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COMMISSION STAFF WORKING DOCUMENT

Environmental Implementation Review 2022
Country Report - LATVIA

Accompanying the document

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions

Environmental Implementation Review 2022: *Turning the tide through environmental compliance*

{COM(2022) 438 final} - {SWD(2022) 252 final} - {SWD(2022) 253 final} - {SWD(2022) 254 final} - {SWD(2022) 255 final} - {SWD(2022) 256 final} - {SWD(2022) 257 final} - {SWD(2022) 258 final} - {SWD(2022) 259 final} - {SWD(2022) 260 final} - {SWD(2022) 261 final} - {SWD(2022) 262 final} - {SWD(2022) 263 final} - {SWD(2022) 264 final} - {SWD(2022) 265 final} - {SWD(2022) 266 final} - {SWD(2022) 267 final} - {SWD(2022) 268 final} - {SWD(2022) 269 final} - {SWD(2022) 270 final} - {SWD(2022) 271 final} - {SWD(2022) 272 final} - {SWD(2022) 273 final} - {SWD(2022) 274 final} - {SWD(2022) 275 final} - {SWD(2022) 277 final} - {SWD(2022) 278 final}

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Photographs:

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Executive summary

The main challenges identified in past Environmental Implementation Reviews (EIRs) with regard to implementation of EU environmental policy and law by Latvia were:

- waste management, particularly increasing recycling, rolling out separate collection and reducing landfilling;
- resource intensity to be reduced to lessen the exposure of Latvian businesses to rising resource cost.

There has been good progress in addressing the first challenge with **waste management**. The 'national waste management plan 2021-2028' incorporates the new EU waste targets and requirements. Latvia's recycling rate of 39.6% in 2020 for municipal waste represents an improvement, but it has nevertheless fallen behind as regards its re-use and recycling targets. With its reform of waste management regions and introduction of the deposit system for plastic and glass bottles in 2022, Latvia is taking steps in the right direction.

As to the second challenge, there has been no progress. With EUR 0.94 generated per kg of material consumed in 2020, **resource productivity** in Latvia is still less than half of the EU average and the **circular use of material** dropped to 4.2%, or less than a third of the EU average. As a positive development, the **circular economy action plan** 2021-2027 was adopted and Green Public Procurement constituted 27% of all public procurement in Latvia in 2020 in financial terms. The national circular economy action plan needs to be strengthened with more detailed and targeted actions, funding and implementation.

Latvia faces significant challenges in relation to the protection of **biodiversity**. According to the latest report under the Habitats Directive, Latvia ranks No. 24 in the EU-27 as regards the conservation status of its habitats. Less than 10% of them are assessed as having a favourable conservation status. Latvia needs to develop a comprehensive approach to ecosystem services, mainstream biodiversity conservation and sustainable use in other sectors, notably forestry and agriculture, as 90% of its EU-protected forests and grasslands are assessed as having bad or poor status. At the same time, bioenergy is gaining momentum Latvia, as it is the number one exporter of wood pellets in the EU. For the **Natura 2000** network, Latvia has designated all Sites of Community Importance as Special Areas of Conservation, but there is no legal certainty as to the species and habitat types for which each of the sites has been designated. Additionally, Latvia has persistently failed to set sufficiently detailed and quantified conservation objectives and measures corresponding to the ecological requirements of the natural habitat types and the species concerned. As regards **organic farming**, Latvia performs well and ranks No. 6 in the EU.

On **pollution reduction**, the emissions of key air pollutants have decreased significantly in recent years, except for ammonia. In the context of the National Air Pollution Control Programme, Latvia is encouraged to take actions towards reducing air pollution emissions from the main emission sources. On sustainable **water management**, despite improvements in compliance over the years, in respect of which EU funding has been fundamental, Latvia's **failure to comply with the Urban Waste Water Treatment Directive** is still subject to an ongoing infringement procedure for reliance on individual and other appropriate systems (IAS), such as septic tanks, as well as the lack of appropriate treatment of urban wastewater entering collecting systems in one agglomeration (Olaine). For groundwater, 100% achieves both good chemical and quantitative status. However, only 21.1% of all surface water bodies reach good ecological status and 10.6% have good chemical status. Latvia is among the Member States facing the greatest challenges in tackling **nutrient pollution from agriculture**. A high number of surface waters have been found to be eutrophic. Eutrophication is affecting both inland and marine waters. An acute **eutrophication** problem in 97% of **the Baltic Sea** represents a problem shared with neighbouring states. An extremely high proportion of the waters in the region are assessed as not achieving good eutrophication status.

EU financing continues to provide support for environmental implementation and can be used in a broader context. Latvia did not include any measures directly benefiting the environment in its recovery and resilience plan (RRP). The low level of planned biodiversity spending in the European Union Cohesion Policy Programme 2021-2027 does not match Latvia's biodiversity investment needs. Latvia's **environmental financing gap** (additional to a baseline financing level of 1.37% of GDP in 2014-2020) is estimated to be **at least an additional 0.37% of GDP** and has to be addressed through additional financing measures. It is recommended that Latvia devise an environmental financing strategy to maximise opportunities for closing this gap by bringing together all relevant administrative levels and to ensure an increased level of financing for the environment. This would be very helpful in improving the main EU environmental policy and law implementation challenges: circular economy and waste management, protection and restoration of nature and pollution reduction.

Part I: Thematic areas

1. Circular economy and waste management

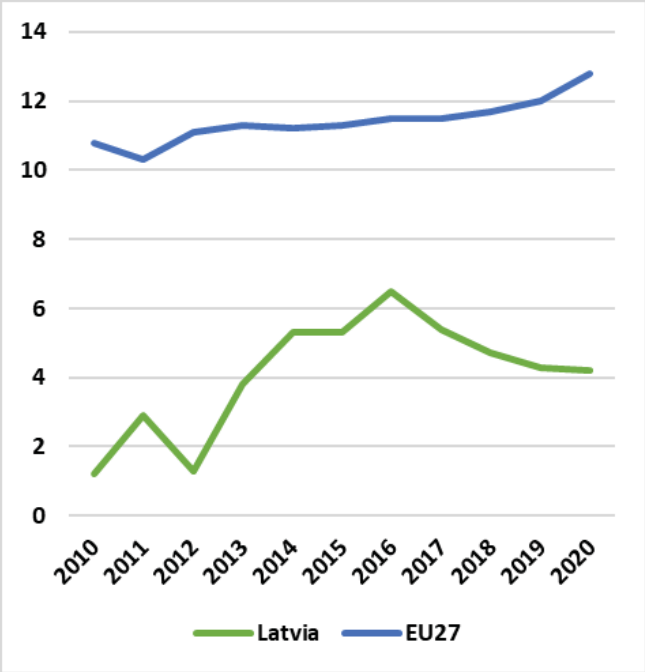
Measures towards a circular economy

The new circular economy action plan adopted in March 2020 is one of the main building blocks of the European Green Deal. The EU's transition to a circular economy will reduce pressure on natural resources and will create sustainable growth and jobs. It is also a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss. The action plan contains initiatives for the entire life cycle of products, aiming to reduce the EU's consumption footprint and to double the EU's circular material use rate by 2030. It targets how products are designed, promotes circular economy processes, encourages sustainable consumption, and aims to ensure that waste is prevented and the resources used are kept in the EU economy for as long as possible.

The circular material use rate is a good indicator of an economy's circularity, as it includes all the materials that are fed back into our economy. Large discrepancies in the circularity rate exist between countries. To help achieve the EU circular economy action plan's goal of doubling the EU circular material use rate by 2030, ambitious measures targeting the whole product life cycle are needed at Member State level. Such measures range from sustainable product design to increase durability, reparability, upgradability and recyclability of products, to other measures like remanufacturing, increasing the circularity in production processes, recycling, as well as boosting eco-innovation and increasing the uptake of green public procurement.

Lativa's circular (secondary) use of material dropped from 6.5% in 2016 to 4.2% in 2020, compared to the EU average of 12.8%. Hence, Latvia achieves only a third of the EU average and demonstrates a worrying trend that shows a clear deterioration of performance over time.

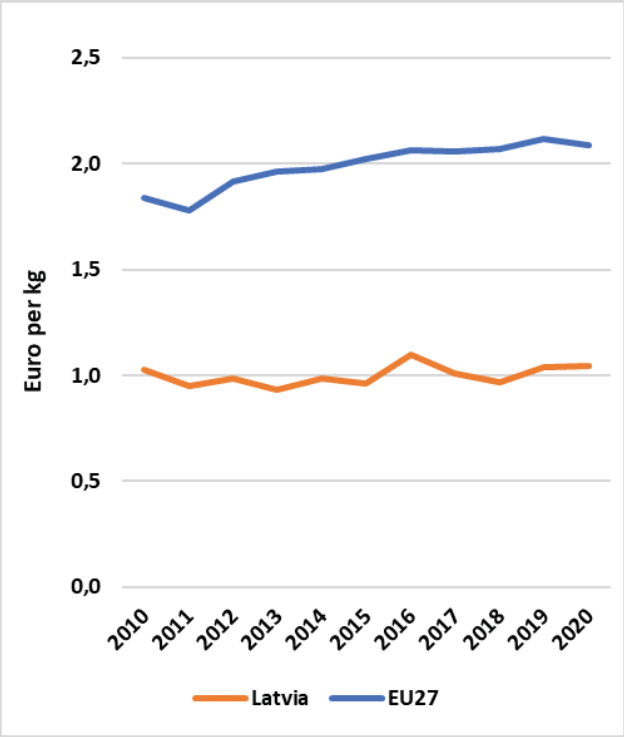
Figure 1: Circular material use rate (%), 2010-2020[1]



Resource productivity expresses how efficiently the economy uses material resources to produce wealth. Improving resource productivity can help to minimise negative impacts on the environment and reduce dependency on volatile raw material markets. As shown in Figure 2, with EUR 0.94 generated per kg of material consumed in 2020, resource productivity in Latvia is less than half the EU average of EUR 2.08 per kg.

[1] Eurostat, Circular Economy Monitoring Framework.

Figure 2: Resource productivity 2010-2020[2]



Circular economy strategies

It would be beneficial for Member States to adopt and implement national/regional circular economy strategies covering the whole life cycle of products, as they constitute one of the most effective ways to progress towards a more circular economy at Member State level. Since the launch of the European circular economy stakeholder platform in 2017[3], national, regional or local authorities have used the platform to share their strategies and roadmaps.

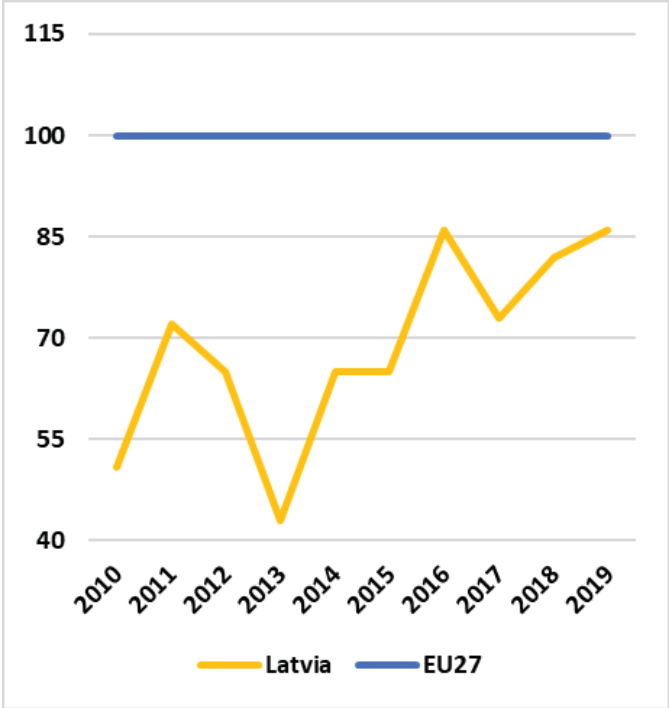
In September 2020, Latvia adopted the action plan 2021-2027 Towards a Circular Economy that sets out the main circular economy actions, targets and implementing bodies. The plan needs to be strengthened with more detailed and targeted actions, funding and implementation.

Eco-innovation

A successful transition to a circular economy requires social and technological innovation, as the full potential of the circular economy can only be achieved when implemented across all value chains. Therefore, eco-innovation is an important enabling factor for the circular economy. Product design approaches and new business models can help to produce systemic circularity innovations, creating new business opportunities.

The country ranked 18th in the list of EU countries with a total score of 90 in the Eco-Innovation Scoreboard of 2021, and it is an average eco-performer. In four out of five components of the Eco-Innovation Index of 2021, Latvia performed below the EU average (socio-economic outcomes being the exception).

Figure 3: Eco-innovation performance, 2010-2019[4]



Green public procurement

Public procurement accounts for a large proportion of European consumption, with public authorities' purchasing power representing 14% of EU GDP. This can help drive the demand for sustainable products that meet repairability and recyclability standards. Latvia adopted a GPP national action plan in 2015 and set mandatory GPP requirements for a progressively wider range of product groups. Public procurement in Latvia accounts for 11% of GDP. In 2020 the proportion of GPP was 27% in financial terms and 15.4% in terms of the number of all public purchases. Statistics on GPP are

[2] Eurostat, Resource productivity.
[3] Circular economy stakeholder platform.
[4] European Commission - Directorate-General for Environment (DG ENV), Eco-innovation Observatory, Eco-innovation index.

collected annually by the Procurement Monitoring Bureau.

EU Ecolabel and the Eco Management and Auditing Scheme (EMAS)

The number of EU Ecolabel products and EMAS-licensed[5] organisations in a given country provides some indication of the extent to which the private sector and national stakeholders are actively engaged in the transition to a circular economy. It also shows how committed public authorities are to supporting instruments designed to promote the circular economy.

As of September 2021, Latvia had 79 products and five licenses registered in the EU Ecolabel scheme out of 83 590 products and 2 057 licences in the EU, which demonstrates very low take-up of these licences[6]. Nonetheless, there has been some improvement compared to 2019, when Latvia had 15 products and four licences.

As Latvia has adopted a circular economy strategy, the priority action from the 2019 EIR is considered to have been fulfilled, however, given that its circular material use rate is far below the EU average, a priority action relating to this topic has been added.

2022 priority action

- Adopt measures to improve the circular material use rate.

Waste management

Turning waste into a resource is supported by:
(i) fully implementing EU waste legislation, which includes the waste hierarchy, the need to ensure separate collection of waste, the landfill diversion targets, etc.;
(ii) reducing waste generation and waste generation per capita in absolute terms;
(iii) limiting energy recovery to non-recyclable materials and phasing out landfilling of recyclable or recoverable waste.

This section focuses on the management of municipal waste[7], for which EU law sets mandatory recycling targets.

Preventing products and materials from becoming waste for as long as possible is the most efficient way to improve resource efficiency and to reduce the environmental impact of waste. Waste prevention and re-use are the most preferred options and top the waste hierarchy. The amount of municipal waste generated is a good indicator of the effectiveness of waste prevention measures.

Municipal waste[8] generation in Latvia has increased in recent years. In 2020, 478 kg/year/inhabitant was generated, although this remains below the EU average (505 kg/year/inhabitant), as Figure 4 shows. This indicates that Latvia's economic growth has not yet been decoupled from its generation of waste.

Figure 4: Municipal waste by treatment in Latvia, 2010-2020[9]

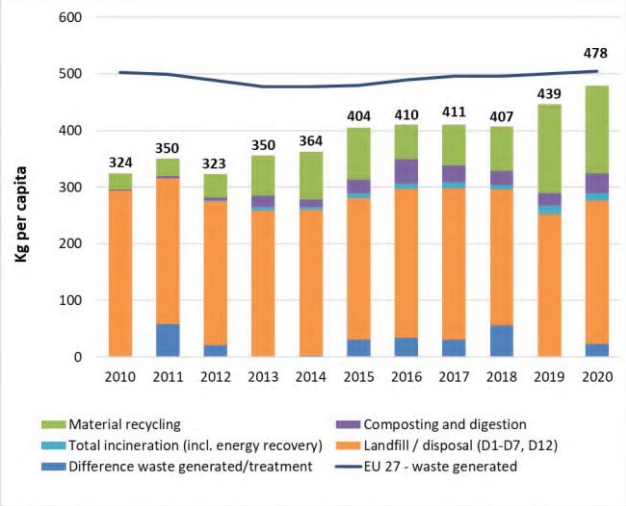


Figure 4 also shows municipal waste by treatment, in terms of kilos per capita. Latvia has made some progress in the last years, stepping up its recycling rate for municipal waste: in 2020 it was 39.6% (this is a the sum of material recycling, composting and anaerobic digestion). This is still below the EU average of 47.8% (EU-27 in 2019).

Figure 5 shows that Latvia needs to step up investment in recycling to meet the EU 2025 recycling targets.

