee, and integration of waste incineration into the EU Emissions Trading System. Reliable and digitized waste data is a key requirement, and the reform includes measures for its improvement. The changes aim to foster innovation and competition in waste collection, treatment, and packaging production, improving service quality and pricing. As of early 2024, five companies operate waste collection in 93 areas across the country (larger municipalities are divided into multiple collection areas).

[1] A comprehensive list of regulations under the Waste Act and the Packaging Act will be found on Riigi Teataja website.

In addition, the Food Waste Prevention Plan, initiated in 2020 by the Ministry of Environment with other stakeholders, aims to reduce food waste across the supply chain, contributing to resource conservation, cost savings, and reduced social burden.

4.2. Circular Economy in Latvia

Latvia's regulatory framework is designed to transpose the EU waste acquis and is anchored by several key laws (EEA, 2022a). The Waste Management Law (2010, amended in 2020), supports the implementation of the National Waste Management Plan (NWMP, 2021a), sets municipal waste recycling targets, and clarifies responsibilities across ministries, municipalities, and waste companies.

The Natural Resource Tax Law applies the polluter-pays principle to resource and waste management, while the Law on Pollution (2001) regulates waste treatment activities by environmental risk. The Environmental Protection Law (2006) requires operators to monitor their environmental performance. The Packaging Law (2002) and the Law on the Reduction of Consumption of Products Containing Plastic (2021) add to the framework. The Natural Resource Tax Law and Packaging Law assign oversight of producer responsibility organizations and the deposit system to the State Environmental Service.

Waste management plan(s) (EEA, 2022a)

Latvia's NWMP (2021 – 2028), adopted in January 2021 (Cabinet of Ministers of Latvia, 2021) aligns with national legislation and EU directives. It sets out measures to meet policy targets and covers all waste streams with focus areas for key fractions.

It supports regional and local plans and recommends reducing waste regions from ten to five, to be assessed by the Cabinet of Ministers. Core measures include optimizing waste management at regional level, restructuring landfills, and strengthening prevention, reduction and circular economy approaches. The plan also calls for improved separate collection of paper, cardboard, plastic, glass and metals, and expanded infrastructure. For packaging waste, a dedicated Waste Prevention Program includes circular economy measures (EEA, 2022a).

Latvia's Circular Economy Action Plan (2020 – 2027) remains in force (ETC-CE, 2024a). Since 2022, legal amendments have promoted separate collection of textiles and biowaste, as well as reuse of biodegradable waste (Ministru kabineta Latvia, 2022). EPR has also been extended to tobacco products with filters and since the end of 2024, includes other plastic-containing products, such as moist wipes, balloons and fishing gear. The deposit system for beverage packaging, introduced in 2022, has significantly reduced litter, especially in coastal areas, including bottle caps, rings and glass shards.

The European Commission has set up a monitoring framework to keep track of progress towards a circular economy. Latvia's Action Plan includes indicators on material flows, secondary materials trade, recycling investment and management of specific waste streams (ETC-CE, 2024a). Overall, Latvia is advancing towards a circular economy, with increasing emphasis on biogenic waste for CO_2 storage and energy use.

4.3. Circular Economy in Lithuania

Lithuania's regulatory framework aims to transpose the EU waste acquis. The key legislation includes the Law on Waste Management (1998), Law on Taxes on Environmental Pollution (1999)[2], Law on Packaging and Packaging Waste (2013), minimum service requirements for municipal waste (2012), and the National Waste Management Plan (NWMP) 2014–2020 (EEA, 2022b).

Waste management plan(s)

A new NWMP is currently being developed. Many elements have already been integrated into Lithuania's Circular Economy Strategy and continued in the National Waste Prevention and Management Plan 2021 – 2027 (LRV, 2022). Waste management is coordinated at state, regional, and municipal levels. The NWMP sets strategic goals, outlines necessary measures and financing structures, and addresses both municipal and industrial waste. Its long-term goals include reducing waste generation, promoting safe waste management, and increasing resource efficiency to minimize natural resource use and landfilling.

The NWMP supports the waste hierarchy and EPR for packaging, WEEE, ELVs, oils, and batteries. It defines collection systems and treatment capacities and sets waste reduction and recycling targets in line with EU law. Materials covered include paper, metals, plastics, glass, and municipal waste, with specific goals to reduce biodegradable municipal waste landfilling.

Lithuania's Circular Economy Guidelines to 2035, approved by the Government, aim to reduce waste and use resources more sustainably. They build on existing plans such as the National Progress Plan, National Climate Change Agenda, National Environmental Protection Strategy, Development Program for environmental protection and climate change management and the National Energy and Climate Action Plan. Additionally, they propose new measures in six priority sectors: industry, construction, bioeconomy, transport, waste, and consumption. Each sector is overseen by a relevant ministry, with the Ministry of Environment coordinating implementation and collecting annual progress reports.

Challenges and potential solutions in Lithuania's circular economy (ETC-CE, 2024b):

Lithuania faces limited reintegration of secondary raw materials despite growing infrastructure, and food waste (139 kg per capita) slightly exceeds the EU average. Key measures include support for reuse-oriented SMEs, promotion of durable products, awareness campaigns, and building lifecycle modeling. Efforts also target improved recycling readiness, expanded capacity, and greater use of secondary materials.

EPR will be extended to textiles and furniture by 2027, with additional items to follow. By 2030, the amount of municipal waste sent to landfills will be limited to no more than 5%. Innovative approaches include the use of black soldier flies to process food waste.

Barriers to Circular Economy include low demand for recycled materials, limited recycling infrastructure, high incineration rates, low consumer awareness, and a small internal market for sustainable products. Exporting separately collected waste to EU countries is considered a viable interim solution (ETC-CE, 2024b).

[2] This law covers the taxes for packaging, batteries and accumulators, as well as parts of vehicles (including tires)

Since 2022, progress under the “New Generation Lithuania Plan” (2021–2026) includes a repair bonus scheme, improved recycling infrastructure, and digital tools to enhance waste management efficiency.

4.4. Summary: Estonia, Latvia, and Lithuania

Estonia, Latvia, and Lithuania have all aligned their waste management frameworks with EU directives, focusing on waste prevention, recycling, and circular economy goals. Estonia is advancing major reforms to reduce landfilling, boost recycling—particularly of biodegradable waste—and implement circular economy measures such as packaging tax reform, increased landfill and incineration fees, and improved digital waste data systems. Latvia is progressing towards a circular economy through its Circular Economy Action Plan (2020 - 2027), with measures including Extended Producer Responsibility (EPR), improved separate collection systems for textiles and biowaste, and a functioning deposit system. Lithuania is enhancing its waste management framework by reducing waste generation, promoting recycling, and minimizing landfilling, with targets such as limiting municipal landfill use to 5% by 2030 and extending EPR to new product groups. While all three countries are making measurable progress, they still require further investment, stronger enforcement, and behavioral change to fully achieve circular economy objectives.

5. Status and Development Goals of Biowaste Management

As EU member states, Estonia, Latvia, and Lithuania are subject to the EU's waste management directives, including regulations on the treatment of biowaste as part of municipal solid waste. Biowaste management in the Baltic states is undergoing significant development to align with these directives and support the transition to a circular economy. Historically, only a small proportion of biowaste has been recycled, despite its substantial share in municipal waste streams. The EU's Directive 2018/851 mandates the separate collection of biowaste from 2024 and its sustainable recycling from 2025, presenting both challenges and opportunities for the region (RETech, 2024).

Since 2017, the utilisation of organic and food waste has improved compared to 2022, especially in Lithuania (Favoino and Giavin, 2024;

Table 1).

The project "Development of guidelines for the municipal management of biowaste in the Baltic States" aims to enhance biowaste management in Estonia, Latvia, and Lithuania. By facilitating knowledge transfer from Germany—recognized for its efficient biowaste management systems—the project seeks to empower municipalities to implement EU directives effectively. Key activities include workshops, study trips, and the development of practical guidelines tailored to the specific conditions of the Baltic States.

Another relevant initiative is the Food Loops Project (Interreg, 2021), which fosters collaboration among schools, caterers, farmers, and waste management professionals to improve biowaste separation at the source, prevent excessive food waste, and promote its reuse as organic compost. Given that schools generate a substantial amount of food waste, the project emphasizes waste reduction through education and cooperation. Additionally, by repurpose organic waste as a resource, the initiative supports sustainable agricultural practices.

Table 1: Status and potential of the collection and treatment of food waste and biowaste in the Baltic states compared to Germany in 2022 and federal state M-V (according to Favoino and Giavin, 2024, for Germany (BMUV, 2023) and (Sprafke, 2021), for federal state M-V (M-V 2022)

	Estonia	**Latvia**	**Lithuania**	**Germany**	**Federal State M-V**
Food waste: potential generation (kg/capita, a)	112	107	121	152	140
Food waste: potential generation (tonne/a)	148,933	201,395	340,652	12,660.000	224.000
Food waste: potential maximum capture with optimised collection schemes (tonne/a)	126,593	171,186	289,554	10,131.000	179.200
Food waste: current capture (tonne/a)	3,995	13,881	57,242	8,058.000	118,717
Food waste: current capture (% on potential generation)	3	7	17	63	52
Food waste:	122,598	157,305	232,311	4,602.000	107.520

amount still to be captured (tonne/a)					
Bio waste (Food + Garden): potential generation (kg/capita, a)	213	230	251	233	207
Bio waste (Food + Garden): potential generation (tonne/a)	283,231	431,738	704,533	19,598,447	331,200
Bio waste (Food + Garden): current capture (kg/capita, a)	15	37	102	182	128
Biowaste (Food + Garden): current capture (% on potential generation)	**7**	**16**	**41**	**78**	**62**

Biowaste and food waste management in the Baltic States vary significantly across the region, reflecting diverse approaches and differing levels of progress. A comparison at the European level indicates that there remains potential for improving the management of biogenic waste (**Error! Reference source not found.**). The following section provides a brief overview of biowaste management in each of the Baltic States.