[5] EMAS is the European Commission's Eco-Management and Audit Scheme, a programme to encourage organisations to behave in a more environmentally sustainable way.
[6] European Commission, Ecolabel Facts and Figures.
[7] Municipal waste consists of mixed waste and separately collected waste from households and from other sources, where such waste is similar in nature and composition to waste from households. This is without prejudice to the allocation of responsibilities for waste management between public and private sectors.
[8] Municipal waste consists of (a) mixed waste and separately collected waste from households, including paper and cardboard, glass, metals, plastics, bio-waste, wood, textiles, packaging, waste electrical and electronic equipment, waste batteries and accumulators, and bulky waste, including mattresses and furniture; (b) mixed waste and separately collected waste from other sources, where such waste is similar in nature and composition to waste from households. (Directive 2008/98/EC, Art. 3 2b).
[9] Eurostat, Municipal waste by waste operation, April 2022.

Figure 5: Recycling rate of municipal waste, 2010-2020[10]

As pointed out in the 2019 EIR, the Commission's early warning report[11] listed Latvia as one of the countries at risk of missing the EU 2020 target of recycling 50% of municipal waste. The Commission is currently finalising its analyses of the progress on the recommendations from the 2018 early warning reports and of progress towards achieving the 2025 waste recyling targets. This report is expected at the end of 2022 and will make recommendations as appropriate.

Implementation of the 2018 waste legislative package

By 5 July 2020 Member States had to bring their national laws into line with the modifications included in the revised Waste Framework Directive, the Packaging and Packaging Waste Directive and the Landfill Directive[12]. Latvia has notified the transposition of the Packaging and Packaging Waste Directive to the Commission. A conformity assessment is now ongoing.

Waste management plans and waste prevention programmes are instrumental for the sound implementation of EU waste legislation. They set out key provisions and investments to ensure compliance with existing and new legal requirements (e.g. waste prevention, separate collection for a number of specific waste streams, recycling and landfill targets). Revised plans and programmes were due on 5 July 2020. In January 2021, the cabinet of the Latvian government approved the waste management state plan for 2021-2028 that incorporates a waste prevention programme. Latvia's revised waste management state plan meets the requirements of Article 28 of the revised Framework Directive on Waste.

Latvia has not ratified the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships.

There has been substantial progress since the 2019 EIR as regards measures for diverting waste from landfill and increasing recycling rates. A deposit system covering plastic and glass bottles and cans was introduced in February 2022. A landfill tax was increased to 80 EUR/t in 2022 and will be further increased to 95 EUR/t as of 2023. A reform of waste management regions is under way, reducing their number from 10 to 5 and requiring the municipalities to draft regional waste management plans until the end of 2022. Getliņi anaerobic digestion tunnels are expected to become operational in 2022. However, good infrastructure for separate waste collection is not yet in place. It is particularly poor in the capital, Riga, where around half of the country's waste is generated. In light of the upcoming early warning report 2022, several 2019 priority actions have been proposed again.

2022 priority actions

- Improve and extend separate collection of waste, including for biowaste. Review and/or harmonise minimum service standards for separate collection (e.g. frequency of collections, types of containers etc.) in municipalities to ensure high capture rates of recyclable waste.
- Set mandatory recycling targets for municipalities, using measures to tackle non-compliance (e.g. fines).
- Develop and run implementation support programmes for municipalities to help support efforts to organise separate collection and improve recycling performance.
- Improve the functioning of extended producer responsibility (EPR) systems, in line with the general minimum requirements on EPR[13].

[10] Eurostat, Recycling rate of municipal rate, April 2022.

[11] European Commission, Report on the implementation of waste legislation, including the early warning report for Member States at risk of missing the 2020 preparation for re-use/recycling target on municipal waste, SWD(2018)422 accompanying COM(2018)656.

[12] Directive (EU) 2018/851, Directive (EU) 2018/852, Directive (EU) 2018/850 and Directive (EU) 2018/849 amend the previous waste legislation and set more ambitious recycling targets for the period up to 2035.

[13] Directive (EU) 2018/851.

2. Biodiversity and natural capital

The 2030 EU biodiversity strategy adopted in May 2020 aims to put the EU's biodiversity on a path to recovery and sets out new targets and governance mechanisms to achieve healthy and resilient ecosystems. In particular, the strategy sets out ambitious targets to:
(i) protect a minimum of 30% of the EU's land area and 30% of its sea area and integrate ecological corridors, as part of a true trans-European nature network;
(ii) strictly protect at least a third of the EU's protected areas, including all remaining EU primary and old-growth forests;
(iii) effectively manage all protected areas, defining clear conservation objectives and measures, and monitoring them appropriately.
The strategy also sets out an EU nature restoration plan – a series of concrete commitments and actions to restore degraded ecosystems across the EU by 2030, and manage them sustainably, addressing the key drivers of biodiversity loss.

The EU Habitats and Birds Directives are the cornerstone of EU legislation designed to conserve the EU's wildlife, natural habitats and ecosystems[14]. As such, they are key legislative tools to deliver on the EU biodiversity strategy targets for 2030.

There is no comprehensive policy planning document for biodiversity protection in Latvia. The 2021-2027 environmental policy guidelines contain a short chapter on biodiversity (chapter 6) that has two key objectives: conservation of biodiversity, including species and habitats subject to special protection, and valuable landscapes; and preservation and management of natural capital. The guidelines state that, in the last decade, biodiversity in Latvia continued to deteriorate. They identify intensification of land use, land use change and fragmentation of ecosystems as the main causes. Annex I to the guidelines contains Latvia's 'biodiversity monitoring programme'. It provides for biodiversity monitoring throughout Latvia, for species and habitats both within and outside the protected areas.

[14]These directives should be reinforced by the Nature Restoration Law, a key deliverable of the EU biodiversity strategy for 2030.

Nature protection and restoration

Natura 2000[15], the largest coordinated network of protected areas in the world, is the key instrument for achieving the objectives under the Birds and Habitats Directives, which aim to ensure the long term protection, conservation and survival of Europe's most valuable and threatened species and habitats and the ecosystems they underpin. The establishment of a coherent Natura 2000 network, the designation of Sites of Community Importance (SCIs) as Special Areas of Conservation (SACs) and the setting of conservation objectives and measures for the Natura 2000 sites are key milestones towards meeting the objectives of the Directives.

Setting up a coherent network of Natura 2000 sites

Latvia hosts 61 habitat types[16] and 109 species[17] covered by the Habitats Directive. The country also hosts 81 bird taxa listed in Annex I to the Birds Directive[18].

By 2021, 11.5% of the land area of Latvia was covered by Natura 2000 (EU coverage 18.5%), with Special Protection Areas (SPAs) classified under the Birds Directive covering 10.2% (EU coverage 12.8%) and SCIs under the Habitats Directive covering 11.5% (EU coverage 14.2%) of Latvia's territory.

The latest assessment of SCIs within the Natura 2000 network shows that there are insufficiencies in designation. There is an infringement procedure against Latvia, currently at the reasoned opinion stage, for incorrect application of Articles 4(4) and 6 of the Habitats Directive regarding the designation of SACs and the setting of conservation objectives and measures.

[15] Natura 2000 comprises Sites of Community Importance (SCIs) designated pursuant to the Habitats Directive as well as Special Protection Areas (SPAs) classified pursuant to the Birds Directive; coverage figures do not add up due to the fact that some SCIs and SPAs overlap. Special Areas of Conservation (SACs) means a SCI designated by the Member States.
[16] EEA, Article 17 dashboard, Annex I total, 2019.
[17] EEA, Article 17 dashboard, Annex II + Annex IV excluding those in Annex II + Annex V excluding those in Annex II, 2019. This counting only takes into account species and habitats for which assessment of conservation status was requested
[18] EEA, Article 12 dashboard, Annex I, 2020. This counting only takes into account birds taxa for which information was requested.

Latvia's reply to the reasoned opinion reached the Commission in August 2021 and is under assessment.

Taking into account both Natura 2000 and other nationally designated protected areas, Latvia legally protects 18.2% of its terrestrial area (EU-27 coverage 26.4%) and 15.8% of its marine area (EU-27 coverage 10.7%)[19].

Figure 6: Marine & terrestrial protected area coverage, 2021[20]

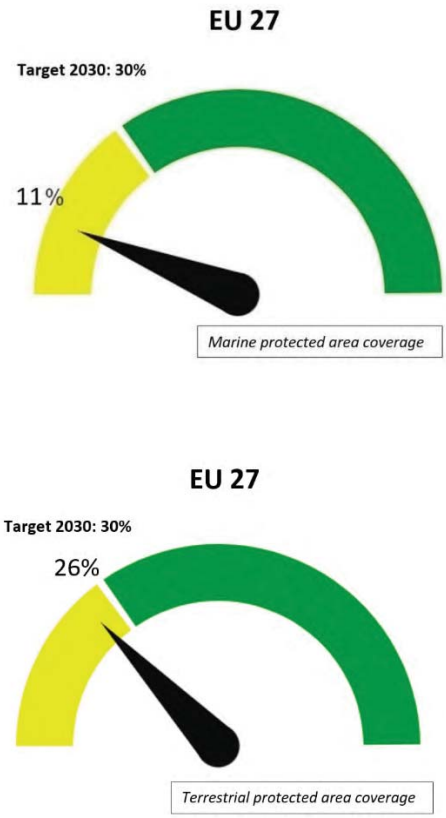
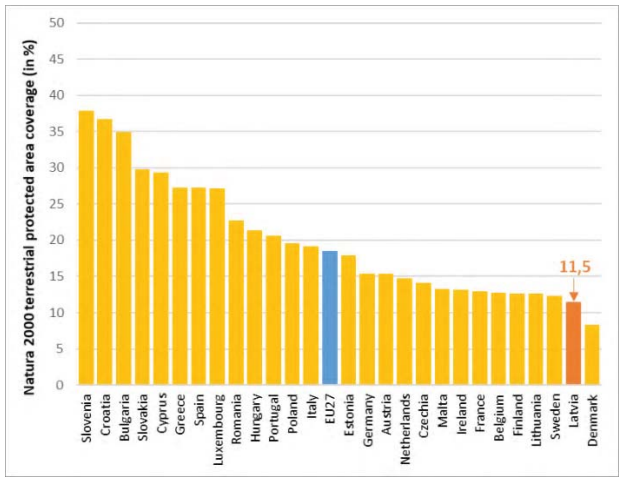


Figure 7: Natura 2000 terrestrial protected area coverage, 2021[21]



Designating Special Areas of Conservation (SACs) and setting conservation objectives and measures

The 6-year deadline set by the Habitats Directive to designate SCIs as SACs and establish appropriate conservation objectives and measures has expired for all sites in Latvia.

As mentioned above, there is an infringement for incorrect application of Articles 4(4) and 6 of the Habitats Directive regarding the designation of SACs and the setting of conservation objectives and measures.

Latvia has designated all 328 of the SCIs concerned by this case as SACs within the required time limit. However, Latvia failed to designate all of those sites properly, as there is no legal clarity or certainty as to the species and habitat types for which each of the 328 SACs has been designated. In addition, in relation to all of the 328 SACs, Latvia generally and persistently failed to set sufficiently detailed and quantified conservation objectives and the necessary conservation measures, corresponding to the ecological requirements of the natural habitat types and the species concerned. As the reply by Latvia to the letter of formal notice did not address these concerns, a reasoned opinion was issued on 9 June 2021.

[19] European Environment Agency, Protected Areas, terrestrial protected area percentage (2021) and marine protected area percentage (2019), March 2022.

[20] EU Biodiversity Strategy Dashboard, indicators A1.1.1 and A1.2.1, February 2022.

[21] European Environment Agency, Natura 2000 Barometer, February 2022.

Progress on maintaining or restoring the favourable conservation status of species and habitats

The results of the Habitats Directive Article 17 and Birds Directive Article 12 reports on progress towards maintaining or restoring favourable conservation status of species and habitats are key to measuring Member States' performance.

According to the report submitted by Latvia on the conservation status of habitats and species covered by Article 17 of the Habitats Directive for the period 2013-2018, the share of habitats assessed as having good conservation status in 2018 was less than 10%, representing a reduction compared to the 10.5% reported under the previous reporting period (2007-2012). The share of protected species assessed as having good conservation status in 2018 was 39.45%, an increase compared to the 28.32% reported under the previous reporting period (2007-2012). As regards birds, 41.3% of breeding species showed short-term increasing or stable population trends (for wintering species this figure was 66.6%).

At the same time, the share of habitats with bad conservation status has decreased to 37.7%, and the share of species assessed as having bad conservation status has also decreased to 13.76%. Nevertheless, the Commission has called on Latvia to bring its national legislation into line with the Habitats Directive, especially as regards the protection of the lynx. Despite a 2020 report by the State Audit Office of Latvia entitled 'Is our game management sustainable?', recommending that national law be brought into line with the Habitats Directive, the Commission considers that this has still not been done. The Commission therefore decided to send a letter of formal notice in April 2022[22].

Figure 8: Assessments on conservation status for habitats[23]

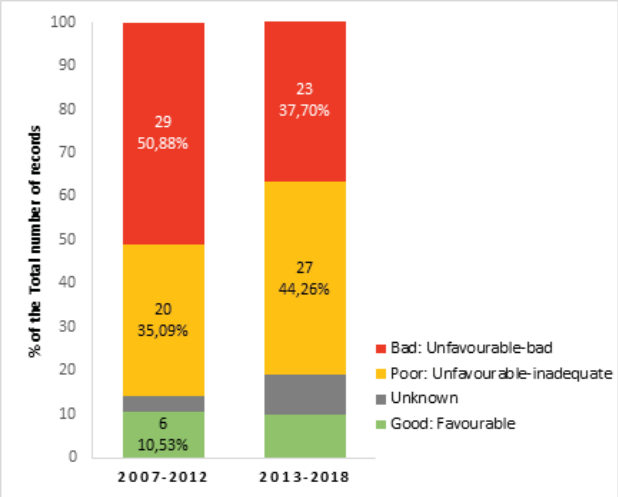
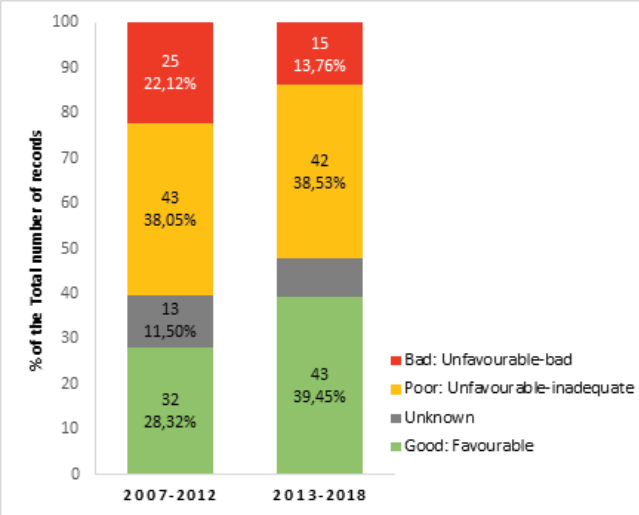


Figure 9: Assessments on conservation status for species for 2007-2012 and 2013-2018 reporting periods[24]



The fact that fewer than 10% of protected habitats have favourable conservation status, and a downward trend compared to the previous period, indicate that Latvia faces significant challenges in protecting its biodiversity. All semi-natural grasslands, more than 90% of forests, and most bogs, mires and fens as well as dunes and coastal habitats still have unfavourable status. The main causes are changes in land use (development,

[22] April infringements package: key decisions (europa.eu).

[23] European Environment Agency, Conservation status and trends of habitats and species, December 2021. Please note when comparing the figures shown for 2007-2012 and 2013-2018 that these may also be affected by changes in method or as the result of better data availability.

[24] Idem.

construction and use of residential, commercial, industrial and recreational infrastructure and areas) and forestry and agriculture.

As an example of good practice, Latvia participated in the LIFE 'peat restore' project with partners from Poland, Germany and the Baltic states to re-wet degraded peatlands in the partner countries covering an area of 5 300 hectares. In Latvia, the restoration area covers 248 hectares. The peat restore project aimed to reduce CO2 emissions by restoring degraded peatlands and regenerating their carbon sink function, as well as to provide best practice guidelines on peatland restoration for decision makers and land users. In two project areas, Augstroze Nature Reserve and Baltezers Mire Nature Reserve, nature management plans have been developed and the hydrological regime of drained mires has been restored by building dams to block the drainage ditches. Thus, the peat accumulation capacity in the drained sections of the target areas is recovering.

In the 2019 EIR, it was recommended that Latvia complete the SAC designation process and put in place clearly defined conservation objectives and the necessary conservation measures for sites. To this end, Latvia has launched a LIFE integrated nature project that will set conservation objectives based on the recently completed comprehensive, country-wide inventory of the Annex I habitat types. There was also a priority action to improve incentives for foresters and farmers to better protect forest and grassland habitat and ensure sustainable forest management and efficient use of biomass. In view of limited progress in adressing these actions, the 2019 priority actions have been reproposed.

Bringing nature back to agricultural land and restoring soil ecosystems

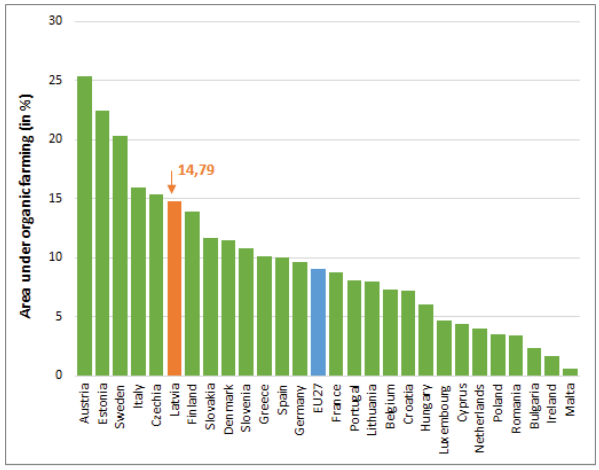
The biodiversity strategy works alongside the new farm to fork strategy and the new common agricultural policy (CAP) to support and achieve the transition to fully sustainable agriculture. The biodiversity and farm to fork strategies have set four important targets for 2030:
- a 50% reduction in the overall use of – and risk from – chemical pesticides;
- a 50% reduction in the use of more hazardous pesticides;
- a 50% reduction in losses of nutrients from fertilisers while ensuring there is no deterioration of soil fertility (which will result in a 20% reduction in the use of fertilisers);
- bring back at least 10% of agricultural area under high-diversity landscape features and increase areas under organic farming to at least 25%.

Agricultural land

Latvia's utilised agricultural area amounts to 1.9 Mha, representing 31% of the total land area. The major outputs of the agricultural industry, excluding services and secondary activities, are cereals (25.3%) and milk (20.7%).[25]

Latvia, with an estimated 14.79% of its agricultural area occupied by organic farming, is above the EU-27 average of 9.07% (2020 data, Eurostat).

Figure 10: Share of total utilised agricultural area occupied by organic farming per Member State, 2020[26]



The Latvian agricultural sector is highly fragmented and farms have lower agricultural income compared to other EU Member States[27]. Rural areas suffer from serious problems created by depopulation, a lack of economic activity and delays in the provision of basic services and infrastructure.

Latvian soil is highly acidic, with a poor phosphorus supply, which creates dependency on external inputs for plant nutrition. There is a tendency towards the deterioration of certain soil quality indicators. For example, the share of conventional tilling is very high (91% of tillable area).

There is an unfavourable trend as regards ammonia emissions from agriculture. As described in the section on clean air, Latvia projects that it will fail to comply with the 2020-2029 emission reduction commitments for ammonia (NH_3).

[25] SWD(2021) 1001.
[26] Eurostat, online data code: SDG_02_40, February 2022. https://ec.europa.eu/eurostat/databrowser/view/sdg_02_40/default/table?lang=en (Eurostat, Area under organic farming, February 2022).
[27] SWD/2020/386.

The Farmland Bird Index in Latvia was at 91.05 in 2019[28], which is above the EU-27 average of 74.64, but this still represents a long-term declining trend.

All permanent semi-natural grasslands have an unfavourable conservation status. For croplands, the number of green infrastructure elements is insufficient in the more intensively farmed areas with large arable land coverage. Nevertheless, [Latvia has the highest percentage of fallow land as a proportion of its total all agricultural area].

The Commission recommendations for Latvia's CAP strategic plan include bolstering environmental care with several actions, such as addressing nutrient management, sustainable crop rotation as well as protection and restoration of peatlands and wetlands.

Soil ecosystem

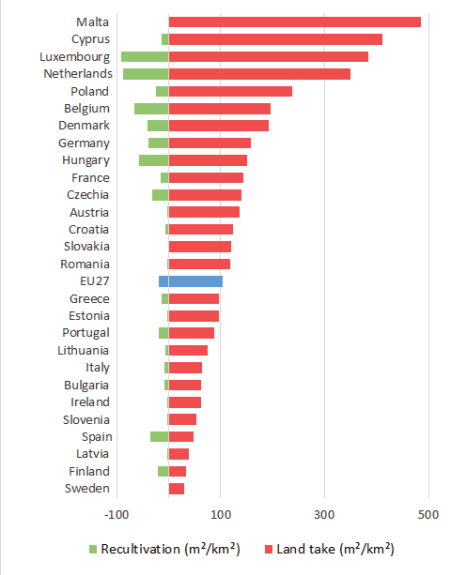
Soil is a finite and extremely fragile resource. It is increasingly degrading in the EU.
The new EU soil strategy, adopted on 17 November 2021, stresses the importance of soil protection, of sustainable soil management and of restoring degraded soils to achieve the Green Deal objectives as well as land degradation neutrality by 2030.
This entails:
(i) preventing further soil degradation;
(ii) making sustainable soil management the new normal;
(iii) taking action for ecosystem restoration.

One factor contributing to degradation is the area of soil that is sealed or atificialised[29]. In Latvia (Figure 11) the land taken per year in the period 2012-2018 can be seen as a measure of one important pressure on nature and biodiversity: land use change. This also constitues an environmental pressure on people living in urbanised areas.

Latvia is one of the three EU countries with the lowest annual rate of land take. It ranks below the EU average, with net land take of 34.4 m2/km2 (EU-27 average: 83.8 m^2/km^2)[30].

In 2018, Latvia updated its reporting on land degradation according to the *Performance Review and Implementation System* PRAIS3 reporting platform[31], with actions intended to combat the degradation identified.

Figure 11: Land take and recultivation in EU-27 (m2/km2), 2012-2018[32]



However, Latvia has not yet committed to setting Land Degradation Neutrality targets under UNCCD[33].

As already stated in the 2019 EIR, soil organic matter plays an important role in the carbon cycle and in climate change. Soils are the second largest carbon sink in the world after the oceans.

Forests and timber

The EU forest strategy for 2030, adopted in July 2021, is part of the Fit for 55 package. The strategy promotes the many services that forests provide. Its key objective is to ensure healthy, diverse and resilient EU forests that contribute significantly to the strengthened biodiversity and climate ambitions. Forests are important carbon sinks and conserving them is vital if the EU is to achieve climate neutrality by 2050.

Of the 27% of EU forest area protected under the Habitats Directive, less than 15% of assessments have favorable conservation status[34]. The proportion of areas

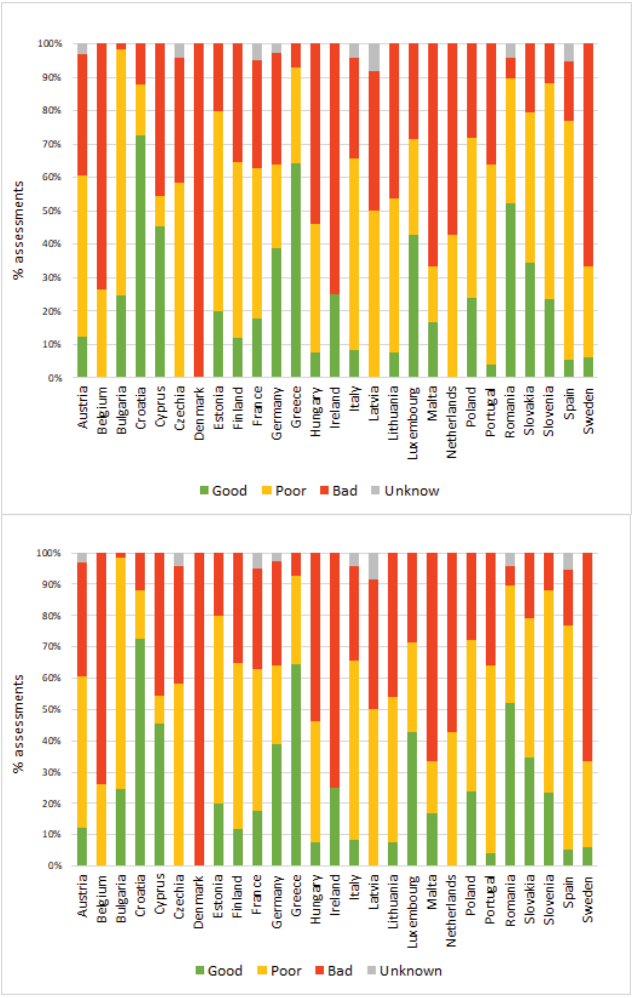
[28] EUROSTAT [env_bio2].
[29] Artificial land cover is defined as the total of roofed built-up areas (including buildings and greenhouses), artificial non built-up areas (including sealed area features, such as yards, farmyards, cemeteries, car parking areas etc. and linear features, such as streets, roads, railways, runways, bridges) and other artificial areas (including bridges and viaducts, mobile homes, solar panels, power plants, electrical substations, pipelines, water sewage plants, and open dump sites).
[30] Land take in Europe — European Environment Agency (europa.eu) fig 6.
[31] Performance Review and Implementation System, All Reports | Prais3 (unccd.int).
[32] European Environment Agency, Land take in Europe, December 2021.
[33] The LDN Target Setting Programme | UNCCD.
[34] EEA, online data code: NRG_TE_BIO last update: 10/02/2022

with bad conservation status increased from 27% to 31% in the EU compared to 2015.

In Latvia, forests cover 54,82% of the territory[35] and more than 90% of the assessments reveal bad to poor status[36]. 17 000 ha in Latvia is covered by primary forest[37].

Latvia is the number one exporter of wood pellets in the EU, with over 2 million tons of pellets exported every year[38]. At the same time, emission absorption from forests is declining and measures to ensure sustainable use of forests are needed to achieve both biodiversity and climate objectives. Sustainable forest management must be understood in the sense of the Helsinki resolution, i.e. the stewardship and use of forests in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.

Figure 12: Conservation status of forests protected under the Habitats Directive in EU Member States, 2013-2018 (% assessments)[39]



In accordance with the European Union Timber Regulation (EUTR)[40], which prohibits the placing on the EU market of illegally harvested timber, EU Member States' competent authorities must conduct regular checks on operators and traders, and apply penalties in case of non-compliance. With the amendment of Article 20 of the EUTR, biennial reporting became annual and covers the calendar year as of 2019.

In the period March 2017 - February 2019[41], Latvia performed five desktop reviews, 29 document reviews on site and five document and product inspections on site for imported timber. It is estimated that Latvia had 135 000 operators placing domestic timber and 400 operators placing imported timber onto the internal market over the reporting period.

[35] EEA, Forest information system for Europe.
[36] SWD (2021) 652
[37] JRC, Mapping and assessment of primary and old-growth forests in Europe, p. 13.
[38] Eurostat, online data code: NRG_TE_BIO, last update: 10/02/2022.
[39] European Environment Agency, Conservation status and trend in conservation status by habitat group - forests, January 2022.
[40] Regulation (EU) No 995/2010.
[41] COM/2020/629 final.

According to the Impact Assessment accompanying the Environmental Crime Directive, illegal logging is a frequent offence in Latvia[42].

The new Deforestation Regulation[43] will repeal and replace the EU Timber Regulation, as it will essentially integrate and improve the existing system to control timber legality.

Invasive alien species

Invasive alien species are a key cause of biodiversity loss in the EU (alongside changes in land and sea use, overexploitation, climate change and pollution). Besides inflicting major damage on nature and the economy, many invasive alien species also facilitate the outbreak and spread of infectious diseases, posing a threat to humans and wildlife.
The implementation of the EU Invasive Alien Species Regulation and other relevant legislation must be stepped up.
The biodiversity strategy for 2030 aims to manage recognised invasive alien species and decrease the number of 'red list' species they threaten by 50%.

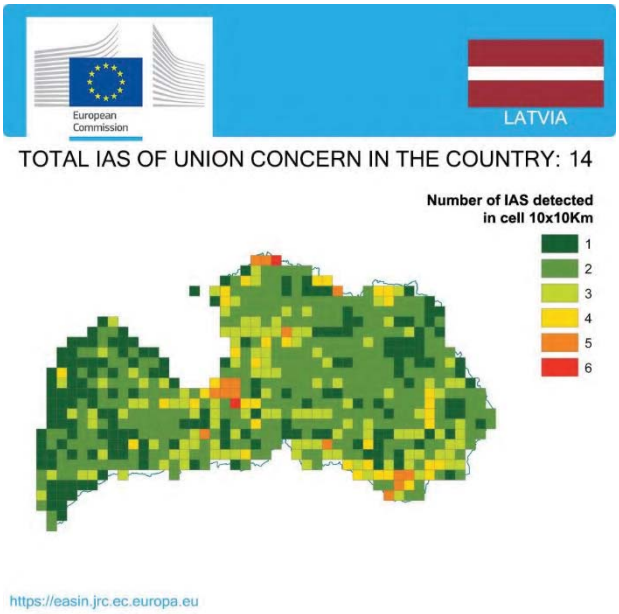
The core of the Regulation on invasive alien species[44] (the IAS Regulation) is the list of invasive alien species (IAS) of Union concern.

The total number of IAS of Union concern is currently 66, of which: 30 are animal species and 36 are plant species; 41 are primarily terrestrial species, 23 are primarily freshwater species, one is a brackish-water species and one is a marine species.

According to a 2021 report[45] on the review of the application of the IAS Regulation, it is already starting to deliver on its objectives, such as a coherent framework for addressing IAS at EU level and increased awareness of the problem of IAS. At the same time, the report identified some challenges and areas for improvement. Given that the deadlines for implementing the various obligations of the IAS Regulation applied gradually between July 2016 and July 2019, it is premature to draw conclusions on several aspects of the implementation of the IAS Regulation.

A 2021 report[46] on the baseline distribution shows that, of the 66 species on the Union list, 14 have been observed in the environment in Latvia. The spread can be observed in Figure 13.

Figure 13: Number of invasive alien species of EU concern, based on available georeferenced information for Latvia, 2021



Latvia has been issued with a letter of formal notice in the context of infringement proceedings against it for having failed to fulfil its obligations under the IAS Regulation.

2022 priority actions

- For all SACs, establish site-specific conservation objectives and measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II of the Habitats Directive.
- Strengthen the integration of biodiversity concerns into other policies (e.g. agriculture, fisheries, forestry, urban and infrastructure planning and sustainable tourism) and the promotion of communication between stakeholders.
- Reduce pressure from the agricultural sector on

[42] SWD(2021) 465 final/2, p.18.
[43] A proposal for the Regulation on the making available on the EU market and export of products associated with deforestation and forest degradation.
[44] Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species.
[45] Report from the Commission to the European Parliament and the Council on the review of the application of Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species, COM(2021) 628 final, 13.10.2021.
[46] Cardoso A.C., Tsiamis K., Deriu I., D' Amico F., Gervasini E., EU Regulation 1143/2014: assessment of invasive alien species of Union concern distribution, Member States reports vs JRC baselines, EUR 30689 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-37420-6, doi:10.2760/11150, JRC123170.

natural resources by cutting ammonia emissions and increasing nutrient use efficiency.

- Improve incentives for foresters and farmers to better protect forest and grassland habitat. Ensure sustainable forest management and efficient use of biomass, restoring forest ecosystems to reach a good conservation status.
- Take the necessary steps to ensure full compliance with the requirements specified in Article 13 of the IAS Regulation.

Marine ecosystems

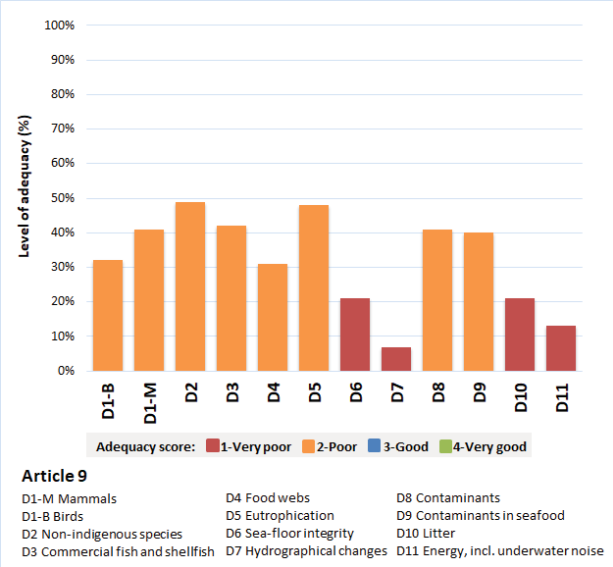
The EU biodiversity strategy for 2030 aims to substantially reduce negative impacts on sensitive species and habitats in marine ecosystems and to achieve good environmental status as well as eliminate or reduce incidental catches of protected, endangered, threatened and sensitive species to a level that allows species recovery and conservation[47].

The Marine Strategy Framework Directive (MSFD)[48] requires Member States to achieve Good Environmental Status (GES) in marine waters. To that end, Member States have to develop marine strategies for their marine waters, and cooperate with Member States sharing the same marine region or subregion. These marine strategies comprise different steps to be developed and implemented over six-year cycles.

Among other obligations, the MSFD requires Member States to define a set of GES characteristics for each descriptor (Article 9), and to provide an initial assessment of their marine waters (Article 8) by 15 October 2018. The Commission then assesses whether this constitutes an appropriate framework to meet the requirements of the Directive.