The descriptions are based on publicly available statements and data; however, the most recent developments may not be fully reflected. The report concludes with an evaluation of a questionnaire designed to access the current state of biowaste management in the region.

5.1. Biowaste management in Estonia

Estonia has made significant progress in biowaste management, aligning with its broader environmental goals and EU regulations. Biowaste, including food and garden waste, is increasingly treated with a focus on recycling and sustainability.

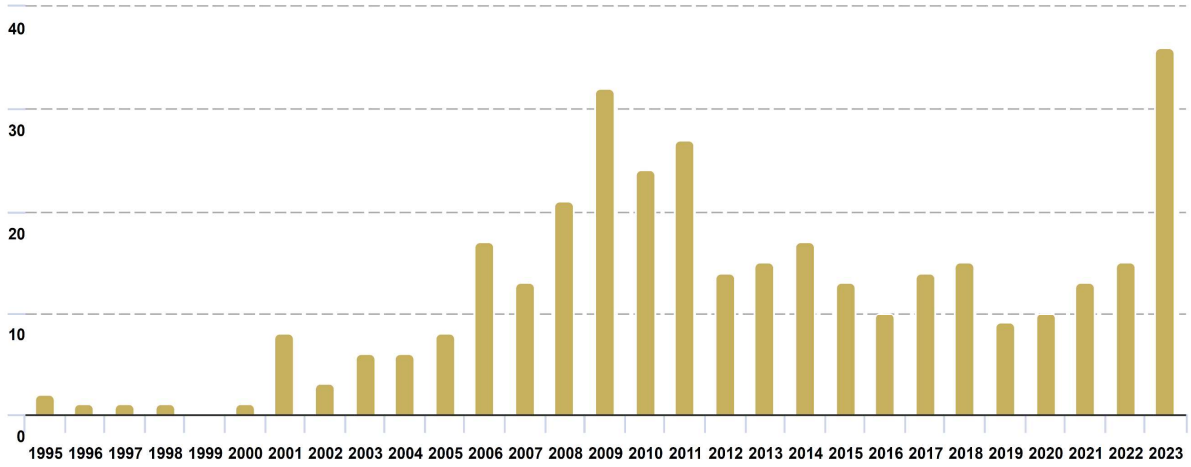

Figure 2: Estonia – Biological treatment (Composting and AD), 1995 - 2023 (kg per capita) (Eurostat, 2025)

Key Aspects of Estonia's Biowaste Management:

- Waste Separation: Since December 31, 2023, source separation of biowaste has been mandatory and municipalities provide green bins for collection.
- Composting: Many communities use composting as a treatment method.
- Anaerobic Digestion: Estonia utilizes anaerobic digestion to process biowaste.
- Energy Recovery: In addition to anaerobic digestion, some regions use biowaste in waste-to-energy plants.
- Legislation and Goals: Estonia has set ambitious targets to reduce waste generation, with a key focus on diverting organic waste from landfills.
- Public Awareness and Education: Estonian authorities emphasize education and outreach, running campaigns and improving access to waste collection infrastructure
- Digital Waste Management: Estonia integrates digital governance into waste management, allowing citizens to track collection schedules and manage services online

Estonia has made significant progress in managing biowaste, focusing on recycling and energy recovery. In 2019, approximately 29,000 tonnes of biowaste were separately collected, but only 12,000 tonnes were recycled, resulting in a composting/digestion rate of 2.4% (EEA, 2022).

In 2023, Estonia generated 17.33 million tonnes of waste, representing a 24.2% decrease compared to the previous year. Of this total, 5.98 million tonnes were landfilled (19.2% decrease), and 313,300 tonnes were incinerated with energy recovery. Additionally, 9.97 million tonnes were recycled, reflecting a 33.2% decline. Municipal waste generation per capita was 373 kg, with a recycling rate of 37.9% (Statistics Estonia, 2025).

The EEA Country profile for Estonia (EEA, 2022) provides extensive data and insights, summarised below:

- In 2019, approximately 29,000 tonnes of biowaste were separately collected, but only 12,000 tonnes were reported as recycled, resulting in a composting/digestion rate of just 2.4 %.
- Estonia has established national End-of-Waste Criteria (EoW) for compost derived from biodegradable waste and for biogas digestate. These criteria ensure that materials no longer classified as waste meet specific quality and safety standards, supporting the transition to a circular economy.

Table 2: Capture rates for different waste fractions in Estonia (EEA, 2022)

	Residual waste composition (%) ([b])	Residual waste composition (tonnes)([a])	Separately collected amounts (tonnes) ([b])	Materials in total MSW (tonnes)	Capture rates (%)
Reference year	2020	2019	2019		
Mixed municipal waste, total		292 357			
Paper and cardboard	17 %	49 730	63 915	113 645	5
Metals	2 %	6 812	10 013	16 825	6
Glass	6 %	18 799	24 735	43 534	5
Plastic	18 %	52 127	23 498	75 625	3
Biowaste	32 %	92 794	29 262	122 056	2
Textiles	6 %	16 986	1 845	18 831	1
Wood	1 %	3 742	5 833	9 575	6

([a]) **Note:** Share of material in residual waste (household waste only) multiplied with the amount of residual waste in 2018 as reported in the questionnaire by Ministry of the Environment of Estonia, 2021

([b]) **Source:** As reported in the EEA-ETC/WMGE questionnaire by the Ministry of the Environment of Estonia, 2021

- Ten municipalities received financial support of EUR 1.4 million for separate collection and civic amenity sites. Additionally, between 2021 and 2022, EUR 3 million was allocated to improve biowaste collection infrastructure and recycling.
- Estonia imposes taxes and/or bans for landfilling biodegradable waste (35.7 EUR/tonne). The permitted share of biodegradable waste in landfills has been progressively reduced: below 45% since 2010, below 30% since 2013, and currently below 20%. Further stabilization of waste with a biodegradable content below 20% remains necessary. The minimum collection frequency of municipal waste in high-density areas is once every four weeks for private households and once or twice per week for apartment buildings and businesses. If on-site composting is ensured, collection may be reduced to once every 12 weeks. Estonia has introduced support measures for the municipalities in acquiring biowaste containers and home composters, facilitating the transition to improved waste management practices.
- Biowaste treatment capacity was 94,500 tonnes in 2019, comprising 37,500 tonnes for household biodegradable kitchen and canteen waste, and 57,000 tonnes of biodegradable garden waste. Since 2022, a certified composting plant in southwestern Estonia has processed an additional 3,000 tonnes of garden waste, bringing the total treatment capacity to 97,500 tonnes. An anaerobic digestion (AD) plant in Tallin, with an annual capacity of 24,000 tonnes, processes household and commercial biowaste. Since 2023, the facility has included a biomethane production unit.
- In 2018, eight waste management companies composted a total of 16,500 tonnes of biowaste, while 5,500 tonnes were processed into biogas, and 600 tonnes were used for soil treatment. Expanded separate collection and regional treatment capacity remain necessary.
- A legally binding national standard for compost and digestate and a quality management system have been implemented in Estonia.

Approximately 167,000 tonnes of food waste is generated annually in Estonia (EEA, 2023). Almost half of this food waste originates from households, while 19 % comes from the food industry, 14 % from primary production, 12 % from trade and 6 % from the catering sector.

Of this total, about 84,000 tonnes per year, or roughly half, represents food loss, meaning wasted food. Households are the largest contributors to food waste, while the food industry generates the least. The total value of food wasted in the whole food supply chain is estimated at EUR 164 million annually (Kliimaministeerium Estonia, 2022).

Measures to prevent food waste:

Estonia's food waste prevention plan, published in February 2021, is currently revised and integrated into the new NWMP. The plan outlines six key areas of action:

- Data collection and measurement of food waste quantities
- Legislative framework and regulative objectives
- Effective cooperation

- Innovation and research & development
- Promoting food redistribution
- Awareness-raising, information distribution and training.

These six areas include 25 specific actions to be implemented in the coming years, such as the creation of guidance documents and the establishment of food waste prevention target (EEA, 2023).

5.2. Biowaste management in Latvia

In Latvia, the management of biowaste plays a crucial role in the country's environmental policies, aligning with European Union regulations. This includes measures for composting, anaerobic digestion, and other biological treatment processes.