The Commission assessed Latvia's 2018 determinations of GES for each of the 11 descriptors[49] under the MSFD and determined their level of adequacy in relation to the Commission GES Decision[50]. A good or very good score indicates that the national determinations of GES are well aligned with the requirements of the Commission GES Decision, providing qualitative and quantitative national environmental objectives to be achieved for their marine waters.

Figure 14: Level of adequacy of GES determination by Latvia (BAL region) with criteria set under the Commission GES Decision – Article 9 (2018 reporting exercise)[51]



Latvia has one marine sub-region: BAL-Baltic Sea. In this marine sub-region, 0 out of 11 determinations of GES were assessed as good or very good. The national determination of GES by Latvia is coherent for 0 out of 11 descriptors.

The MSFD also requires that Member States assess the current environmental status of their marine waters in relation to the determination of GES. A good or very good score indicates that a Member State has good capabilities to assess their marine environment in accordance with the requirements set out in the Commission GES Decision.

[47] The EU Common Fisheries Policy (CFP) aims to contribute to the achievement of the objectives of the environmental legislation for marine ecosystems.

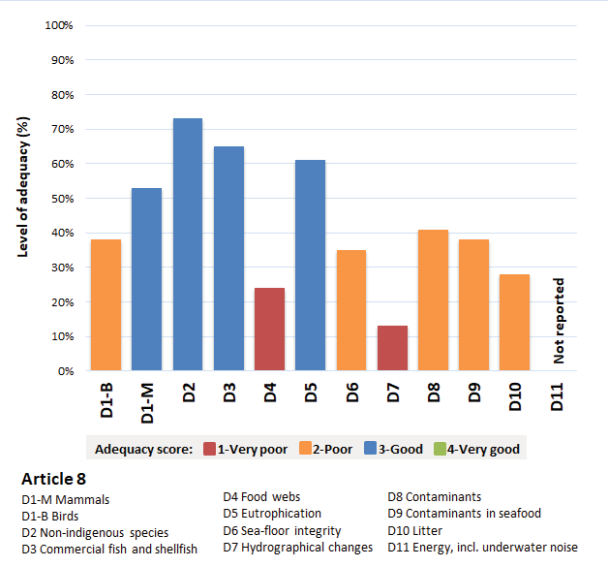
[48] Marine Strategy Framework Directive 2008/56/EC.

[49] Annex I of Directive 2008/56/EC.

[50] Commission Decision (EU) 2017/848 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU.

[51] Assessment carried out by the European Commission of the data reported by the Member States, January 2022. Please note that only two sub-sections of descriptor D1 are displayed (D1-M Mammals and D1-B Birds). For the analysis, these two sub-sections were considered as a whole after averaging.

Figure 15: Level of adequacy of national assessment of Latvia's marine environment (BAL region) with criteria set under the Commission GES Decision – Article 8 (2018 reporting exercise)[52]



Four descriptors out of 11 were scored as good or very good. Latvia's assessment of its marine environment is coherent with requirements under the Commission GES Decision for 4 out of 11 descriptors. Latvia is missing data for D11 – Energy, including underwater noise.

As highlighted in the Commission's report on the implementation of the MSFD[53], while regional cooperation has improved since the adoption of the MSFD, more cooperation is needed to attain full regional coherence of the marine strategies, as required by the Directive. Furthermore, in March 2022, the European Commission published a Communication with recommendations for Member States. The Commission assessment highlights that Member States need to step up their efforts to determine good environmental status and the use of the criteria and methodological standards according to the Commission GES Decision. The above considerations form the basis for the 2022 priority actions.

2022 priority actions

- Ensure regional cooperation with Member States sharing the same marine (sub)region to address predominant pressures.
- Implement the recommendations made by the Commission in the Staff Working Document[54] accompanying the Communication[55] on recommendations per Member State and region on the 2018 updated reports for Articles 8, 9 and 10 of the MSFD.

Ecosystem assessment and accounting

The EU biodiversity strategy for 2030 calls on Member States to better integrate biodiversity considerations into public and business decision making at all levels and to develop natural capital accounting. The EU needs a better performing biodiversity observation network and more consistent reporting on the condition of ecosystems.

Latvia has carried out an ecosystem assessment for its marine waters, including internal marine waters, territorial waters and its Exclusive Economic Zone (EEZ). The assessment was performed in 2016 as one of the steps in the implementation of the ecosystem-based approach as part of the development of the national maritime spatial plan (MSP).

The mapping and assessment of conditions were initially based on conservation status and environmental status data collected under the Habitats Directive and the MSFD.

The mapping and assessment of ecosystem services were carried out in priority for marine ecosystem services.

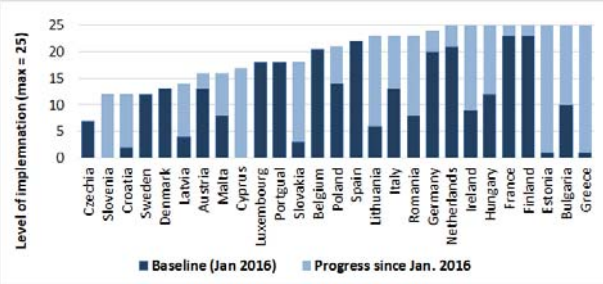
With its ecosystem assessment, Latvia intends to improve its MSP and spatial information on distribution of areas important for the provision of services related to direct sea uses, and the regulation and maintenance of services essential for a resilient marine ecosystem.

Moreover, Latvia is involved in a number of LIFE projects relevant for ecosystem assessment. Latvia will also begin the biophysical mapping of habitats of EU importance (see here for more information).

Latvia has provided updated information and significant progress has been recorded since January 2016 (Figure 16). This assessment is based on 27 implementation questions and updated every six months.

[52] Idem.
[53] COM(2020)259.
[54] SWD(2022)1392.
[55] COM(2022)550.

Figure 16: ESMERALDA MAES Barometer, January 2016 - March 2021[56]



Progress on ecosystem accounting implementation is assessed at national level on the basis of 13 questions (see Figure 16).

Business and biodiversity platforms, networks and communities of practice are key tools for promoting and facilitating natural capital assessments (NCAs) among business and financial service providers, for instance via the Natural Capital Protocol of the Natural Capital Coalition[57]. NCAs help private business to better understand and value their dependency as well as their impact on nature, thereby contributing to the EU biodiversity strategy. At EU level[58] and in a number of the Member States – although not all (and not in Latvia) - such platforms have been established.

Latvia has not signed and ratified the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity.

2022 priority action

- Continue supporting the mapping and assessment of ecosystems and ecosystem services, and ecosystem accounting development, through appropriate indicators for integrating ecosystem extent, condition and services (including some monetary values) into national accounts; continue supporting the development of national business and biodiversity platforms, including natural capital accounting systems to monitor and value the impact of business on biodiversity.

[56] European Commission, Joint Research Centre, Publications Office, EU Ecosystem assessment: summary for policymakers, page 80, May 2021.
[57] Natural Capital Coalition, Natural Capital Protocol.
[58] Business and Biodiversity, The European Business and Biodiversity Campaign aims to promote the business case for biodiversity in the EU Member States through workshops, seminars and a cross-media communication strategy.

3. Zero pollution

Clean air

EU clean air policies and legislation need to significantly improve air quality in the EU, moving the EU closer to the quality recommended by the WHO and curbing emissions of key air pollutants.
Air pollution and its impacts on ecosystems and biodiversity should be further reduced with the long-term aim of not exceeding critical loads and levels. This requires strengthening efforts to reach full compliance with EU clean air legislation and defining strategic targets and actions for 2030 and beyond.
The 2030 zero pollution action plan targets are to reduce the health impacts of air pollution by 55% and to reduce the EU ecosystems threatened by air pollution by 25%.

The EU has developed a comprehensive suite of air quality legislation, which establishes health-based standards[59] and emmission reduction commitments[60] for a number of air pollutants.

Air quality in Latvia is generally good, with exceptions. The latest available annual estimates (for 2019) by the European Environment Agency[61] point to about 1 600 premature deaths (or 17 700 years of life lost (YLL)) attributable to fine particulate matter concentrations[62] and 50 (600 YLL) to ozone concentration[63] [64].

Emissions of key air pollutants have decreased significantly in Latvia in recent years, while GDP growth has continued (see graph). According to its latest projections, as submitted under Article 10(2) of the National Emission reduction Commitments Directive (NECD)[65], Latvia estimates that it will achieve the emission reduction commitments for most air pollutants covered by the Directive for the period 2020 to 2029 and for all pollutants from 2030 onwards. However, in its projections, Latvia does not consider that it will achieve the 2020 to 2029 emission reduction commitments for NH_3. The latest inventory data submitted by Latvia, prior to review by the Commission, indicate that Latvia is in compliance with the emission reduction commitments for NO_x, NMVOC, SO_2 and $PM_{2.5}$, but not in compliance with the emission reduction commitment for NH_3 in 2020.

Latvia submitted its National Air Pollution Control Programme on 16 April 2020.

Figure 17: Emission trends of main pollutants/ GDP in Latvia, 2005-2019[66]

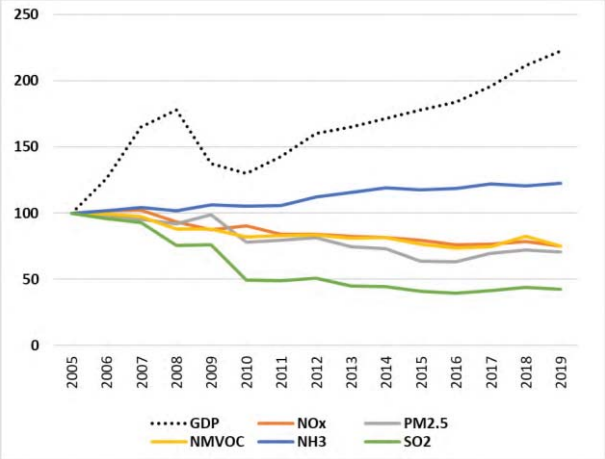
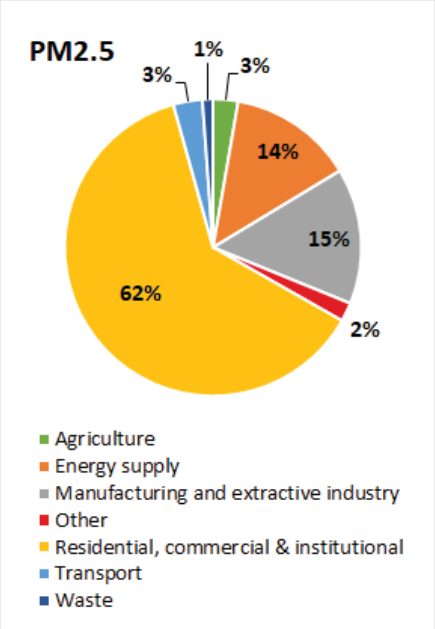
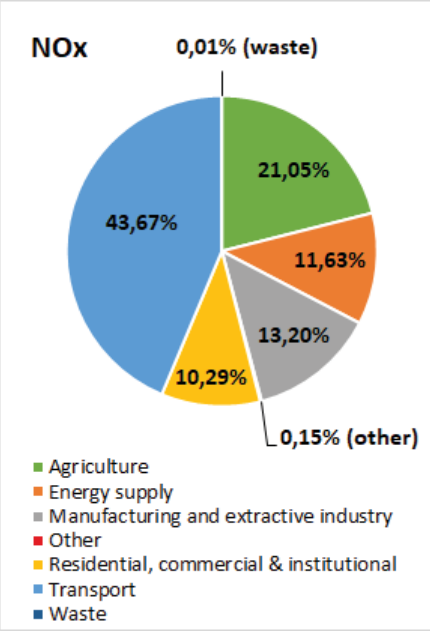


Figure 18: PM2.5 and NOx emissions by sector in Latvia, 2019[67]

[59] European Commission, 2016. Air Quality Standards.
[60] European Commission, Reduction of National Emissions.
[61] European Environment Agency, Air Quality in Europe –2021 Report. Please see details in this report as regards the underpinning methodology, p.106.
[62] Particulate matter (PM) is a mixture of aerosol particles (solid and liquid) covering a wide range of sizes and chemical compositions. PM10 (PM2.5) refers to particles with a diameter of 10 (2.5) micrometres or less. PM is emitted from many human sources, including combustion.
[63] Low-level ozone is produced by photochemical action on pollution.
[64] Please note that these figures refer to the impacts of individual pollutants and, to avoid double-counting, cannot be added together.
[65] Directive 2016/2284/EU.
[66] European Environment Agency.
[67] European Environment Agency.





For the year 2020, no exceedances above the limit values established by the Ambient Air Quality Directive (AAQD) were registered[68].

Latvia has not yet ratified the Heavy Metals Protocol and POPs Protocol under the UNECE Air Convention.

In the 2019 EIR the Commission suggested that Latvia take actions towards reducing emissions from the main sources, in the context of the National Air Pollution Control Programme (NAPCP). As indicated above, some progress has been made in reducing the concentration of key pollutants. However, additional efforts are needed to ensure full implementation of EU air quality legislation. According to the latest air pollutant emission projections, additional measures would have to be taken to attain the necessary emission reductions to reach NECD emission reduction commitments.

2022 priority actions

- Take action towards reducing emissions from the main sources mentioned above, in the context of the NAPCP.
- Ensure full compliance with EU air quality standards and maintain downward emissions trends of air pollutants, to reduce adverse air pollution impacts on health and the economy with a view to reaching WHO guideline values in the future.
- Latvia is strongly encouraged to accelerate ratification of the Heavy Metals Protocol and POPs Protocol under the UNECE Air Convention.

Industrial emissions

The main objective of EU policy on industrial emissions is to:
(i) protect air, water and soil;
(ii) prevent and manage waste;
(iii) improve energy and resource efficiency;
(iv) clean up contaminated sites.
To achieve this, the EU takes an integrated approach to the prevention and control of routine and accidental industrial emissions. The cornerstone of the policy is the Industrial Emissions Directive[69] (IED).
As announced in the European Green Deal, the Commission carried out an impact assessment for the revision of the IED in 2021 with a view to tabling a proposal in early 2022[70]. The revision seeks to improve the directive's contribution to the zero pollution objective, as well as its consistency with climate, energy and circular economy policies.

[68] European Environment Agency, Eionet Central Data Repository.

[69] Directive 2010/75/EU covers industrial activities carried out above certain thresholds. It covers energy industry, metal production, mineral and chemical industry and waste management, as well as a wide range of industrial and agricultural sectors (e.g. intensive rearing of pigs and poultry, pulp and paper production, painting and cleaning).

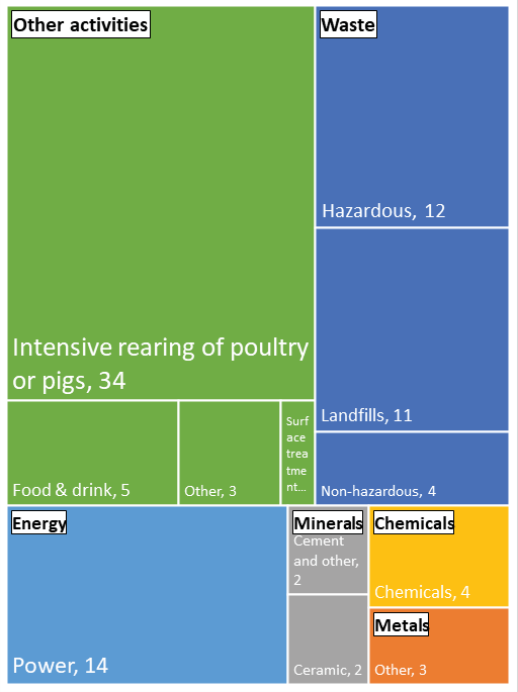
[70] The revision of the IED is performed in parallel to the revision of Regulation (EC) No 166/2006 on the European Pollutant Release and Transfer Register (E-PRTR).

The below overview of industrial activities regulated by the IED is based on data reported to the EU Registry (2018)[71].

In Latvia, around 100 industrial installations are required to have a permit based on the IED. The distribution of installations is shown in the figure below.

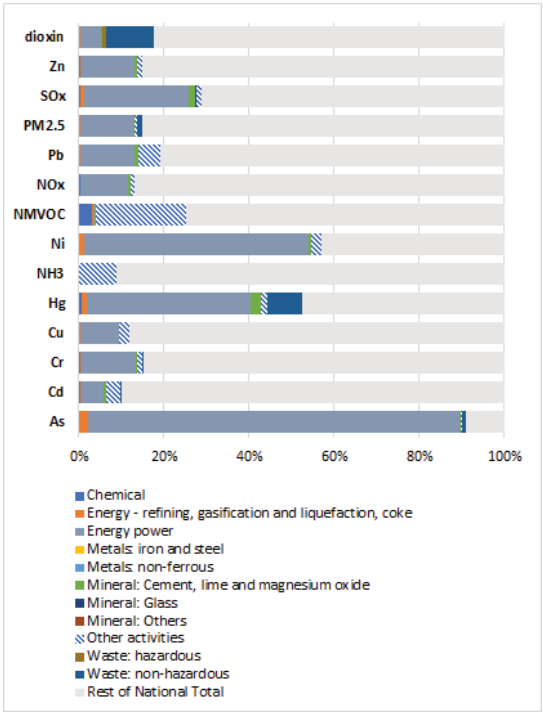
The industrial sectors in Latvia with the most IED installations in 2018 were intensive rearing of poultry and pigs (35%), followed by the waste management sector, including landfills (29%) and the energy sector (15%).

Figure 19: Number of IED industrial installations per sector in Latvia, 2018[72]



The industrial sectors identified as placing the largest burden on the environment in terms of **emissions to air** were the energy sector for Sulphur Oxides (SOx), Nitrogen Oxides (NOx), Particulate Matter (PM 2.5) and heavy metals such as Lead (Pb), Nickel (Ni), Arsenic (As) and Mercury (Hg); the waste management sector for Dioxin and Mercury (Hg); and other activities for Non Methane Volatile Organic Compounds (NMVOCs). The breakdown is shown in the following graph.

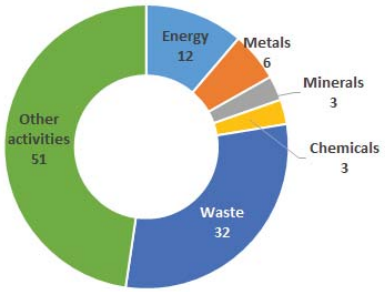
Figure 20: Emissions to air from IED sectors and rest of national total air emissions in Latvia, 2018[73]



The EU approach taken to enforcement under the IED creates strong rights for citizens to have access to relevant information and to participate in the permitting process. This empowers citizens and NGOs to ensure that permits are appropriately granted and their conditions respected. As part of environmental inspection, competent authorities undertake site visits to IED installations to take samples and to gather necessary information. According to Article 23(4) of the IED, site visits are carried out between once every year and once every three years, depending on the environmental risks posed by the installations. In 2018 Latvia undertook 107 site visits, the majority of which were to installations for the intensive rearing of poultry and pigs (36%), the waste management sector, including landfills (30%) and the energy sector (11%).

[71] European Environment Agency, European Industrial Emissions Portal.
[72] European Environment Agency, EU Registry, European Industrial Emissions Portal (data retrieved on 3 November 2021).
[73] European Environment Agency, LRTAP, Air pollutant emissions data viewer (Gothenburg Protocol, LRTAP Convention) 1990-2019 (data retrieved on 3 November 2021).

Figure 21: Number of inspections in IED installations in 2018 (EU Registry, 2018)



The development of Best Available Techniques (BAT) Reference Documents (BREFs) and BAT conclusions ensures good collaboration with stakeholders and enables better implementation of the IED[74]. Since the last EIR report, BAT Conclusions were adopted for Waste Incineration, for the Food, Drink and Milk Industries and for Surface Treatment Using Organic Solvents including Wood and Wood Products Preservation with Chemicals. The Commission relies on the efforts of national competent authorities to implement the legally binding BAT conclusions and associated BAT emission levels in environmental permits, resulting in the considerable and continuous reduction of pollution.

In 2019, Latvia's priority actions were to review permits and to strengthen control and enforcement to ensure compliance with newly adopted BAT conclusions. Latvia's priority actions also included addressing pollution in the form of odour from the intensive rearing of poultry and pigs and air pollution from waste incineration, which were identified as challenges by Latvia. Emissions from these sectors no longer appear to be so high, and need to be addressed through the implementation of the BAT conclusions for intensive rearing of poultry or pigs and for waste incineration, to be put in place by February 2021 and December 2023, respectively.

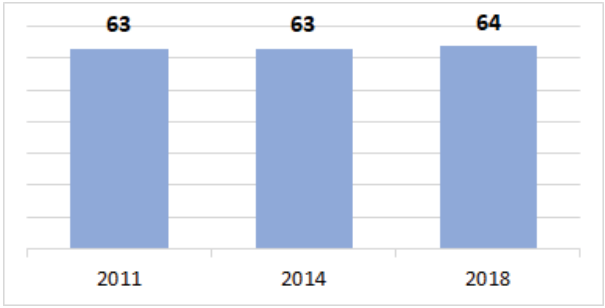
Major industrial accidents prevention – SEVESO

The main objectives of EU policy on the prevention of major industrial accidents are to:
(i) control major accident hazards involving dangerous substances, especially chemicals;
(ii) limit the consequences of such accidents for human health and the environment;
(iii) continuously improve prevention, preparedness and response to major accidents.
The cornerstone of the policy is Directive 2012/18/EU (the Seveso-III Directive)[75].

The below overview of industrial plants regulated by the Seveso-III Directive (Seveso establishments), is based on data reported to the eSPIRS database (2018)[76] and the Latvia report on the implementation of the Seveso-III Directive for the period 2015-2018[77].

In Latvia, of the 64 Seveso establishments, 35 are categorised as lower-tier establishments (LTEs) and 29 as upper-tier establishments (UTEs), on the basis of the quantity of hazardous substances likely to be present. UTEs are subject to more stringent requirements. The evolution of the number of Seveso establishments is presented in Figure 22.

Figure 22: Number of Seveso establishments in Latvia, 2011, 2014 and 2018[78]



According to Latvia, the external emergency plan (EEP) is required for 29 UTEs. In 2018, 29 UTEs had an EEP and 29 of these EEPs had been tested over the last three years. The summary is shown in Figure 23. The establishment of EEPs is essential to allow proper preparation and effective implementation of the necessary actions to protect the environment and the population should a major industrial accident nevertheless happen.

[74] European Commission BAT reference documents.

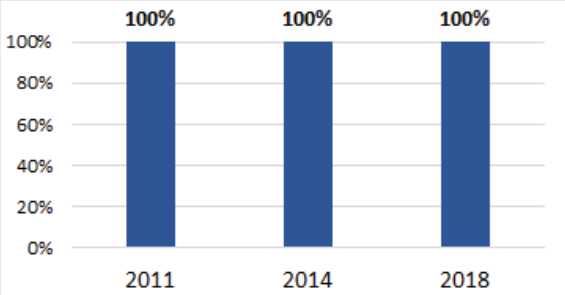
[75] Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.

[76] European Commission, Seveso Plants Information Retrieval System.

[77] As provided for by Article 21(2) of the Seveso-III Directive.

[78] European Commission, Assessment and summary of Member States' implementation reports for Implementing Decision 2014/896/EU (Implementing Directive 2012/18/EU on the control of major accident hazards involving dangerous substances), 2022.

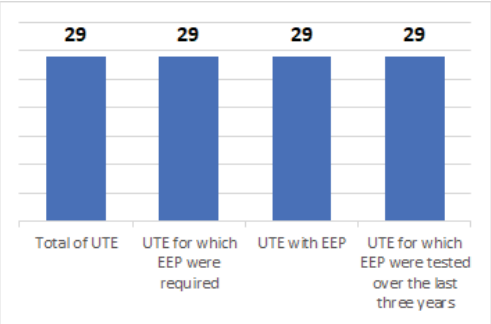
Figure 23: Situation regarding EEP in Latvia, 2018[79]



The information available to the public, referred to in Annex V of the Seveso-III Directive, especially about how: (i) the public concerned will be warned in case of a major accident, (ii) the appropriate behaviour in the event of a major accident and (iii) the date of the last site visit, are permanently available for 92% of the Seveso establishments in Latvia.

The share of UTEs for which information on safety measures and requisite behaviours were actively made available to the public in recent years are presented in Figure 24.

Figure 24: Share of UTE for which information on safety measures and requisite behaviours were actively made available to the public in Latvia, 2011, 2014 and 2018[80]



Latvia is subject to an infringement procedure with regard to the transposition of the Seveso III Directive, as the categorisation of the establishments has been incorrectly reflected in national law.

2022 priority actions

- Strengthen control and enforcement to ensure compliance with Seveso-III Directive provisions, especially on provision of information to the public.

[79] Idem.
[80] Idem.

Noise

The Environmental Noise Directive provides for a common approach to avoid, prevent and reduce the harmful effects of exposure to environmental noise although it does not set noise limits as such. Its main instruments in this respect are noise mapping and planning. A key target under the 2030 zero pollution action plan is to reduce by 30% the share of people disturbed by transport noise.

Excessive noise from aircraft, railways and roads is one of the main causes of environmental health-related issues in the EU. It produces ischemic heart disease, stroke, interrupted sleep, cognitive impairment and stress[81].

In Latvia, based on a limited set of data[82], environmental noise is estimated to cause at least 150 premature deaths and 350 cases of ischaemic heart disease annually[83]. Moreover, some 30 000 people suffer from disturbed sleep. In Latvia, the numbers of people exposed to noise decreased by 1% between 2012 and 2017. On the basis of the latest full set of information that has been analysed, noise mapping of agglomerations, roads and railways is complete.

Water quality and management

EU legislation and policy requires that the impact of pressures on transitional, coastal and fresh waters (including surface and ground waters) be significantly reduced. Achieving, maintaining or enhancing a good status of water bodies as defined by the Water Framework Directive will ensure that EU citizens benefit from good quality and safe drinking and bathing water. It will further ensure that the nutrient cycle (nitrogen and phosphorus) is managed in a more sustainable and resource-efficient way.

[81] WHO 2018, Environmental Noise Guidelines for the European Region.
[82] For further information: European Environment Agency, Noise Fact Sheets 2021.
[83] These figures are an estimate by the European Environmental Agency based on: (i) the data reported by Member States on noise exposure covered by Directive 2002/49/EC; (ii) ETC/ATNI, 2021, Noise indicators under the Environmental Noise Directive 2021: : Methodology for estimating missing data, ETC/ATNI Report No 2021/06, European Topic Centre on Air Pollution, Transport, Noise and Industrial Pollution; (iii) the methodology for health impact calculations, ETC/ACM, 2018, Implications of environmental noise on health and wellbeing in Europe, Eionet Report ETC/ACM No 2018/10, European Topic Centre on Air Pollution and Climate Change Mitigation.

Water Framework Directive

The Water Framework Directive (WFD)[84] is the cornerstone of EU water policy in the 21st century[85]. The WFD, along with other water-related legislation[86], provides a framework for sustainable and integrated water management and aims to ensure a high level of protection of water resources, the prevention of further deterioration and restoration to good status.

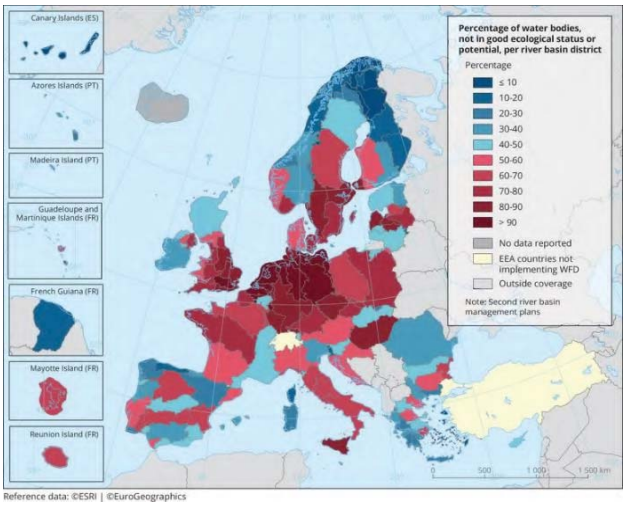
By March 2022, Member States have to report on the third generation of River Basin Management Plans (RBMPs) under the WFD. Latvia recently adopted and reported on the third RBMP. The Commission will assess the reported status and progress, checking the extent to which the findings identified in the assessment of the second RBMP[87] have been addressed.

The Commission published the 6th Implementation Report[88] in December 2021. It includes an interim assessment of progress on implementation of the Programmes of Measures (PoM) and on monitoring of the new priority substances. The assessment report for Latvia[89] showed that the rate of implementation of supplementary measures at the level of water bodies included in the PoM, till the end of 2018, had been estimated as 36.0% for the Daugava River Basin District (RBD), 24.5% for the Gauja RBD, 50.1% for the Lielupe RBD and 31.0% for the Venta RBD. However, it is noted that it was not possible to understand whether there were any implementation gaps as regards the implementation status of basic measures, given the brief information reported.

Based on the second RBMP reports and data published in 2020[90], in Latvia 21.1% of all surface water bodies[91] achieve good ecological status and only 10.6% have good chemical status (with 84.7% unknown). For groundwater, 100% achieves both good chemical and quantitative status.

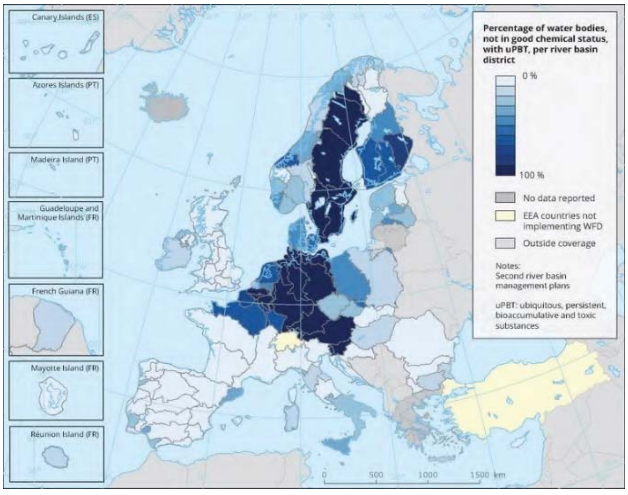
The figure below illustrates the proportion of surface water bodies in Latvia and other European countries that failed to achieve good ecological status.

Figure 25: Proportion of surface water bodies (rivers, lakes, transitional and coastal waters) with less than good ecological status per River Basin District[92]



The following figure presents the percentage of water bodies in Latvia and other European countries failing to achieve good chemical status. For Latvia the percentage is 4.7%, if water bodies failing due to substances behaving as ubiquitous PBTs (Persistent, Bio-accumulative, Toxic) are included. Without uPBTs, 3% of surface water bodies are failing to achieve good chemical status.

Figure 26: Percentage of water bodies not achieving good chemical status[93]

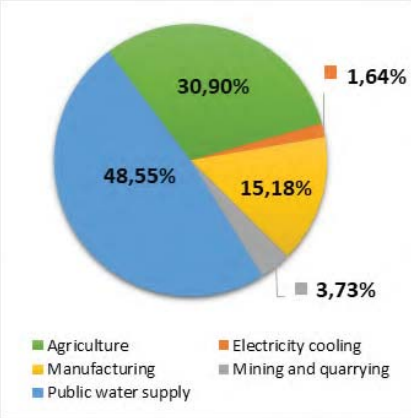


[84] The Water Framework Directive (2000/60/EC).
[85] The EU Water Policy.
[86] This includes the Groundwater Directive (2006/118/EC), the Environmental Quality Standards Directive (2008/105/EC), the Floods Directive (2007/60/EC), the Bathing Water Directive (2006/7/EC), the Urban Waste Water Treatment Directive (91/271/EEC), the new Drinking Water Directive (2020/2184/EC), the Nitrates Directive (91/676/EEC), the Marine Strategy Framework Directive (2008/56/EC), the Industrial Emissions Directive (2010/75/EU), and the new Regulation on minimum requirements for water reuse (2020/741).
[87] Detailed information can be found in the 5th Report from the Commission on the implementation of the Water Framework Directive and the Floods Directive, as well as in the 2019 EIR.
[88] See the 6th Implementation Report of the WFD and FD.
[89] European Commission, Directorate-General for Environment, Assessment of Member States' progress in Programmes of Measures during the second planning cycle of the Water Framework Directive. Member State: Latvia, 2022.
[90] WISE Freshwater (europa.eu).
[91] River, lake, transitional, coastal, territorial.
[92] European Environment Agency, 2021.
[93] European Environment Agency, December 2019.

Under the IED framework, it should be stressed that Latvia showed a significant decrease over the last decade (15.9%) in releases of heavy metals like Cd, Hg, Ni, Pb and in Total Organic Carbon, TOC (38%) into water[94].

Total water abstracted annually (corresponding to 2019 baseline) in Latvia from surface and groundwater sources is 180.73 hm^3 (EEA, 2022). The percentage for water abstraction per sector is 30.90% for agriculture, 48.55% for public water supply, 1.64% for electricity cooling, 15.18% for manufacturing and 3,73% for mining and quarrying, as illustrated in the following figure. Latvia uses a register to record permits for water abstraction. The register of water use permits is publicly available. Small-scale abstractions of less than 10m^3 per day or water supplied to fewer than 50 people are exempt, and hence do not require permits and are not registered.