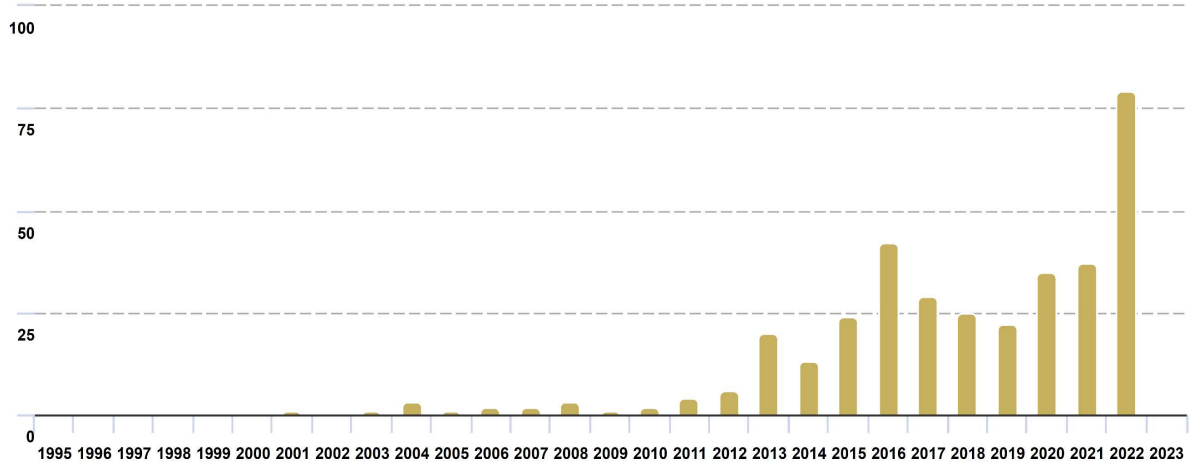

Figure 3: Latvia – Biological treatment (Composting and AD), 1995 - 2023 (kg per capita) (Eurostat, 2025)

In many urban areas, Latvia has implemented separate collection systems for biowaste, including separate bins for food and garden waste. Many local municipalities actively encourage home composting, particularly for garden waste. Additionally, there are composting facilities where organic waste is processed on a larger scale. Some regions in Latvia also use anaerobic digestion (AD) to treat biowaste:

Despite these advancements, several challenges persist in Latvia’s biowaste management:

- Insufficient infrastructure in some rural areas.
- A need for greater public awareness and increased participation in separate waste collection.
- Financial constraints in certain municipalities, limiting the development of large-scale waste treatment facilities.

Latvia continues to develop its biowaste management systems through:

- Expanding infrastructure for waste separation and recycling.
- Enhancing the use of biowaste for renewable energy generation.

- Further reducing the volume of organic waste sent to landfills.

In summary, Latvia is making significant strides in improving biowaste management, with a focus on recycling, composting, and energy production. However, continued efforts are necessary to address infrastructure gaps and expand public participation.

As of January 1, 2024, Latvia has enforced mandatory sorting of biowaste. However, the implementation has faced challenges. For example, in Riga, the waste management company Clean R installed over 1,000 biowaste containers, but the number has dwindled to around 400 due to low participation and concerns about odor (Latvian Public Media, 2024).

Despite the mandatory sorting, the actual collection rates remain low. In 2024, approximately 14,000 tonnes of biowaste were processed, accounting for just 4% of the total waste. This represents a modest increase from 2% in the previous year (Latvian Public Media, 2024a).

This shortfall is particularly concerning given Latvia's goal to reduce landfill usage to 10% of all waste by 2035, as mandated by EU directives (Latvian Public Media, 2024b).

The State Audit Office has identified several challenges that are hindering effective biowaste management in Latvia (Latvian Public Media, 2024):

- Slow Implementation: The development of the biowaste collection system has been slow, with concerns about meeting EU targets.
- High Costs: The current approach is considered costly, with potential financial consequences, including fines from the EU for non-compliance.
- Public Awareness: A significant gap exists in public knowledge regarding biowaste sorting. Surveys show that 78% of citizens were unaware of the mandatory sorting requirement.

To address these challenges, the State Audit Office recommends the following:

- Enhanced Public Awareness: Launch comprehensive educational campaigns to inform citizens about the importance and methods of biowaste sorting.
- Infrastructure Improvement: Expand and maintain biowaste collection infrastructure, ensuring accessibility and convenience for all households.
- Policy Coordination: Strengthen coordination between national and municipal authorities to ensure consistent and effective implementation of biowaste management policies.

By focusing on these areas, Latvia aims to improve its biowaste management system, align with EU sustainability goals and foster a circular economy.

The EEA- Country profile Latvia (EEA, 2022a) provides a large amount of additional data and information, which is summarised below.

Table 3: Capture rates for different waste fractions in Latvia (EEA, 2022a)

	Residual waste composition (%)([b])	Residual waste composition (tonnes)([a])	Separately collected amounts (tonnes)([b])	Materials in total MSW (tonnes)	Capture rates (%)
Reference year	2016		2019		
Mixed municipal waste, total		561 159			
Paper and cardboard	8.0 %	44 893	72 855	117 748	62 %
Metals	3.7 %	20 763	1 278	22 041	6 %
Glass	9.2 %	51 627	29 828	81 455	37 %
Plastic	12.9 %	72 390	10 359	82 749	13 %
Biowaste	34.2 %	191 916	47 146	239 063	20 %
Wood	not reported				

([a]) **Note:** Share of material in residual waste (household waste only) multiplied with the amount of residual waste in 2018 as reported in the questionnaire by the Ministry of Environmental Protection and Regional Development of Latvia and Latvian Environmental, Geological and Meteorological Center (2021)

([b]) **Source:** As reported in the EEA-ETC/WMGE questionnaire by the Ministry of Environmental Protection and Regional Development of Latvia and Latvian Environmental, Geological and Meteorological Center (2021)

To support the development of biowaste collection, several municipalities have independently established registers of home composting. Bans and landfill taxes—reaching up to EUR 95 per tonne—aim to reduce reliance on residual waste treatment and encourage recycling.

Minimum service standards for waste collection, including biowaste, are defined through regulations specifying waste collection and sorting site requirements. These include container types and volumes, container markings, collection frequency, and the categories of waste to be collected. Collection points must provide containers for paper, metal, plastics, glass, and biodegradable waste. By 31 December 2020, a system for the separate collection of biowaste was mandated.

Despite this requirement, separate biowaste collection has been implemented in only a few municipalities. Municipalities near Rīga were required to introduce separate collection systems by the end of 2020, while others had until the end of 2023. In rural areas, biowaste is typically composted at home or used as animal feed. Where separate biowaste collection systems exist, door-to-door collection is the predominant method

According to Latvian authorities (Table 3Table 2), the countries separately collected biowaste amounted to 47,000 tonnes in 2019. The total generation of biowaste within total municipal waste, including both separately collected biowaste and biowaste in the residual waste fraction, was 240,000 tonnes. The biowaste treatment capacity in 2019 was 234,000 tonnes covering more than 80 % of generated municipal biowaste. Currently, treatment capacity for separately collected biowaste is also used for the biological output from mechanical biological treatment (MBT), with the following distribution:

- Composting facilities at landfills: 100,000 tonnes.
- Composting facilities other than at landfills: 34,000 tonnes.
- Anaerobic digestion: 100,000 tonnes.

The planned treatment capacities for biowaste include:

- Sorting and pre-treatment: 210,000 tonnes per year;
- Anaerobic digestion: 90,000 tonnes per year;
- Production of fuel from biowaste: up to 20,000 tonnes per year.

A major part of the biowaste is still not separately collected. Separate collection is available at 13 civic amenity sites, with municipalities near Riga required to have separate collection systems in place by 2020, and others by 2023. By 2022, municipal landfill sites must establish biodegradable waste recovery or recycling facilities. If separate collection of biowaste begins later than 2022, the treatment facility must be operational by the end of 2023. Only separately collected biowaste can be used to produce compost; however, the biological fraction from MBT treatment may contain hazardous pollutants and impurities and is mainly used as covering material in landfills.

Like other states, Latvia faces the issue of unnecessary food waste. In 2022, the total amount of food waste generated in Latvia reached 232,442 tonnes, equivalent to approximately 77 kg per person. Latvia has set a target to reduce food waste by 30 % by 2025 and by 50 % by 2030, relative to the 2022 baseline, as outlined in its National Food Waste Prevention Programme (2021 - 2028) (EC, 2025).

Latvia, along with Estonia and Lithuania, is a member state of the EU Food Loss and Waste Prevention Hub. The Latvian waste prevention plan includes various measures to reduce the food waste generation (EEA, 2023a):

- Improvement of food donation system: Improving regulations and preparing food donation guidelines.
- Prevention of food waste in production: Cooperation with industry associations and developing guidelines for food waste prevention in the industry.
- Raising awareness and informing consumers about food waste prevention and reduction: Engaging in dialogue with producers, processors and traders to reduce food waste, supporting zero waste technologies and solutions, conducting awareness-raising events for consumers, particularly targeting children and youth), and informing the public on food donations.
- Food waste measurements and monitoring (EEA, 2023a).

5.3. Biowaste management in Lithuania

Lithuania has made significant progress in managing biowaste in recent years. The country adheres to EU waste management directives, which require member states to separate biowaste from other types of waste. Lithuania is legally obligated to divert organic waste from landfills, aiming for recycling and composting. Biowaste represents the largest single waste fraction in municipal waste, and the country is working to ensure adequate treatment capacity.