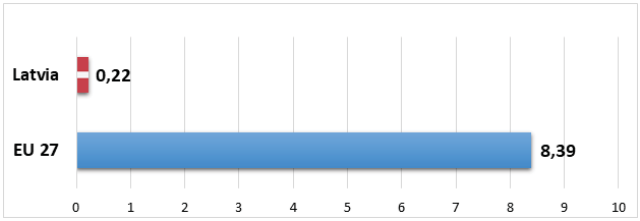
Figure 27: Water abstraction per sector in Latvia[95]



In Latvia, the water exploitation index plus[96] is 0.22% (corresponding to 2017), which is much less than the 20% that is generally considered as an indication of water scarcity[97].

The bar below presents the WEI+ in Latvia and other European countries. Latvia is ranked 26th in the EU (from high to low score) in terms of WEI+.

Figure 28 : Water exploitation index plus (WEI+) inside EU, 2017[98]



It can be highlighted as a good practice that Latvia implements the LIFE GoodWater integrated project (IP) 'Implementation of Latvian RBMPs towards good surface water status'. The overall aim of the LIFE GoodWater IP is to improve the status of water bodies at risk in Latvia by means of full implementation of the measures laid down in the Daugava, Gauja, Lielupe and Venta RBMPs[99]. Another good example is LIFE MarshMeadows project[100] which alongside other goals aims to restorate hydrological regime on 160 ha that would lead to favourable conditions for conservation and management of habitats and species.

Floods Directive

As mentioned, the Commission published the 6th Implementation Report in December 2021. It includes the review and update of the Preliminary Flood Risk Assessments during the second cycle (2016-2021).

The assessment report[101] showed that Latvia has developed a methodology for the assessment of adverse impacts from floods which includes a quantitative evaluation of the costs of the impacts of past floods. It is also worth mentioning that the methodology for the identification of the potential adverse consequences of future floods includes a social index to express the risk to social groups. However, the assessment identified that the extent, conveyance routes and adverse impact of past floods should be considered in more detail, and that long term developments (e.g. the impact of urbanisation) should also be considered in the Preliminary Flood Risk Assessment (PFRA).

Latvia has reported the second generation of Flood Risk Management Plans (FRMPs) under the Floods Directive. The European Commission will assess progress since the

[94] European Environment Agency, June 2021.
[95] European Environment Agency, Water abstraction by source and economic sector in Europe, 2022.
[96] The Water Exploitation Index plus (WEI+) is a measure of total fresh water use as a percentage of the renewable fresh water resources (groundwater and surface water) at a given time and place. It quantifies how much water is abstracted and how much water is returned after use to the environment.
[97] By May 2022, the EEA will develop seasonal WEI+ at river basin and NUTS2 level, which provide a more complete picture of water stress and water scarcity for each Member State.
[98] European Environment Agency, Water exploitation Index Plus, 2022.
[99] https://goodwater.lv/en/home/
[100] The LIFE MarshMeadows project.
[101] European Commission, Directorate-General for Environment, Assessment of Second Cycle Preliminary Flood Risk Assessments and Identification of Areas of Potential Significant Flood Risk under the Floods Directive : Member State : Latvia, 2022.

adoption of the first Flood Risk Management Plans and publish a new report, as done in 2019.

Drinking Water Directive

As regards the Drinking Water Directive, no new assessment of the quality of Drinking Water has been made available since the 2019 EIR. The quality of drinking water in Latvia has not been indicated as an area of concern.

The recast Directive entered into force on 12 January 2021 and Member States have until 12 January 2023 to transpose it into their national legal system. Latvia will have to comply with these reviewed quality standards.

Bathing Water Directive

Regarding the Bathing Water Directive, it should be noted that in 2020, of the 57 Latvian bathing waters, 68.4% were of excellent quality[102].

Detailed information on Latvian bathing waters is available from a national portal[103] and via an interactive map viewer of the European Environment Agency[104].

Figure 29: Bathing water quality in Europe in the 2020 season[105]

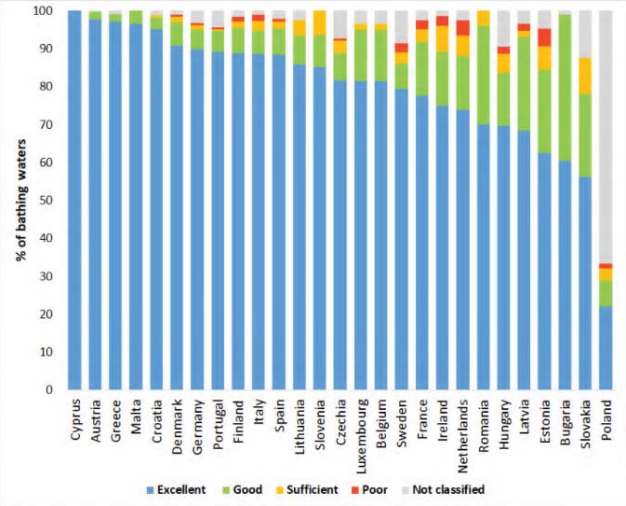
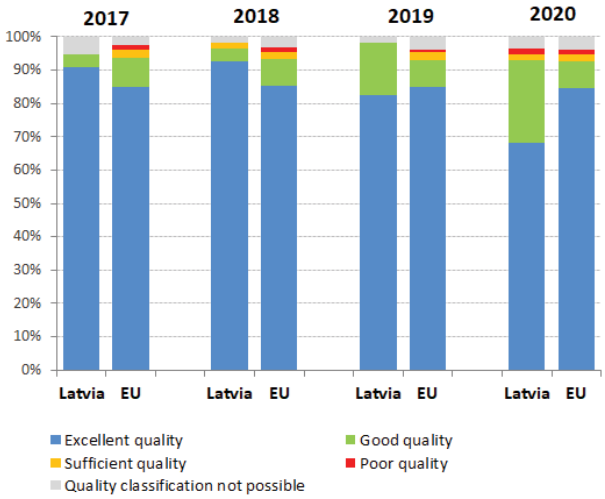


Figure 30: Latvia, Bathing water quality 2017-2020[106]



**For 2017, 2018 and 2019, data about the UK bathing waters are included under the EU average.*

Nitrates Directive

The latest Commission Report on the implementation of the Nitrates Directive[107], referring to the period 2016-2019[108], warns that nitrates are still causing harmful pollution to water in the EU. Excessive nitrates in water are harmful to both human health and ecosystems, causing oxygen depletion and eutrophication. Where national authorities and farmers have cleaned up water, it has had a positive impact on the drinking water supply and biodiversity, and on the sectors such as fisheries and tourism that depend on them. Nevertheless, excessive fertilisation remains a problem in many parts of the EU.

In Latvia, the surpluses of nitrogen and phosphorus are low and there is a well developed network of monitoring stations. However, Latvia is among the Member States facing the greatest challenges in tackling nutrient pollution from agriculture. A very high number of the surface waters are found to be eutrophic. Eutrophication is affecting both inland and marine waters. A high number of the surface waters found to be eutrophic are located not only in the nitrate vulnerable zone, but also outside it. While most of Latvia's lakes (64%) are eutrophic, 67% of rivers show no signs of eutrophication. This can be explained by the fact that the majority of Latvian lakes are shallow and are therefore prone to eutrophication. Latvia updated its action programme in 2018.

[102] European Environment Agency, 2021. State of bathing water — European Environment Agency (europa.eu) , p. 17.
[103] https://www.vi.gov.lv/lv/peldudens
[104] EEA, State of bathing waters in 2020 — European Environment Agency (europa.eu).
[105] European Environment Agency, Bathing Water Quality in 2020, 2022.
[106] European Environment Agency, European Bathing Water Quality in 2017, 2018, 2019, 2020.
[107] Implementation of the Nitrates Directive in the EU.
[108] Last Implementation Report 2016-2019.

Urban Waste Water Treatment Directive

Overall, in Latvia, the rate of compliance with the Urban Waste Water Treatment Directive (UWWTD) is 99%, which is higher than the EU average for 2018. Latvia has met the targets for collection of urban waste water and biological treatment of urban waste water. Further efforts are needed to provide biological treatment with nitrogen and phosphorus removal to an additional 0.01 million population equivalent (p.e.) of urban waste water (0.8%).

According to a Commission report[109], in line with the UWWTD, in urban areas Latvia is required to provide:

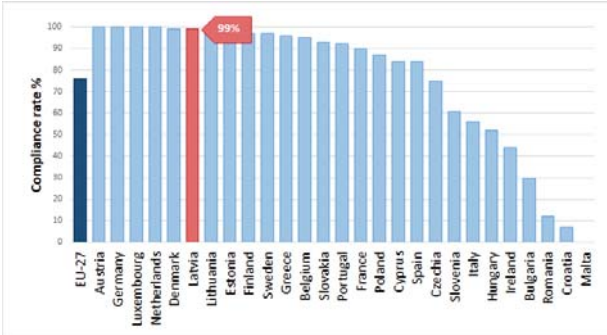
- Collection of 1.5 million p.e. of wastewater.
- Biological treatment to 1.4 million p.e. of wastewater.
- Biological treatment with nitrogen removal to 1.3 million p.e. of wastewater.

For 0.1 million p.e. of urban waste water, Latvia applies individual systems (e.g. domestic treatment plants; septic tanks), instead of centralised collecting systems and treatment plants. These alternatives are allowed under the legislation, as long as the environment is adequately protected. This is why the amount of urban waste water that needs biological treatment (1.4 million p.e.) is lower than the collected urban waste water (1.5 million p.e).

To promote efficient use of sewage sludge, Latvia is currently working on a national sewage sludge management strategy, to be adopted in 2022.

Urban waste water pollution affects 22% (103) of surface water bodies in Latvia. Discharges from unconnected dwellings affect 7% (32) of water bodies[110]. Discharges from storm water overflows are not reported as significant pressures.

Figure 31: Proportion of urban waste water that meets all requirements of the UWWTD (collection, biological treatment, biological treatment with nitrogen and/or phosphorus removal) in compliant urban areas of the UWWTD ('compliance rate')[111]



Despite the improvement in compliance over the years, for which the use of EU funding has been fundamental, incomplete implementation of the UWWTD has resulted in an infringement procedure against Latvia that was initiated in 2017, and is still pending, for reliance on individual and other appropriate systems (IAS), such as septic tanks, as well as a lack of appropriate treatment of urban wastewater entering collecting systems in one agglomeration (Olaine). The Commission has since monitored the case closely and progress has been made to remedy the identified shortcomings. Latvia has adopted legislation to address IAS issues. As for the Olaine treatment plant, Latvia launched reconstruction works of the plant in 2020. Wastewater treatment there has now been compliant with the UWWTD since mid-2021.

2022 priority actions

- Assess new physical modifications of water bodies in line with Article 4(7) of the WFD. In these assessments alternative options and adequate mitigation measures have to be considered.
- Facilitate implementation of measures to contribute to achieving the WFD objectives and step up efforts to improve monitoring, in particular on groundwater.
- Improve coordinated implementation between water, marine and nature policies.
- Complete implementation of the Urban Waste Water Treatment Directive for all agglomerations, by building up the necessary infrastructure.
- Revise nitrate vulnerable zones under the Nitrates Directive to address eutrophication of surface waters where agriculture pressure is significant.

[109] Country profiles on urban waste water treatment (europa.eu).
[110] EEA – Surface water bodies: Significant pressures – Pressures and impacts / filter by country / NUTS0 Pressure type group 2018.
[111] European Commission, WISE Freshwater, 2021.

Chemicals

The EU seeks to ensure that chemicals are produced and used in a way that minimises any significant adverse effects on human health and the environment. In October 2020, the European Commission published its chemicals strategy for sustainability – 'Towards a Toxic-Free environment'[112] which lead to some systemic changes in EU chemicals legislation. The strategy is part of the EU's zero pollution ambition – a key commitment of the European Green Deal.

The EU's chemicals legislation[113] provides baseline protection for human health and the environment. It also ensures stability and predictability for businesses operating within the internal market.

The Commission has gathered information on the enforcement of REACH and CLP since 2007. In December 2020, the Commission assessed the Member State reports on the implementation and enforcement of these Regulations[114], in line with REACH Article 117(1) and CLP Article 46(2). According to the latest available data, national enforcement structures have not changed much. However, it is apparent from this report that there are still many disparities in REACH-CLP implementation and notably in the area of law enforcement. Recorded compliance levels seem to have been quite stable over time, but with a slight worsening trend, likely due to enforcement authorities becoming more effective in detecting non-compliant products/companies and more non-compliant products being put on the EU market. In August 2021, the Commission published a measurable assessment of enforcement[115] of the two main EU regulations on chemicals, using a set of indicators on different aspects of enforcement.

Responsibility for checking compliance with REACH in Latvia lies with the following authorities[116]:

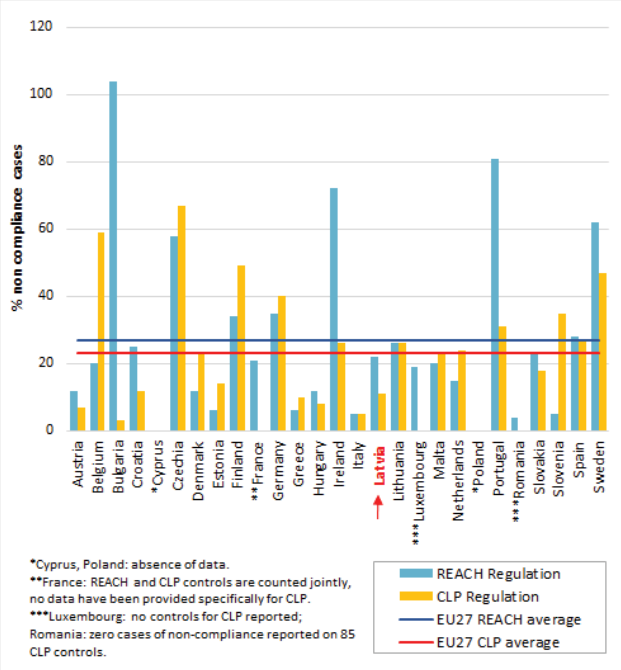
- Health Inspectorate
- State Environmental Service
- Consumer Rights Protection Centre
- State Labour Inspectorate

Latvia has not yet devised REACH and CLP enforcement strategies[117], but has plans to do so in 2022.

As a rule, all infringements of REACH are classed as serious or very serious environmental administrative offences. If the infringement is sufficiently serious, the competent authority may decide to impose further penalties in addition to a fine. That authority may also, where necessary, order the provisional seizure of assets and documents.

In Latvia, 18 inspectors are allocated to REACH and CLP enforcement[118]. Accordingly, almost 2 000 REACH and CLP controls were carried out in the reporting period (2019). Most of the REACH controls effected are proactive (inspections), compared with reactive/non-routine controls (i.e. investigations in response to complaints, accidents and referrals). The low percentage of non-compliance cases out of the total number of controls should be underlined[119].

Figure 32: Percentage % of non-compliance cases out of the total number of REACH and CLP controls during 2019 per Member State and compared to the EU average[120]



2022 priority actions

- Upgrade the implementation and enforcement administrative capacities to a zero tolerance approach to non-compliance.
- Devise and implement strategies for the enforcement

[112] COM(2020) 667 final.
[113] REACH: OJ L 396, 30.12.2006, p.1. - CLP: OJ L 252, 31.12.2006, p.1.
[114] European Commission, Final Report, on the operation of REACH and CLP, Final report_REACH-CLP MS reporting_2020.pdf (europa.eu).
[115] European Commission, REACH and CLP enforcement: EU level enforcement indicators.
[116] Final report_REACH-CLP MS reporting_2020.pdf (europa.eu), p. 70.
[117] Final report_REACH-CLP MS reporting_2020.pdf (europa.eu), p. 76.
[118] European Commission, Final Report on the operation of REACH and CLP, Final report_REACH-CLP MS reporting_2020.pdf (europa.eu), p. 75.
[119] Final report_REACH-CLP MS reporting_2020.pdf (europa.eu), p. 87-88.
[120] European Commission, Final Report on the operation of REACH and CLP, pp.87-88, 2022.

of REACH and CLP regulations.

4. Climate action

In line with the Paris Agreement and as part of the European Green Deal, the European Climate Law sets the EU target of reaching climate neutrality by 2050 and reducing greenhouse gas (GHG) emissions by 55% by 2030 compared to 1990. The law also limits the contribution that carbon removals can make towards emission reductions in 2030, to ensure a sufficient mitigation effort.
The EU and its Member States submitted updated Nationally Determined Contribution (NDC) to the UNFCCC in December 2020.
The EU is working across all sectors and policies to cut GHG emissions and make the transition to a climate-neutral and sustainable economy, as well as addressing the unavoidable consequences of climate change.
EU climate legislation incentivises emissions reductions from power generation, industry, transport, the maritime sector and fluorinated gases (F-gases) used in products.
For road transport, EU legislation requires the GHG intensity of vehicle fuels to be cut by 6% by 2020 compared to 2010[121] and sets binding GHG emission standards for different vehicle categories[122].
Under the F-gas Regulation, the EU's F-gas emissions will be cut by two-thirds by 2030 compared with 2014 levels.
From 2021, emissions and removals of GHG from LULUCF have been included in the EU emission reduction efforts.