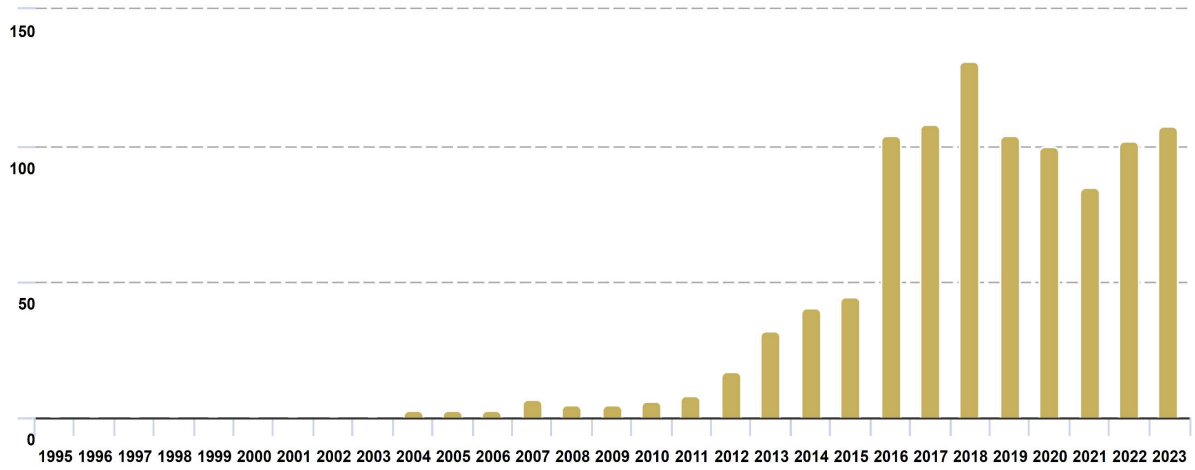

Figure 4: Lithuania – Biological treatment (Composting and AD), 1995 - 2023 (kg per capita) (Eurostat, 2025)

Bans and taxes on landfilling of biodegradable waste, including a ban on landfilling of biodegradable waste from gardens, parks and green areas, aim to reduce reliance on residual waste treatment. These measures support composting, AD and treatment in MBT-plants. In addition, there is a landfill tax of 25 EUR per tonnes.

Lithuania has been actively implementing separate waste collection systems. Municipalities are responsible for establishing the necessary infrastructure, including providing separate bins for biowaste and organizing collection systems. Biowaste, particularly kitchen waste, is collected door-to-door, while garden waste is mainly collected at civic recycling sites.

In addition to home composting, many local authorities and waste management companies operate large-scale composting facilities. Anaerobic digestion is also employed to produce biogas. Lithuania has been investing in waste-to-energy technologies, using biowaste to reduce dependence on fossil fuels and minimizes the environmental impact of waste disposal.

Educational campaigns, supported by local governments and environmental organizations, inform citizens about the benefits of reducing biowaste sent to landfills.

While Lithuania has made significant strides in biowaste management, challenges remain. These include ensuring that all areas of the country have access to efficient waste collection systems, reducing contamination in the biowaste stream, and increasing the overall recycling rate. The mandatory separate collection of biowaste was supposed to be introduced in 2023 (EEA, 2022b).

Table 4: Capture rates for different waste fractions in Lithuania (EEA, 2022b)

	Residual waste composition (%)([b])	Residual waste composition (tonnes)([a])	Separately collected amounts (tonnes)([b])	Materials in total MSW (tonnes)	Capture rates (%)
Reference year	2019		2019		
Mixed municipal waste, total		750 926			
Paper and cardboard	6.32 %	47 459	121 588	169 046	72 %
Metals	1.68 %	12 616	143 248	155 864	92 %
Glass	4.44 %	33 341	48 888	82 229	59 %
Plastic	12.72 %	95 518	35 679	131 197	27 %
Biowaste	19.41 %	145 755	99 593	245 348	41 %
Textiles	7.85 %	58 948	3 352	62 300	5 %
Wood	0.93 %	6 984	7 562	14 546	52 %

([a]) **Note:** Share of material in residual waste (household waste only) multiplied with the amount of residual waste in 2019 as reported in the questionnaire by the Ministry of Environment (2021b)

([b]) **Source:** As reported in the EEA-ETC/WMGE questionnaire by the Ministry of Environment (2021b)

Lithuania has made progress in biowaste management, but challenges remain particularly in managing the gap between biowaste generation and treatment capacities (EEA, 2022b):

- In 2019, Lithuania generated approximately 245,000 tonnes of biowaste, which includes both separately collected and residual waste components.
- The country's biowaste treatment capacity was around 99,593 tonnes in 2019, slightly exceeding the amount of separately collected biowaste.
- Lithuania treats approximately 107 to 173 kilograms of biowaste per capita annually, placing it among European countries with higher biowaste treatment rates (ECN, 2019).
- The overall recycling rate decreased, mainly due to a reduction in composting and anaerobic digestion.
- The country has a legally binding National Standard and Quality Management System for compost/digestate.
- Like many countries, Lithuania faces the problem of excessive food waste e (EC, 2025). Lithuania experiences an annual food loss of about 300,000 tonnes across the entire food supply chain.
- The amount of food waste generated in Lithuanian households is growing (EEA, 2023b).

The Waste Prevention Programme for 2022 - 2027 outlines measures to reduce food waste by 50% per capita by 2030 across the food production and supply chain (EEA, 2023b). Key actions include:

- Establishing a platform for cooperation to identify advanced, efficient solutions for food waste prevention and promote the sustainable use of food, including food-sharing initiatives and practices.
- Offering tax deduction and financing measures to promote food sharing and donation opportunities.

- Providing funding opportunities to continue and expand initiatives for sustainable food consumption in public catering establishments, school canteens, kindergartens and workplaces, promoting buffet-style catering.
- Initiating educational campaigns to promote economical shopping, sustainable food consumption and the reduction of household food waste.
- Creating conditions to support the sustainable transformation of small and medium-sized enterprises, including the development and implementation of innovative, environmentally friendly technologies.
- Promoting and supporting short food supply chains.
- Requiring large retail chains, catering establishments and food production companies to donate surplus food (suitable for human consumption) in line with best practices from other countries.

Among the Baltic States, Lithuania has demonstrated strong performance in waste management, with favorable indicators in waste generation per GDP and recycling rates for municipal and plastic packaging waste. As Figure 6 shows, this positions Lithuania as a regional leader in adopting sustainable waste management practices (Štreimikienė, 2023).

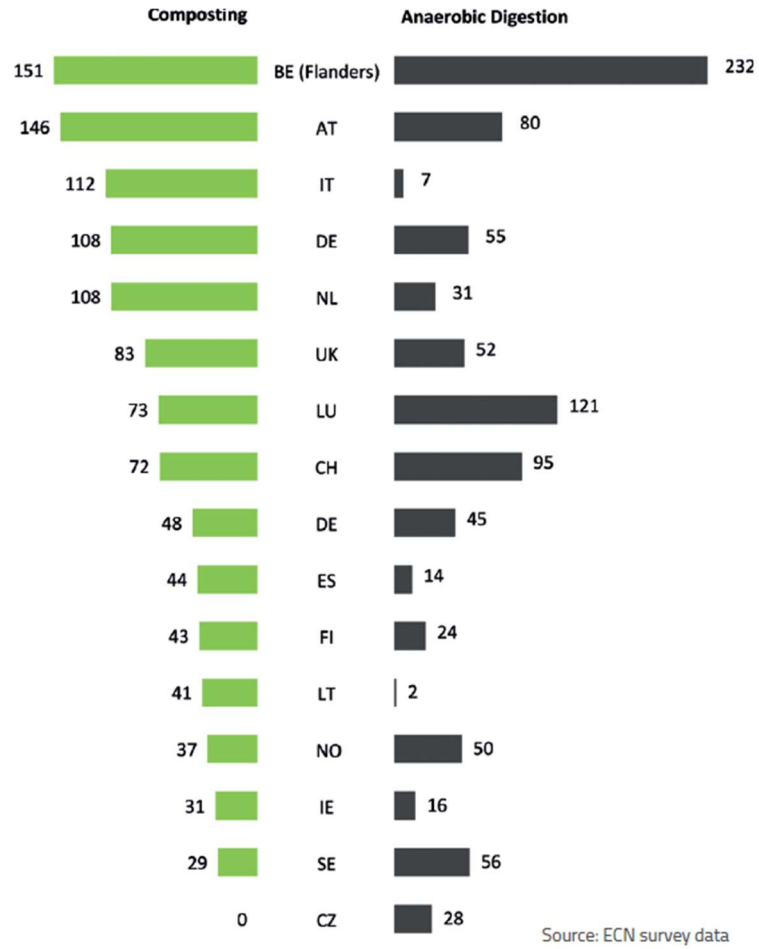

Figure 5: Biowaste (municipal and commercial) treated per Capita and technology (ECN, 2022)

Collectively, these efforts reflect a commitment to enhancing biowaste management in the Baltic States, aligning with EU directives and contributing to a more sustainable and circular economy.