The EU adaptation policy is an integral part of the European Green Deal.
From 2021, Member States are required to report on their national adaptation policies[123], as the EU Climate Law recognises adaptation as a key component of the long-term global response to climate change. Member States will be required to adopt national strategies, and the EU will regularly assess progress as part of its overall governance on climate action. The updated EU adaptation strategy, published in February 2021, sets out how the EU can adapt to the unavoidable impacts of climate change and become climate resilient by 2050.

Key national climate policies and strategies

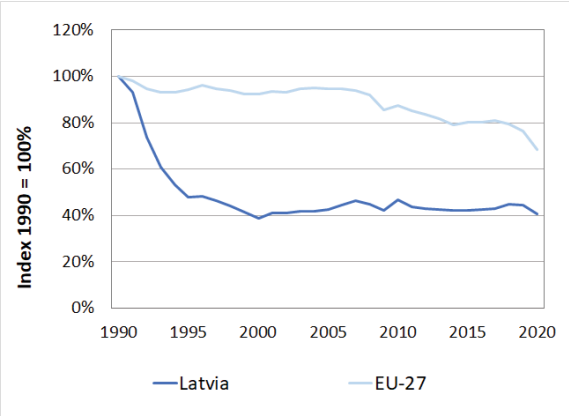
Latvia has an integrated national energy and climate plan (NECP) for the period 2021-2030. Latvia's strategy for the achievement of climate neutrality by 2050 has also been developed and approved by the Cabinet of Ministers. The main national objective is to become climate neutral by 2050.

In its RRP, Latvia allocates 37.6% of spending to climate objectives and outlines crucial reforms and investments to further the transition to a more sustainable, low-carbon and climate-resilient economy. Investments are allocated to sustainable transport, energy efficiency, renewable energy, modernisation of the grid network and climate adaptation measures.

The Latvian national plan for adaptation to climate change until 2030 was adopted in 2018. It is a long-term strategic document involving the horizontal integration of climate resilience goals into all sectors of the Latvian economy. Periodic progress evaluations are carried out.

Between 1990 and 2020, GHG emissions decreased by 59%, significantly more than the EU average.

Figure 33: Total greenhouse gas emissions (incl. international aviation) in Latvia 1990-2020



[121] The Fuel Quality Directive (Directive 98/70/EC) sets strict quality requirements for fuels used in road transport in the EU to protect human health and the environment, and to make road travel across the EU safer.
[122] Directive 98/70/EC.
[123] Article 29 of Regulation (EU) 2018/1999.

Effort sharing target

For emissions not covered by the EU ETS, Member States have binding national targets under the Effort Sharing legislation[124]. Under EU legislation, Latvia has a target of limiting increases of GHG emissions in the non-ETS sectors (buildings, road and domestic maritime transport, agriculture, waste and small industries) to 17% by 2020 and reducing emissions by 6% by 2030 compared to 2005 levels. The country's effort sharing emissions in 2019 were lower than its 2020 target.

In its NECP, Latvia intends to achieve more GHG reductions than its current effort sharing target for 2030 of 6%.

Figure 34: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation in Latvia, 2020 and 2030 as percentage change from 2005

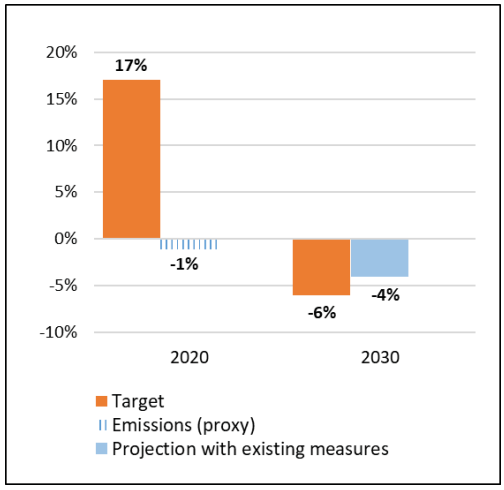
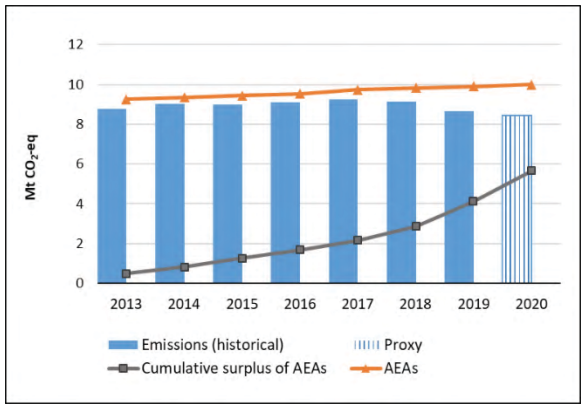


Figure 35: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision in Latvia, 2013-2020



Key sectoral developments

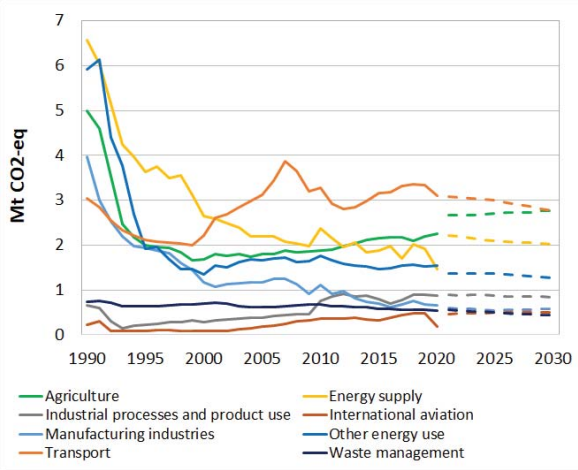
In **road transport** the GHG intensity of vehicle fuels in Latvia decreased by 1.8% between 2010 and 2019. The country needs to act swiftly to meet the current EU-wide reduction target of 6% by 2020. There are several types of action that Member States can take in this regard, for example, further expanding the use of electricity in road transport, supporting the use of biofuels, in particular advanced biofuels, incentivising the development and deployment of renewable fuels of non-biological origin and reducing upstream emissions before refining processes.

Road transport in 2019 in Latvia represented 27% of total GHG emissions. Emissions have increased by 13% compared to 2005. Road transport remains a significant challenge in Latvia, and the shift from

[124] Regulation (EU) 2018/842

cars to public transport plays a key role in limiting energy consumption and emissions.

Figure 36: GHG emissions by sector[125] – historical emissions in Lithuania, historical data 1990-2020, projections 2021-2030[126]

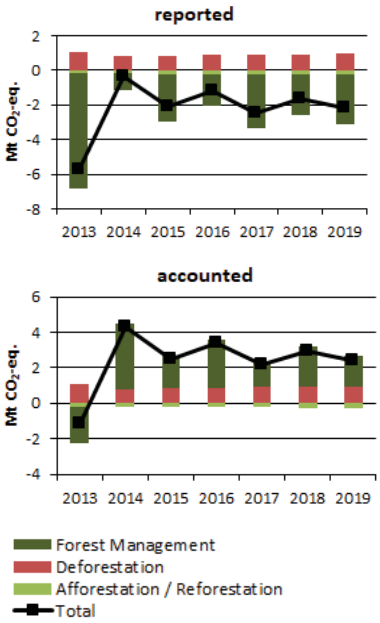


As regards buildings, energy consumption increased, but in recent years it has generally decreased.

Emissions from agriculture represent two thirds of Latvian non-CO2 GHG emissions, have more limited mitigation potential (for example organic soils need to be considered) and thus require increased focus. Agriculture is the third largest source of GHG emissions in Latvia.

In the Land Use, Land Use Change and Forestry (LULUCF) sector, Latvia projects an increase of net emissions by 2030. Reported quantities under the Kyoto Protocol for the LULUCF sector in Latvia show net removals of, on average, -2.2 Mt CO_2-eq for the period 2013 to 2019. In this regard, Latvia contributes 0.6% to the annual average sink of -344.9 Mt CO_2-eq of the EU-27. Accounting for the same period depicts net debits of, on average, 2.4 Mt CO_2-eq, which represents -2.1% of the EU-27 accounted sink of -115.0 Mt CO_2-eq. Reported net removals decreased sharply in 2014 and, thereafter, the trend has been one of very small increases and high levels of fluctuation. Accounting quantities show a similar pattern, with net credits for 2013 becoming substantial net debits for 2014 that thereafter gradually decrease, with a high level of fluctuation. Latvia is one of six EU Member States with average net debits and one of 14 EU Member States that show net debits for at least one year in this preliminary accounting exercise.

Figure 37: Reported and accounted emissions and removals from LULUCF in Latvia[127]



Use of revenues from the auctioning of EU ETS allowances

The total revenues from the auctioning of emission allowances under the EU ETS in the period 2012-2021 were over EUR 253 million. According to the Law on Pollution, in Latvia all auctioning revenues (100%) must be spent on climate measures. Until 2021 Latvia annually spent less than it gained from auctions, therefore, all unspent funds were accumulated. In Latvia, all revenues from auctions are allocated to the Emission Allowances Auctioning Instrument (EAAI), a national green investment scheme aimed at tackling climate change.

2022 priority actions

- Further reduce energy consumption in the

[125] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Energy use in manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: 1.D.1.a.

[126] European Environmental Agency, Total GHG trends and projections.

[127] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in the '*explanatory note on LULUCF – accounted and reported quantities under the Kyoto Protocol*'.

building sector.

- Promote electro-mobility and achieve a rapid switch to renewables across the various modes of transport and build the capacity for advanced biofuels. Continue investing in the development of rail infrastructure in order to improve the competitiveness of public transport compared to road transport.
- Phase out fossil fuel tax advantages.
- Further deploy and integrate renewable energy sources, especially wind and solar energy. This will increase Latvia's energy security, which is a key objective in Latvia's NECP.
- The sustainable use of biomass and its actual impacts on carbon sinks and biodiversity require continued vigilance.
- Support measures to restructure the peat industry.
- Support measures for GHG emissions reduction in the agricultural sector.
- Accelerate the development of research and innovation in low-carbon technologies.

Part II: Enabling framework: implementation tools

5. Financing

Environmental investment needs in the EU

Financing environmental measures is essential for their success. Although most financing comes from national sources, various EU funds contribute significantly, helping to close the financing gap between countries.
Post-2020, environmental measures will also be supported by the EU's COVID-19 Recovery Fund (via the RRF) and the 'do no significant harm' principle (DNSH) which runs across the EU budget. The renewed commitments made at COP26 (Glasgow, Oct-Nov 2021) and the Biodiversity Convention (April-May 2022)[128] will also be reflected in the EU budget.

Overall environmental investment gaps (EU-27)

The EU's green transition investment needs cover a range of interlinked areas. The additional investment needs over baselines (i.e. the gap between what is needed and what is forecast to be invested if no additional action is taken) for climate, energy and transport were estimated at EUR 390 billion per annum (EU-27)[129], with a further EUR 130 billion to deliver the EU's core environmental objectives[130]. Climate adaptation costs can also be significant, reaching a total of EUR 35-62 billion (narrower scope) or EUR 158-518 billion (wider scope) per year[131]. Those investment needs reflect the implementation objectives to 2020 and to 2030 (except for climate adaptation costs that are expected to stay for the longer term).

An updated estimated breakdown of the EU's environmental investment gap is provided in Table 1[132]. Almost 40% of the environmental investment needs relate to dealing with pollution, accounting for nearly two thirds of the total gap if combined with water management. The investment gap in circular economy and waste is estimated to be between EUR 13-28 billion a year, depending on the levels of circularity implemented. The annual biodiversity financing gap is estimated at around EUR 20 billion.

Table 1: Estimated breakdown of the EU-27's environmental investment gaps by environmental objective, 2021-2030 (per annum)

Environmental objective	Estimated investment gap (EU-27, p.a.)	
	EUR billion	%
Pollution prevention & control	42.8	39%
Water management & industries	26.6	24%
Circular economy & waste	13.0	12%
Biodiversity & ecosystems[133]	21.5	20%
R & D & I and other	6.2	6%
Total	**110.1**	**100%**

Environmental investment needs in Latvia

Investment in the circular economy is a priority in Latvia, followed by nature and biodiversity, sustainable water management and reduction of air pollution. The following environmental investment needs have been identified by sector:

Pollution prevention & control

The EU's first Clean Air Outlook[134] under the clean air programme estimated that the total air pollution control

[128] The Convention on Biological Diversity (cbd.int); Post-2020 Global Biodiversity Framework | IUCN.
[129] SWD(2021)621, accompanying proposal COM(2021)557 to amend the REDII Directive (EU) 2018/2001.
[130] SWD(2020) 98 final/2.
[131] SWD(2018)292.
[132] With decreases due to Brexit and some reconciliation among the objectives. Source: DG ENV 'Study supporting EU green investment needs analysis' (ongoing, 2021-2023) and DG ENV internal analysis 'Environmental investment needs and financing in the EU's green transition' July 2020.
[133] To meet the needs of the 2030 biodiversity strategy (Natura 2000, green infrastructure), at least EUR 20 billion a year should be unlocked for nature (COM/2020/380 final), while EUR 30-35 billion may be needed to fully cover the strategy (including restoration), indicating a gap of EUR 10-20 billion a year compared to current baseline expenditure.
[134] International Institute for Applied Systems Analysis (IIASA), Progress towards the achievement of the EU's air quality and emissions

costs of Latvia achieving the NECD emission reduction requirements (ERRs)[135] by 2030 would amount to EUR 197 million per year, including EUR 156 million for capital investment (assuming the achievement of the 2030 climate and energy targets).

The EU's second Clean Air Outlook[136] suggests that, if all relevant legislation adopted up to 2018 (including all air pollution targets and the 2030 climate and energy targets set in 2018) delivered its full benefits and if Member States also implemented the measures announced in their NAPCPs, the EU would largely achieve the reductions in air pollutant emissions required under the NEC Directive for 2030, except for 15 Member States, including Latvia, in respect of ammonia (NH_3).

Water management

According to the OECD study, 'Financing a Water Secure Future' (2022)[137], just over half of surface water bodies and almost all groundwater bodies in Latvia are classified as having good or high ecological status. The main pressures are point sources from urban (and to a lesser extent industrial) wastewater, diffuse sources from agriculture and hydro morphological alterations. Eutrophication of the Baltic Sea remains an issue. Leakage, infiltration and rupture of supply and distribution due to ageing infrastructure is one of the main challenges to compliance with the UWWTD. The investment required for renovation and reconstruction of wastewater systems amounts to more than EUR 204 million. EU funding has provided a significant share of public funding over the past decade[138]. It was also estimated that a cumulative additional EUR 708 million (around EUR 71 million per annum) will need to be invested in drinking water and wastewater over baselines, with around 80% of that investment for wastewater.Moreover, the recent 6th Water Framework Directive and Floods Directive Implementation Report[139] and the financial - economic study[140] accompanying it, are also a relevant source of information in this domain.

Waste & circular economy

According to a Commission study[141], to meet the recycling targets for municipal waste and packaging waste, Latvia still needs to invest an additional EUR 44 million (around EUR 6.3 million per annum) between 2021 and 2027 in collection, recycling reprocessors, biowaste treatment, waste sorting facilities and in digitalising waste registries. This does not include investment necessary for other key waste streams (plastics, textiles, furniture) or to unlock a higher uptake of circularity and waste prevention across the economy.

Biodiversity & ecosystems

The recently submitted priority action framework (PAF) for Latvia shows that nature protection costs (including Natura 2000) in 2021-27 are EUR 806.4 million. This represents an annual cost of about EUR 115.2 million, of which EUR 22.6 million are one-off costs[142]. This excludes

objectives, 2018.

[135] Covering the reductions of and the emission ceilings for five atmospheric pollutants, SOx, NOx, PM2.5, NH3 and VOC by 2030, compared to 2005. Source: Progress towards the achievement of the EU's air quality and emissions objectives, IIASA 2018. (page 29). Requirements are based on Directive (EU) 2016/2284.

[136] COM(2021) 3 Final and Report Annex.

[137] OECD, *Financing a Water Secure Future*, 2022.

[138] OECD, *Financing a Water Secure Future*, 2022.

[139] WFD and FD Implementation Reports – DG Environment – European Commission.

[140] European Commission, Directorate-General for Environment, Economic data related to the implementation of the WFD and the FD and the financing of measures, Final report. Publications Office, 2021.

[141] European Commision, *Study on investment needs in the waste sector and on the financing of municipal waste management in Member States*, 2019.

[142] The N2K Group, *Strengthening investments in Natura 2000 and improving synergies with EU funding instruments, report to the*

additional costs to implement the biodiversity strategy to 2030, including on increased protection and restoration.

EU environmental funding 2014-2020

The **multiannual financial framework** (MFF) for 2014-2020 allocated almost EUR 960 billion (in commitments, 2011 prices)[143] for the EU. The commitment to green transition included a 20% climate spending target and funding opportunities for the environment, in particular, under the European Structural and Investment (ESI) Funds[144]. The 2014-2020 budget was subsequently topped up with over EUR 50 billion (current prices) from REACT-EU for cohesion policy action against coronavirus (COVID-19)[145].