6. Questionnaire for Municipalities on Current Biowaste Management

As part of the project, efforts were made to gather statements from professionals currently working in waste management. Their responses and data are summarized below, categorized by country.

The survey results should be considered as supplementary to the data gathered from the literature. The questionnaire was designed to provide insights into the current state of municipal waste management in the Baltic States. The collected input will contribute to a situational analysis, which will serve as a foundation for experts from Germany. This analysis will be further complemented by a study tour to Germany and a workshop in Riga, where guidelines for the municipal management of biowaste in the Baltic States will be developed.

6.1. Survey results Estonia

Section 3. Saaremaa Municipality, Estonia

1. General municipal data

Item	Information	Notes
Municipality	Saaremaa municipality, Estonia	–
Area [km²]	2718	–
Population	32,034 (2024)	–
Number of households	12,677 (2021, esa)	Average of 2.30 persons per household (2021, esa).
Municipal budget [€]	77,000,000 (2025)	Budget for waste management is 4.2% of total; investment costs ~9,000,000 and operating costs ~63,800,000.
Reserves [€]	Not provided	–
Predominant commercial/industrial sector	Manufacturing (rubber and plastic products, electronics, maritime industry)	–

2. Waste generation

Item	Quantity (tonnes/year)
Residual waste (households, commerce, industry, from organized collection)	4045 (2023)
Separated organic waste (households, commerce, industry)	725 (2023)
Waste from commerce	Not specified
Organic waste from commerce	Not specified
Waste from industry	Not specified
Organic waste from industry	Not specified
Green waste	Not specified
Separated light packaging (including packaging collected by recycling organizations)	885 (2023)
Separated glass	Not specified
Separated cardboard and paper	270 (2023)

3. Collection and infrastructure

3.1 Collection responsibility and costs

Waste type	Responsible for collection	Collection interval	Cost (€/m³)	Notes
Residual waste (households)	Municipality	Max 2x/week; min 1x/3 months	30.40–31.10	–
Separated organic waste (households)	Municipality	Max 2x/week; min 1x/month	3.04–3.11	–

Separated organic waste (commerce)	Municipality	Same as above	3.04–3.11	–
Separated organic waste (industry)	Municipality (depends on nature of waste)	Same as above	3.04–3.11	–
Green waste (households, commerce, industry)	Municipality	Same as above	3.04–3.11	–

3.2 Collection containers

Collection system	Residual waste	Organic waste	Green waste	Notes
Bags	–	–	–	Not specified volumes or numbers
Bins	–	–	–	–
Containers	–	–	–	–
Others	–	–	–	–

3.3 Collection vehicles

Type of vehicle	Waste streams	Number	Volume	Notes
Garbage truck	Residual, organic, green (2 two-chamber trucks included)	6	Up to 27 tonnes weight	Used by municipality for regular collection

4. Waste treatment and disposal

Waste type	Responsible entity	Method of treatment/disposal	Cost [€/tonne]
Residual waste (households)	Public/private sector	Incinerator/landfill	Not specified
Separated organic waste (households)	Public/private sector	Biogas production/composting	Not specified
Separated organic waste (commerce, industry)	Public/private sector	Biogas production/composting	Not specified
Green waste	Public/private sector	Composting	Not specified

5. Costs, fees, and financing

Item	Information	Notes
Households paying waste fees	not specified	–
Average service fee per household/year	Not specified	Fees calculated by actual volume & frequency; no separate waste tax allowed
Fee calculation method	According to real waste volume and discharge frequency	–
Special fee/tax for commercial/industry (Estonia)	No (Estonia does not allow collection of a waste tax)	–

Total income from waste fees for municipality	Not provided	–

6. Observations and planned improvements

Aspect	Current status	Planned/needed actions
On-site composting	Preferred on private properties. municipality provided composters (350 units) and biowaste collection containers (200 units) during 2022–2023.	Continued promotion of on-site composting.
Biogas plant planning	Some food industry waste is planned to be handled in a biogas plant (currently in planning).	Continuing or accelerating planning and construction of the biogas facility.
Landscaping/green waste	Local composting facility in kudjape waste management plant is in the planning stage.	Pnce operational, it would improve local capacity for handling landscaping waste.
Cooperation with other municipalities	Mutual transfer stations with muhu vald (kudjape and maasi jäätmejaam).	Further cooperation could optimize costs and expand services.
Organized waste transport coverage	Two organized transport areas, each served by a different company, covering property-by-property needs.	Ensuring consistent service and data tracking across all areas.
Incineration and landfill usage	Final disposal at external sites (iru incinerator, paikre or other landfills).	Continued evaluation of cost-effectiveness and environmental impact.

6.2. Survey results Latvia

Section 1. Riga, Latvia

1. General municipal data

Item	Information	Notes
City	Riga, Latvia	–
Area [km²]	304.0	–
Population	605,273	–
Number of HHs	294,600	Approx. 2.02 persons/household
Waste municipal budget	996,000 €	–
Investment costs [€]	1,419,877,841	–
Operating costs [€]	1,583,927,735	–
Reserves [€]	3,000,000	–
Main private waste operators	SIA Clean R, SIA Lautus vide, SIA Eco Baltia vide	7-year contracts with the municipality
Landfill operator	SIA "Getliņi EKO"	Jointly owned by two municipalities

2. Waste generation

Waste Type/Source	Quantity (t/yr)	Notes
HH waste (Residual)	303,406.04	–
Separated organic waste (HHs)	13,977.02	–
Waste from commerce	Not separately allocated	Commercial data not tracked separately
Organic waste from commerce	Not separately allocated	–
Waste from industry	Not separately allocated	National-level regulation (industry contracts separately)
Organic waste from industry	Not separately allocated	–
Green waste (HHs, commerce, industry)	Not separately allocated	Generally collected with organic waste; seasonal leaf-collection
Separated light packaging (Paper, plastic, metal)	81,972.72	Includes cardboard/paper
Separated glass	15,145.32	–
Separated paper/cardboard	Not separately allocated	Counted within "light packaging"

3. Collection and Infrastructure

3.1 Collection responsibility & costs

Waste type	Collector	Collection interval	Costs
Residual waste (HHs)	Private companies (SIA Clean R, Lautus vide, Eco Baltia)	Varies by contract with client	~29 - 33 €/m³ (by zone)

Separated organic waste (HHs)	Same private companies	Same as above	Same as above
Organic waste (commerce, industry)	Private companies (contract with municipality or direct)	Same as above	Same as above
Green waste	Private companies (households/commerce) / Industry's own	Same as above; special autumn event for leaves collection	Same as above

Note: Riga is divided into four waste management zones, each served by specific private operators. Fees depend on container size and pickup frequency.

3.2 Collection containers

Waste stream	Container type	Number	Volume (m^3 / l)
Residual waste	Bins / Containers	~34,417	0.24 / 0.33 / 0.66 / 0.77 / 1.1 m^3
Organic waste	Compostable Bags, Bins, Containers	~5,611	10 L, 120 L, 240 L (bags); up to 0.66 m^3 (bins)
Green waste	Collected with organic waste (except autumn leaves)	No separate data (special events for leaves)	Same volumes as organic containers

3.3 Collection vehicles

Vehicle type	Waste stream	Number	Volume (m^3)	Notes
Compaction trucks, tippers, etc. (private)	Residual, organic, etc.	Not stated	Not stated	Operators do not publicly provide full fleet capacity data

4. Waste treatment and disposal

4.1 Treatment responsibility

Waste type	Treatment/disposal entity	Method	Capacity (tonnes/year)	Treatment cost [€/tonnes]
Residual waste (HHs)	SIA "Getliņi EKO" (municipal)	Landfilling	Not specified (landfilled 147,917.49 tonnes in 2024)	167.73 (from 01.01.2025)
Separated organic waste (All sectors)	SIA "Getliņi EKO"	Fermentation tunnels → compost & biogas	125,000	91 (from 01.01.2025)
Green waste	SIA "Getliņi EKO"	Same as above (co-collected with organic waste)	Same as above	Same as above

4.2 Key facilities

Facility type	Name	Start of operation	Address	Notes
Landfill	SIA "Getliņi EKO"	1997	Kaudzīšu Street 57, Rumbula	Primary landfill for municipal waste
Composting/biogas plant	SIA "Getliņi EKO"	2022	Kaudzīšu Street 57, Rumbula	125,000 t/year capacity; fermentation tunnels, producing compost & biogas
Incineration (co-incineration)	SCHWENK Latvija (cement factory)	2019	Rūpnīcas Street 10, Brocēni	Used for certain waste streams

5. Costs, fees, and financing

Item	Information
Number of HHs paying fees	No consolidated municipal data (fees paid directly to private operators)
Fee calculation method (HHs)	Based on container volume & pickup frequency; multi-apartment fees divided by residents or apartment area
Commercial/industrial fees	No direct contracts with municipality; commercial entities must sign with private operators under national law
Municipal income from waste fees	None—fees go directly to private companies
Average service fee per HH	Varies by zone, container size, frequency

6. Observations & planned improvements

Aspect	Current status	Planned/needed actions
Separate organic collection	Mandatory for apartment buildings ≥ 11 apartments since 01/03/2024	Potential extension to smaller buildings, commercial sector, and public institutions
Commercial & industrial biowaste Data	Not tracked separately	Improve data collection and reporting
Collection system	Private companies, multiple zones, container-based fees	Possible revision of municipal regulations to unify or optimize service intervals, coverage, and pricing
Financial model	Municipality does not receive direct waste fees	Explore ways to incentivize better separation (e.g., pay-as-you-throw or direct municipal fee structures)
Cooperation & awareness	No current inter-municipal collaborations	Potential for partnerships with neighboring municipalities or pilot projects in public institutions or commercial sites

Infrastructure capacity	SIA “Getliņi EKO” has a modern composting/biogas facility (125,000 t/yr)	Ensure facilities are fully utilized; invest in public education and collection expansion to increase separated biowaste

Section 2. Adazi county, Latvia

1. General municipal data

Item	Information	Notes
City/municipality	Ādaži county	–
Area (km²)	243.1	–
Population	24,702	–
Number of households	Not provided	–
average number of persons per HH	Not provided	–
Municipal budget	100,000 (2024) 124,000 (2025)	
Budget for waste management	Not provided	–
Investment costs	Not provided	–
Operating costs	Not provided	–
Reserves	Not provided	–
Person responsible for waste collection	a. SIA “Eco Baltia vide” (Ādaži parish) b. SIA “Clean R” (Carnikava parish)	Municipality monitors their work, addresses complaints and proposals from residents.

2. Waste generation

Item	Quantity or volume (m³)	Notes
Residual waste from HHs	Not provided	–
Separated organic waste (HHs)	Not provided	–
Waste from commerce	Not provided	–
Organic waste from commerce	Not provided	–
Waste from industry	Not provided	–
Organic waste from industry	Not provided	–
Green waste (HHs, commerce, industry)	Not provided	Some residents compost at home; others rely on big bags or containers through local waste managers.
Separated light packaging	Not provided	–
Separated glass	Not provided	–
Separated cardboard and paper	Not provided	–
Unsorted HH waste (ādaži city + ādaži parish, 2022)	62,010	–
Unsorted HH waste (ādaži city + ādaži parish, 2023)	63,526.89	–

Unsorted HH waste (carnikava parish, 2022)	22,650.95	–
Unsorted HH waste (carnikava parish, 2023)	22,108.14	–
Sorted HH waste (ādaži city + ādaži parish, 2022)	12,501	–
Sorted HH waste (ādaži city + ādaži parish, 2023)	13,364.43	–
Sorted HH waste (carnikava parish, 2022)	4,999	–
Sorted HH waste (carnikava parish, 2023)	7,159	–

3. Collection and infrastructure

3.1 Collection responsibility and costs

Waste type	Responsible for collection	Collection interval	Cost	Notes
Residual waste (HHs)	Waste manager (private companies)	As per contract conditions	Not specified	HH waste: ādaži = 42.00 €/m³, carnikava = 35.15 €/m³
Separated organic waste (HHs)	Waste manager	As per contract conditions	Not specified	Biowaste: ādaži = 25.20 €/m³, carnikava = 21.09 €/m³ (taxes included)
Organic waste (commerce, industry)	Waste manager	As per contract conditions	Not specified	–
Green waste (various sectors)	Waste manager or self-composting	As per contract conditions	Not specified	Can be brought to kadaga sorted waste area in ādaži or placed in big bags/containers

3.2 Collection containers

Collection system	Residual waste	Organic waste	Green waste
Bags	–	–	Big bag (1.1 m³)
Bins	–	–	–
Containers	Not specified volumes	–	0.66; 1.1 m³
Others	–	–	–

3.3 Collection vehicles

Type of vehicle	Waste streams	Number	Volume	Notes
Compaction vehicles	Residual, *organic, green,* etc.	Not given	Not given	Used by private waste managers

				(eco baltia vide, clean r).

4. Waste treatment and disposal

Waste type	Responsible entity	Method of treatment/disposal	Capacity	Cost
Residual waste (households)	Waste manager	Not specified (likely landfill at Getliņi Eko)	Not given	Not given
Separated organic waste	Waste manager	Not specified	Not given	Not given
Green waste	Waste manager	Not specified	Not given	Not given

5. Costs, fees, and financing

Item	Information	Notes
Number of households paying fees	Not provided	–
Average service fee per household/year	Not provided	Depends on contract; household waste ~42 €/m³ (ādaži) or 35.15 €/m³ (carnikava). biowaste ~25.20 €/m³ (ādaži) or 21.09 €/m³ (carnikava). taxes included.
Fee calculation method	Unknown to municipality	Only the waste manager knows the details
Special fees/taxes for commercial or industry sector	Not specified	–
Total income from waste fees for municipality	Not provided	–

6. Observations and planned improvements

Aspect	Current status	Planned/needed actions
Acceptance of organic waste separation	Residents are slow to accept changes. a free EU-funded project ended in 2023, causing dissatisfaction when fees resumed.	Providing incentives or bonuses for citizens could improve participation.
Green waste collection sites	Temporary garden waste storage site was closed in 2024 due to contamination (plastic bags, wood pieces, general refuse). No fence or on-site personnel were available, and misuse continued at night.	Investments in a managed composting area and fenced facility with staff might help maintain quality control.
Cemetery waste	Significant organic waste from cemeteries. people often do	Continued education is needed, and placing staff or volunteers on-site could help.

	not sort properly, so manual sorting is done by workers.	
Public awareness	Municipality educates through internet, local newspapers, posters, container stickers. slow progress among residents, but small improvements in sorting are visible.	Continuous awareness campaigns, possibly in cooperation with waste managers or neighboring municipalities.
Future improvements	No short-term plans due to limited financial resources. ideas exist but remain unfunded.	Exploring grant opportunities, partnerships with other institutions, or municipal budget allocations could enable pilot projects.
Cooperation with other municipalities	None at the moment.	Future partnerships could help share costs, expertise, and infrastructure.

Section 5. Vidzeme

1. General data

Item	Information	Notes
Region/municipality	Vidzeme waste management region (9 municipalities in total, population ~205,910)	Regulated by cabinet of ministers' regulation no. 301 (13.06.2023) on waste management regions. answers are given by zaao, ltd, a municipally owned or contracted company in this region.
Area km²	Not specified	–
Population	Not specified	Total region ~205,910.
Budget for waste management, other financial data	Not specified (the data relates to ZAAO ltd)	–
Organizational chart	Not applicable, as provided by regional waste management company ZAAO ltd	Region includes 9 municipalities.

2. Waste generation

Item	Quantity (tonnes/year)	Notes
Residual waste from households (2024)	44,209.1	37,604.2 tonnes in 2021
Separated organic waste from households (2021)	2,179.0	Includes organic waste from commerce and industry where not otherwise separated
Waste from commerce	Included in household residual waste	–

Separated organic waste from commercial waste	Not separately tracked	Included in overall separated organic waste figure
Waste from industry (including demolition waste) (2021)	20,012.9	–
Separated organic waste from industrial waste	Not separately tracked	–
Green waste (households, commerce, industry)	Included in separated organic waste	–
Separated light packaging (2021)	5,875	–
Separated glass (2021)	2,917.6	–
Separated cardboard and paper	Included in separated light packaging	–
Bulky waste (2021)	7,937	–
Municipal hazardous waste (2021)	730.8	–
Other (2021)	162.7	–

3. Collection and infrastructure

3.1 Collection responsibility and costs

Waste type	Responsible for collection	Collection interval	Costs [€/m³] or [€/tonne]	Notes
Residual waste (HHs)	Municipality, via agreement with waste management company	At least 1x/month	31 (vat excl., average in 9 municipalities, sept. 2024)	–
Separated organic waste (HHs)	Municipality, via agreement with waste management company	At least 1x/month	~60% of the cost for residual waste	Set by legislation (national regulation).
Separated organic waste (commerce)	Commerce sector, agreement with same waste management company (if operating in municipality)	At least 1x/month	Not specified	–
Separated organic waste (industry)	Industry, agreement with same waste management company	At least 1x/month	Not specified	–
Green waste (HHs), commerce, industry)	Municipality/commerce/industry, agreement with company	At least 1x/month	Not specified	Responsibility organized by municipality (law on waste

				management art.8).

3.2 Collection containers

Collection system	Residual waste	Organic waste	Green waste	Notes
Bags	3,315 units (vol. 0.07 m³), plus 2,474 units (vol. 0.1 m³)	–	1 big-bag, 0.1 m³	–
Bins	2,626 (0.12 m³), 4,050 (0.14 m³), 56,690 (0.24 m³) for residual waste; 168 (0.14 m³), 533 (0.24 m³) for organic waste	–	None specifically stated	–
Containers	10,104 (1.1 m³) for residual waste; 57 (0.66 m³) for organic waste	–	Depends on quantity	–
Others	–	–	Lorry with manipulator	–

3.3 Collection vehicles

Type of vehicle	Waste streams	Number	Volume	Notes
Compaction vehicles	Residual, organic, green, etc.	16	~15 m³ avg. capacity	for the entire waste management region (zaao, ltd).

4. Waste treatment and disposal

Waste type	Responsible entity	Method	Capacity (tonnes/year)	Cost [€/tonne]	Notes
Residual waste (HHs)	Waste management company (agreement with municipality)	Mechanical-biological treatment, then organic part to biodegradable waste processing factory	Landfill capacity at daibe 45,664 t/yr, at kaudzītes 15,989.8 t/yr	146.59 (daibe), 156.33 (kaudzītes)	Disposal/land fill capacity under a category polluting permits No. Va15ia0001 (daibe) and No. ma13ia0001 (kaudzītes).

Separated organic waste (HHs)	Same as above	Composting	Not specified	Not specified	–
Separated organic waste (commerce, industry)	Same as above	Composting	Not specified	Not specified	–
Green waste (HHs), commerce, industry)	Same as above	Composting	Not specified	Not specified	–

5. Costs, fees, and financing

Item	Information
Financial data (income, costs for municipality)	Considered company trade secret, not publicly disclosed
Households paying waste fees	Not specified
Average service waste fee per household/year	Not specified
Fee calculation method	Not specified
Special fee/tax for commercial or industry	Not specified (0 yes, 0 no checked, unclear)
Total income from waste fees for the municipality	Not provided

6. Observations and planned improvements

Aspect	Current status	Planned/needed actions
Expansion of organic waste collection	Region aims to expand separate collection of organic waste by offering more bio containers, improving eko laukums sites, promoting home composting	Continuation of outreach and container distribution to maximize diversion of organics from residual waste
Pilot projects for organic waste collection techniques	As mandated by cabinet regulations No. 712, separate collection of biowaste began in early 2024 in towns and villages, plus eko laukums sites. Green waste is collected in special seasonal campaigns.	Ongoing municipal composting sites in Alsviķi, Aloja, Valka. improvements or expansions possible.
Planned improvements	Newly established aarc will create a register of home composting and promote it as a cost-effective option. project application in pipeline to purchase 2 specialized vehicles for biowaste collection with EU cohesion funds.	Continuing collaboration with municipalities, ensuring budget and project approval

Cooperation among municipalities in Vidzeme region	7 municipalities served by ZAAO (Balvi, Cēsis, Limbaži, Saulkrasti, Smiltene, Valka, Valmiera); 2 municipalities (Alūksne, Gulbene) served by Lautus Vide.	Region-wide approach fosters consistent services and infrastructure planning

Section 6. Ropaži county

1. General municipal data

Item	Information	Notes
Municipality	Ropaži county	Administrative area ~535 km². ~36,962 inhabitants (2024). ~16,341 households, ~2.2 persons/household.
Municipal budget [€]	~87,343,183 income; ~89,955,884 expenses; financing ~2,612,701 (2024)	Budget for waste management ~1,013,551; investment costs ~5,887,923. reserves for contingency ~41,152.
Commercial/industrial sectors	Dominant sector near Rumbula (Stopiņi parish) is waste management (Getliņi landfill and associated treatment), plus mineral mining.	
Waste management zones	Zone a – Stopiņi parish, zone b – Ropaži & Garkalne parish, zone c – Vangaži city	All served by Clean R contract may expire June 2025, possibly unifying or revising the system.

2. Waste Generation

Item	Quantity (tonnes/year)	Notes
Residual household waste	6,105.17 (2023)	–
Separated organic waste (households)	*	Not precisely tracked
Waste from commerce	*	Included in general statistics
Separated organic waste from commerce	*	–
waste from industry	*	–
Separated organic waste from industry	*	–
Green waste (households, commerce, industry)	541.81 (2023)	Includes leaves, yard clippings, etc.
Separated light packaging	128.56 (2023)	–
Separated glass	129.9 (2023)	–
Separated cardboard and paper	*	Not explicitly tracked

3. Collection and infrastructure

3.1 Collection responsibility and costs

Waste type	Responsible entity	Collection interval	Cost [€/tonne] or [€/m³]	Notes
Residual household waste	Municipality delegates to private (sia "Clean R")	Varies (monthly or as needed)	Not specified	–
Separated organic (households)	Private households (composting) or via sia "Clean R"	Not specified	Not specified	Many residents do home composting; others rely on cleanr's service.
Separated organic (commerce)	Commerce contract with Clean R	Not specified	Not specified	–
Separated organic (industry)	Industry contract with Clean R	Not specified	Not specified	–
Green waste	Delegated to Clean R or self-delivery to eko site	Not specified	Not specified	–

3.2 Collection Containers

Collection system	Residual waste	Organic waste	Green waste	Notes
Bags	-	-	-	Volumes not specified
Bins	-	-	-	Volumes not specified
Containers	10,762 (units) volume *	685 (units) *	-	Exact volumes not provided
Others	-	-	-	–

3.3 Collection vehicles

Vehicle type	Waste streams	Number	Capacity	Notes
Compaction trucks	Residual, organic, green, etc.	-	-	Delegated to cleanr; municipality uses older trucks for street waste & illegal dumping collection.

4. Waste treatment and disposal

4.1 Responsibilities and methods

Waste type	Responsible entity	Treatment/disposal method	Capacity	Cost	Notes
Residual waste (households)	Private sector	Landfilling at Getliņi after sorting	Up to ~333,000 t/yr	Not given	Actual ~170,000 t/yr disposal, capacity ~2m t remaining
Separated organic (households)	Private sector	Composting or biogas at Getliņi	125,000 t/yr	Not given	Facility started full operation in 2022; max capacity by 2025
Separated organic (commerce, industry)	Private sector	Same as above	–	Not given	–
Green waste	Private sector	Same as above	–	Not given	–

4.2 Key facilities

- **Getliņi landfill** – started 1970s as dump, formal landfill since 2001, 90 ha area, up to 333,000 t/yr.
- **Sorting/transfer sites** (ropaži territory) at tauri, zaķumuiža, and brīvnieku st 11 (rumbula).
- **Composting/biogas**: getliņi eko facility (125,000 t/yr).
- **Mechanical-biological**: getliņi eko / "vides resursu centrs" for unsorted waste pre-treatment (300,000 t/yr permitted).

5. Costs, fees, and financing

Item	Information	Notes
Number of households with contracts	~7,987 (could differ from ~16,341 official)	2023/2024 estimate
Average service fee per household/year	Not specified	Monthly fee based on container volume (m^3) × number of collections × tariff for $1m^3$
Waste fee calculation	Volume-based tariff, possibly split by occupant count in multi-apartment buildings	Billing prepared by cleanr, municipality collects no direct waste fees itself
Special fee/tax for commercial or industry	Yes (natural resource tax applies)	Biowaste disposal more expensive for food businesses
Total income for municipality	Not specified except nature resource tax plan ~7,206,745€ (2024)	No further details on direct municipal income from waste

6. Observations and planned improvements

Aspect	Current status	Potential actions

Dominant fractions in municipal waste	Biodegradable waste and packaging. municipality sees these as key to reducing total disposal.	Expansions to biodegradable waste collection could greatly reduce residual disposal.
Public acceptance of biowaste collection	A pilot project (2023) with cleanliving trade to offer containers and bio-bags in multi-apartment buildings. initial skepticism but ended positively.	Municipality sees value in repeating or expanding the pilot to more households.
Improving green waste management	Idea to create composting areas in each parish for leaves, branches, park/garden waste.	Potential cost-benefit analysis on whether the municipality should handle local composting rather than sending to getliņi.
Home composting encouragement	Many residents have space to compost but do not always do so.	Municipality plans outreach, highlighting cost-savings and environmental benefits.
New infrastructure plan	Consider building a dedicated waste sorting station in vangaži.	–
Cooperation with others	No explicit mention of cross-municipality projects for organic waste.	General references to regional cooperation with getliņi and cleanr.

6.3. Survey results Lithuania

Section 1. Vilnius, Lithuania

1. General municipal data

Item	Information	Notes
Municipality	Vilnius, Lithuania	Administrative area ~401 km². ~635,156 inhabitants (2024). ~310,695 households, ~2.07 persons/household.
Municipal budget [€]	~1,400,000,000 income; (2024)	Budget for waste management ~34,700,000 (2024)
Commercial/industrial sectors	-	-
Waste management zones	-	-

2. Waste Generation

Item	Quantity (tonne/year)	Notes
Residual household waste	142,070	2024
Separated organic waste (households)	No data	-
Waste from commerce	62,520	2024
Separated organic waste from commerce	No data	-
Waste from industry	28,184	2024
Separated organic waste from industry	No data	-
Green waste (households, commerce, industry)	No data	-
Separated light packaging	No data	-
Separated glass	6,776	2024
Separated cardboard and paper	26,470	2024

3. Collection and infrastructure

3.1 Collection responsibility and costs

Waste type	Responsible entity	Collection interval	Cost [€/tonne] or [€/m³]	Notes
Residual household waste	Municipality	From once per day to two times per month	No data	-
Separated organic (households)	Municipality	Separated organic waste are collected together with residual waste	No data	-

Separated organic (commerce)	Private	No data	No data	-
Separated organic (industry)	Private	No data	No data	-
Green waste	Private	On demand	No data	-

3.2 Collection Containers

Collection system	Residual waste	Organic waste	Green waste	Notes
Bags	-	0.008	-	-
Bins	-	-	-	-
Containers	0.12 – 5 m³	-	-	-
Others	-	-	-	-

3.3 Collection vehicles

Vehicle type	Waste streams	Number	Capacity	Notes
Compaction vehicle (manipulator)	Residual	23	22	-
Compaction vehicle (3 axles)	Residual	19	20	-
Compaction vehicle (2 axles)	Residual	5	12	-
Compaction vehicle (2-3 separated sections)	Residual + glass + paper	7	22 - 32	-

4. Waste treatment and disposal

4.1 Responsibilities and methods

Waste type and source	Responsible for the treatment / disposal	Methods of the treatment / disposal	Capacity of the treatment facility or disposal side [tonnes/a]	Treatment costs [€/tonne]	Notes
Residual waste from households	Mechanical biological waste treatment plant	No data	No data	73,36	-
Separated organic waste from households	Mechanical biological waste treatment plant	No data	No data	No data	-

Separated organic waste from commercial waste	No data	No data	No data	No data	-
Separated organic waste from industrial waste	No data	No data	No data	No data	-
Green waste from households, commerce and industry	No data	No data	No data	No data	-

4.2 Key facilities

- Mechanical biological waste treatment plant (owned by VAATC (Vilnius regional waste management center), operated by UAB Energesman. Operational capacity – 266 000 t/year, start of operation – 2016; Jocioniu 13, Vilnius
- Vilnius Combined Heat and Power Plant (Vilnius CHP) (operated by UAB Vilniaus kogeneracinė jėgainė). Operational capacity – 160 000 t/year, start of operation – 2020; Jocioniu 13, Vilnius

5. Costs, fees, and financing

Item	Information	Notes
Total Number of households:	310,695	Reference year: 2024
Income from paying households [€/a]:	28,600	Local fees for municipal waste collection from waste holders; 2024
Average service waste fee per household and year [€/a]:	54.36 Eur. Flat 99.35 Eur. House.	Reference year: 2024

How is the waste fee calculated (e.g. area of the household, number of people in the household, monthly amount of residual household waste, etc.)?

- The municipal waste fee comprises two components: a fixed fee and a variable fee. The fixed fee is consistent across all property categories and is determined based on the property's area. The variable fee depends on the amount of mixed municipal waste generated and varies according to the property's category. Payment notifications for the waste fee are issued annually, detailing the amounts due for the entire year, divided into quarterly payments. The Municipal Enterprise Vilnius Waste System Administrator (VASA) is responsible for calculating, administering, and collecting the waste fee. The Administrator shall calculate the fixed and variable parts of the Fee in accordance with the Regulations of the Vilnius City Municipality on the Local Fee for the Management of Municipal Waste and Non-Municipal Waste from Households. It is calculated according to Chapter VII of these Regulations.
- No special fee, tax or payment based on contracts for the commercial or industry sector or others

Summary of the data basis

The data from the evaluation is summarized below. The data from the literature and the questionnaires are presented together.

Obviously unclear data for service fee per m³ and collection cost per household in Latvia.

Lithuania only publishes the data for Vilnius.

Costs (or fees?) are given in mass or volume and cannot be taken into account.

Table 5: Data for the years 2019/2020 according to Table 1, 2, 3 and 4 (reported by Favoino and Giavin, 2024; EEA, 2022; EEA, 2022a; EEA 2022b) and the responses to the questionnaires.

	Estonia (EEA, 2022)	**Latvia** (EEA, 2022a)	**Lithuania** (EEA, 2022b)
Food waste: potential generation (kg/capita)	111.8	107.4	121.4
Food waste: current capture (% on potential generation)	**3**	**7**	**17**
Bio waste (Food + Garden): potential generation (kg/capita)	213	230	251
Biowaste (Food + Garden): current capture (% on potential generation)	**7**	**16**	**41**

Residual waste composition (%) and Capture rates of the separately collected fraction (%)						
Paper and cardboard	17	56	8.0	62	6.32	72
Metals	2	60	3.7	6	1.68	92
Glass	2	57	9.2	37	4.44	59
Plastic	18	31	12.9	13	12.72	27
Biowaste	32	24	34.2	20	19.41	41
Textiles	6	10	no data	no data	7.85	5
Wood	1	61	no data	no data	0.93	52

Data from the questionnaires			
Collection costs (€/m³)			
Residual waste (households)	30.40 - 31.10	29 - 33 35.15 - 42	
Separated organic or green waste	3.04 - 3.11	21.09 - 25.20	
Treatment costs (€/tonne)			
landfill		167.73	
Separated organic or green waste		91	
Residual waste (households) in MBT			73.36

Average service fee per household/year			
Residual waste (households)		35.15 - 42	
Separated organic or green waste		21.09 - 25.20	

All Baltic states are well on the way to more sustainable waste management!

However, Lithuania collects considerably more recyclable waste of all kinds. The number of treatment plants is also higher. The only residual waste treatment plant is in Lithuania.

All three countries should continue to improve the collection of organic and green waste.

The data on costs and fees cannot be evaluated as the information from the questionnaires is too incomplete.

6. Observations and planned improvements

The responses and planned improvements from the questionnaire are mentioned below:

Are there any areas, mechanisms or systems that you think could be improved by organic waste management? If so, please explain them in more detail.

- For example, enhanced waste separation systems. Introducing separate bins specifically for organic waste in public spaces and residential areas would increase participation and make sorting easier for citizens. Or composting - encouraging residents to compost their organic waste at home.

Are there already plans to improve or change the collection system and treatment of the organic waste? If so, please explain them in more detail.

- The existing system is used - food waste sorting initiative starting on January 1, 2024. Vilnius residents are required to separate food waste from other household waste. This initiative involves collecting food scraps in special orange bags, which are then disposed of in mixed municipal waste containers. The orange bags facilitate the identification and separation of food waste at the city's mechanical-biological treatment (MBT) facilities, allowing for more efficient recycling. The collected food waste is converted into compost, while the bags themselves are recycled.

Geographical data about the municipality:

- Map of waste collection points

7. Final concluding remarks

Based on the evaluation of the literature and the responses to the questionnaire, the following comments are summarized:

Overall progress in biowaste separation

- Many municipalities have introduced or are expanding separate collection for organic waste (kitchen, garden, and food-processing byproducts). However, the degree of implementation varies: Riga has a more mature system but still faces data gaps for commercial/industrial sectors, while smaller municipalities (e.g., Ādaži, Ropaži) rely heavily on private operators or partial home-composting initiatives.
- In Estonia's Saaremaa and Latvia's Vidzeme regions, progress has been made through EU-funded projects (e.g., distributing composters) and new regulations mandating separate biowaste collection, yet large-scale implementation remains a work in progress.

Collection systems and data tracking

- Larger cities (Riga) and counties with strong regional partnerships (Vidzeme, Saaremaa) benefit from existing infrastructure (e.g., mechanical biological treatment plants, composting facilities) but often lack consistent, detailed data on commercial or industrial organic waste streams.
- Smaller municipalities (Ādaži, Ropaži) frequently depend on private waste operators for both service provision and data collection, leading to incomplete or inconsistent tracking of waste volumes. This fragmentation hampers planning and policy adjustments.

Financial and contractual frameworks

- Commonly, local governments contract with private companies for collection and/or treatment, limiting direct municipal control or revenue from waste fees (e.g., Riga collects no direct fees; Ropaži and Ādaži rely on private operators).
- Where municipalities do handle services (Saaremaa, Vidzeme, parts of Ropaži), they face funding constraints for infrastructure improvements (e.g., composting sites, education campaigns).
- Complex fee structures (volume-based, container-based, etc.) can obscure cost transparency for residents, and local authorities often have minimal involvement beyond contract oversight.

Infrastructure and treatment capacity

- Several regions rely on large, modern landfills (Getliņi in Latvia, Paikre in Estonia) with mechanical-biological treatment and biogas production. These sites have significant capacity for composting or co-digestion, yet the feedstock from residential organics remains underexploited (e.g., Riga's Getliņi EKO is not always operating at maximum capacity for organic waste).
- Smaller local composting initiatives sometimes fail due to contamination (Ādaži's closed green-waste site) or lack of oversight (dumping of prohibited materials). Meanwhile, pilot programs have demonstrated benefits if managed carefully (e.g., distributing compost bins).

Public participation and awareness

- All regions highlight the importance of resident and business engagement for successful organic waste separation. In many cases, public skepticism or "inertia" slows uptake of new systems, whether it involves paying additional fees for organic bins or adopting home composting practices.

- Municipalities are implementing educational measures (internet outreach, local press, container stickers), but success requires more robust, continuous campaigns (including incentives, penalties, or both).

Future directions and potential improvements

- Across all localities, there is a consensus that expanding organic waste collection can significantly reduce the amount of residual waste sent to landfills. Funding for infrastructure, whether through EU grants or local partnerships, remains critical.
- In many municipalities, introducing or improving home composting programs and community compost sites is seen as cost-effective. However, municipalities must establish fencing, staffing, or monitoring to reduce contamination.
- Integrating data collection and sharing across commercial, industrial, and household sectors will allow more targeted strategies and refine fee structures or regulations (e.g., pay-as-you-throw, volume-based incentives).
- Regional cooperation—especially for smaller municipalities—can help scale composting, share costs, and create unified regulations or communications strategies, thus overcoming some of the financial and logistical barriers.

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