Latvia received EUR 6.2 billion from the ESI Funds over 2014-2020 to invest in job creation and a sustainable and healthy European economy and environment. The planned direct environmental investment amounted to EUR 537.2 million with a further EUR 367.5 million identified as indirect environmental investment value, totalling to EUR 904.7 million. Figure 39 shows an overview of (planned) individual ESI Funds earmarked for Latvia (EU amounts, without national amounts).

Figure 38: ESI Funds allocated to Latvia, including environmental investments, 2014-2020[146]

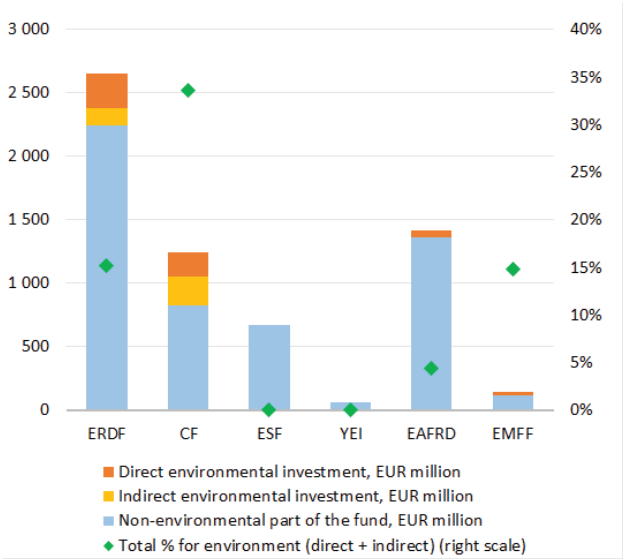


Table 2: Direct and indirect environmental investments under the ESI Funds in Latvia, 2014-2020[147]

Instrument	Allocations for the environment (EUR million)
Under Cohesion policy (ERDF + CF)	**821.6**
Direct environmental investments	461.5
water	121.3
waste	60.6
biodiversity and nature	31.8
land rehabilitation	186.6
climate and risk management	61.2
Indirect environmental investments	360.0

European Commission, 2021.

[143] Council Regulation (EU, Euratom) No 1311/2013.

[144] The European Structural and Investment Funds (ESIF) include the European Regional Development Fund (ERDF), the Cohesion Fund (CF), the European Social Fund (ESF) with the Youth Employment Initiative (YEI), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF).

[145] Regulation (EU) 2020/2221.

[146] European Commission, DG Environment - Data analysis, DG Environment analysis based on ESI Funds Open Data Portal (cohesiondata.ec.europa.eu), Integration of environmental concerns in Cohesion Policy Funds (COWI, 2017), Regulation (EU) No 1303/2013, Regulation (EU) 2021/1060 and Implementing Regulation (EU) No 215/2014. Cut-off date for data: December 2021. Environmental investments here are captured via the combined use of intervention fields and coefficients under Regulation (EU) No 1303/2013 and Regulation (EU) 2021/1060 allowing for a more precise identification and valuation of relevant environmental investments. N.B. Indirect environmental investments are valued using the Annex I environmental coefficients of Regulation (EU) 2021/1060 (as opposed to full value).

[147] European Commission, DG Environment - Data analysis. The values of environmental investments identified here in the specific environmental areas may differ from the tracking values at cohesiondata.ec.europa.eu, e.g. for clean air or biodiversity due to two factors: the set of environmental coefficients used and the range of funds assessed. DG Environment's analysis here covered the full range of ESI Funds. See also previous footnote.

renewable energy	9.0
energy efficiency	137.2
other energy[148]	11.6
sustainable transport	202.2
Under EAFRD/rural development	**62.3**
Direct environmental investments	54.9
climate and risk management	54.9
Indirect environmental investments	7.4
renewable energy	4.4
energy efficiency	3.1
Under EMFF	**20.8**
Direct environmental investments	20.8
environment protection & resource efficiency	20.8
Under ESI Funds total	**904.7**
Direct environmental investments	537.2
Indirect environmental investments	367.5

Funding for the environment from the ESI Funds has also been supplemented by other EU funding programmes available to all Member States, such as the LIFE programme or Horizon 2020, that add up to an estimated total of EUR 942 million of EU environmental financing for Latvia in the period 2014-2020.

The LIFE programme [149] is entirely dedicated to environmental and climate objectives. It finances best practice actions for green solutions to be deployed. In the 2014-2020 period, Latvia received EUR 35.0 million of EU support for nine LIFE projects (for nature and the environment) of a total of 1 028 EU-27 LIFE projects, amounting to an EU contribution of EUR 1.74 billion in total[150].

In 2014-2020, Horizon 2020 allocated about EUR 2.6 million to Latvia (in particular, for climate action, nature and resources, as well as cultural heritage), which represents about 2.2% of Latvia's total allocation.[151] From the European Fund for Strategic Investments (EFSI), Latvia did not receive any environmental funding out of its total allocation (EUR 127.5 million).[152] Neither did Latvia receive any loans for environmental investment of the total EIB loans for Latvia (EUR 802.4 million)[153]. The country ranks number 25 in size in total EIB lending.

In 2020, the EIB provided EUR 24.2 billion to fight climate change at EU level, representing 37% of its total lending, and EUR 1.8 billion (3% of its lending) for the environment[154][155]

EU environmental funding 2021-2027

The 2020 European Green Deal investment plan will mobilise EUR 1 trillion in green investment (public and private) by 2030. The MFF 2021-2027 and NextGenerationEU will mobilise EUR 2.018 trillion (in current prices) to support the COVID-19 recovery and the EU's long-term priorities, including environmental protection[156]. Following the European Green Deal's[157] 'do no harm' pledge and the Interinstitutional Agreement on the 2021-2027 MFF[158], 30% of the EU budget will support climate efforts and 7.5% (as of 2024) and 10% (as of 2026) will support biodiversity. To reach these targets, increased programming of financial resources for biodiversity, specifically under the 2021-2027 Cohesion policy and the 2023-2027 CAP, is needed.

Sustainable finance significantly increases the transparency of environmental sustainability (a goal promoted by the EU Taxonomy)[159], strengthens non-financial reporting requirements and facilitates green bond issuance (by the EU green bond standard[160]). Reinforced by the renewed sustainable finance strategy (2020)[161], sustainable finance will increase investment flows to climate and the environment. In support of financing climate adaptation, the new strategy on adaptation to climate change[162] can facilitate the closure of the insurance protection gap as regards non-insured climate-related events[163]. The EIB will align 50% of its

[148] Intelligent energy distribution systems (smart grids) and high efficiency co-generation and district heating, based on intervention field 53 and 54 respectively (with 40% environmental coefficients) of Regulation (EU) 2021/1060, Annex I.
[149] European Commission, LIFE Programme.
[150] CINEA.
[151] Source: https://sc5.easme-web.eu/, accessed: 15-12-2021.
[152] Approved and signed EFSI financing - EIB, 2015-2020: Source: https://www.eib.org/en/products/mandates-partnerships/efsi/index.htm.
[153] EIB loans in EU countries in 2014-2020. Source: EIB Open Data Portal: https://www.eib.org/en/infocentre/eib-open-data.htm.
[154] The EIB Group jointly works with the European Commission in implementing several programs that finance environmental implementation: InvestEU, the successor of EFSI, Pillar II and III of the Just Transition Mechanism. The EIB Group stands as a key implementing partner for InvestEU with responsibility for managing 75% of the overall budgetary capacity of the mandate.
[155] European Investment Bank, EIB loans in EU countries in 2014-2020. Source: EIB Open Data Portal: EIB Open Data
[156] European Commission, 2021-2027 long-term EU budget & NextGenerationEU.
[157] COM/2019/640 final.
[158] Interinstitutional Agreement, OJ L 433I.
[159] https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en
[160] EU Green Bond Standard - 2021/0191 (COD).
[161] COM (2021) 390 Final - European Commission, strategy for financing the transition to a sustainable economy.
[162] COM(2021) 82 final.
[163] The strategy would support improved insurance gap coverage

lending with climate and the environment by 2025[164], with a EUR 250 billion contribution to the Green Deal Investment Plan by 2027.

Table 3 sets out an overview of the EU funds earmarked specifically for Latvia for the 2021-2027 period. These funds are also supplemented by other EU funding programmes available to all Member States.

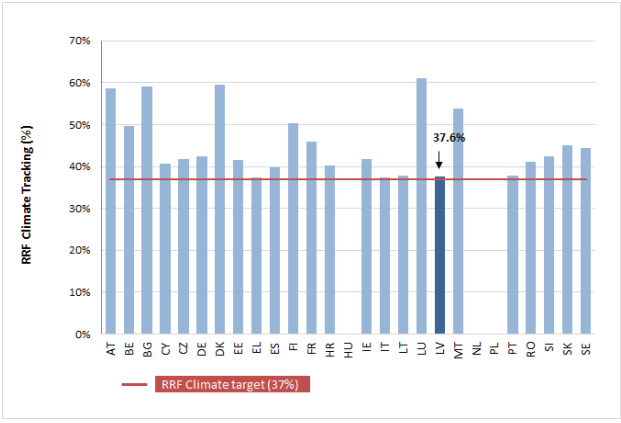
Table 3: Key EU funds allocated to Latvia (current prices), 2021-2027

Instrument	Country funding allocation (million EUR)
Cohesion policy	**Total: 4 292.5[165]**
ERDF	2 493.4
CF	1 038.7[166]
ESF+	710.6
ETC (ERDF)	49.8[167]
Just Transition Fund	**191.6[168]**
EAFRD/rural development under CAP Strategic Plans 2023-2027[169]	**587.5[170]**
European Maritime, Fisheries and Aquaculture Fund (EMFAF)	**134.9[171]**
Recovery and Resilience Facility (RRF) 2021–2026[172]	**1 826.0[173] (grants)**

In Latvia, programming for the majority of EU funds (Cohesion policy funds, EAFRD and EMFAF) is ongoing. However, the negotiations have been concluded under the RRF.

The reforms and investments in Latvia's recovery and resilience plan (RRP) will help Latvia become more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions. To this end, the RRP consists of 60 investments and 25 reforms. They will be supported by EUR 1.8 billion in grants; 37.6 % of the RRP will support climate objectives (see Figure 40). Latvia's RRP supports the green transition and includes investments to overhaul transport in the Riga Metropolitan Area (EUR 295 million) by incentivising clean transport. The RRP also provides for investment in the energy efficiency of private and public buildings, thanks to a large-scale renovation initiative to increase the energy efficiency of residential buildings, public buildings and businesses (EUR 248 million). . Latvia has not included any biodiversity measures as such in the plan, going beyond climate contribution, and the plan has not demonstrated in detail how the measures in the plan contribute to biodiversity specifically, beyond the contribution to biodiversity brought by climate-related measures.

Figure 39: Climate expenditure in RRPs, 2021-2026 [174]



Under NextGenerationEU, the Commission will issue up to EUR 250 billion of EU green bonds (a third of the NGEU) in the period up to 2026. The bonds will comply with the general spirit of the DNSH principle, but will not be subject to the current Delegated Acts related to the EU taxonomy and will not fully align with the proposed EU green bond standard.

The EIB Group adopted the Climate Bank Roadmap[175], outlining the role of the institution in climate action and

including through the natural catastrophe markets as reflected with the EIOPA (the European Insurance and Occupational Pension Authorities) dashboard on insurance protection gap for natural catastrophes. See: The pilot dashboard on insurance protection gap for natural catastrophes | Eiopa (europa.eu).

[164] EIB Climate Bank Roadmap 2021-2025, November 2020.

[165] European Commission, 2021-2027 Cohesion policy EU budget allocations.

[166] The transfer to the Connecting Europe Facility (Transport) is not included.

[167] Interreg initial allocations per MS including ETC transnational and ETC cross-border co-operation.

[168] European Commission, 2021-2027 Cohesion policy EU budget allocations.

[169] European Commission, CAP strategic plans.

[170] Regulation (EU) 2021/2115, Annex XI.

[171] Regulation (EU) 2021/1139, Annex V.

[172] The actual reforms and investments under the RRF have to be implemented until 31 December 2026.

[173] Council Implementing Decision, FIN 518.

[174] European Commission. The contributions to climate objectives have been calculated using Annex VI of the RRF Regulation (EU) 2021/241.

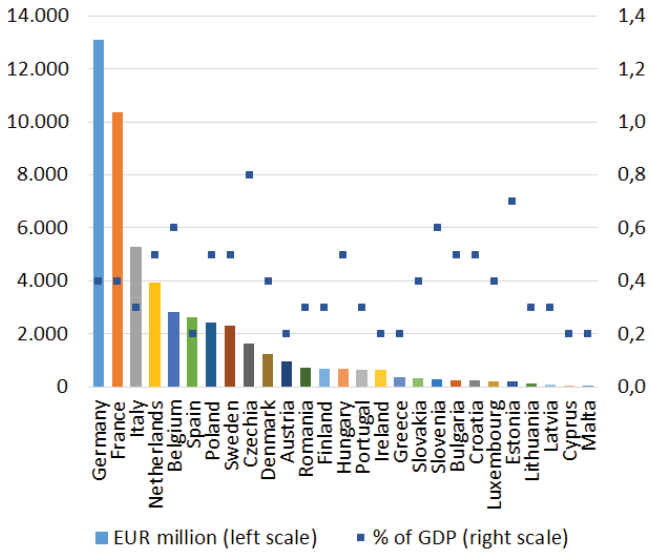
environmental sustainability for the next decade and committing to increase its support for those areas to over 50% of its lending activity by 2025. The EIB's contribution to the EGDIP is expected to amount to around EUR 250 billion in the period up to 2027 in terms of investments in EU mandates (i.e. under EU instruments and through the EU budget).

National environmental protection expenditure

Total national **environmental protection expenditure** (including all relevant current and capital expenditure)[176] in the EU-27 was EUR 272.6 billion in 2020, representing 2% of the common GDP; this percentage has remained quite stable over time. While absolute expenditure is concentrated in a few countries, as a share of GDP most countries spend between 1-2%, including Latvia, which spends 1.7%.

Of the above total, the EU-27's **capital expenditure (Capex) on environmental protection (i.e. investment)** amounted to EUR 56.3 billion in 2018, decreasing to EUR 54.5 billion in 2020, representing around 0.4% of GDP. Most Member States invested 0.2-0.5% of their GDP in environmental protection, including Latvia, which invested 0.3%. In the period 2014-2020, this amounted to around EUR 376 billion of environmental investment in the EU-27, and to EUR 717.6 million for Latvia.

Figure 40: Direct and indirect environmental protection investments in the EU-27 (EUR million and % of GDP), 2018



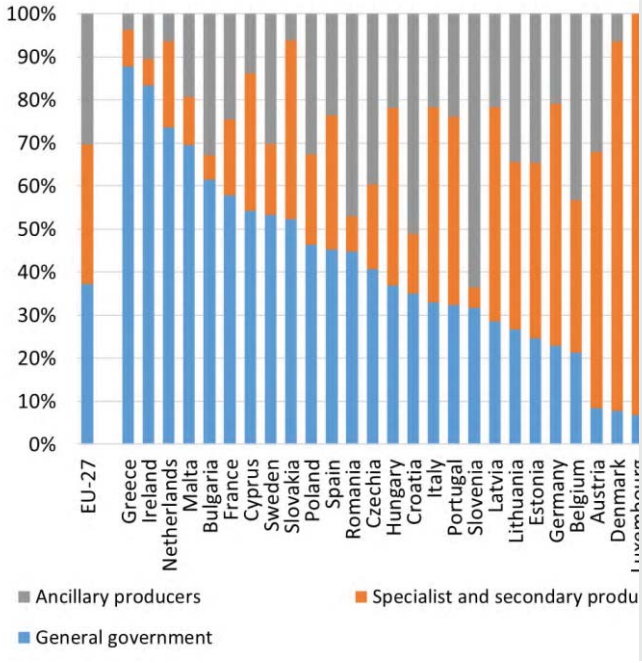
By **institutional sector**, only 28.5% of Latvia's environmental protection investments (capital expenditure) were made by the general government, while half of the total were made by specialist producers (of environmental protection services, e.g. waste and water companies), with an additional 21.6% made by industry and businesses whose environmental activities are normally ancillary to their main activities. At EU level, 37.2% of investments were made by governments, 32.5% by specialist producers and 30.3% by industry (business).

175

https://www.eib.org/attachments/thematic/eib_group_climate_bank_roadmap_en.pdf

176 At economy level, this includes final consumption, intermediate consumption and capital expenditure of households, corporations and governments related to environmental protection goods and services. It excludes EU funds but may include some international rather than domestic expenditure. Data source: Environmental Protection Expenditure Accounts (EPEA), Eurostat. EPEA accounts are based on the CEPA 2000 classification, excluding climate, energy and circular economy.

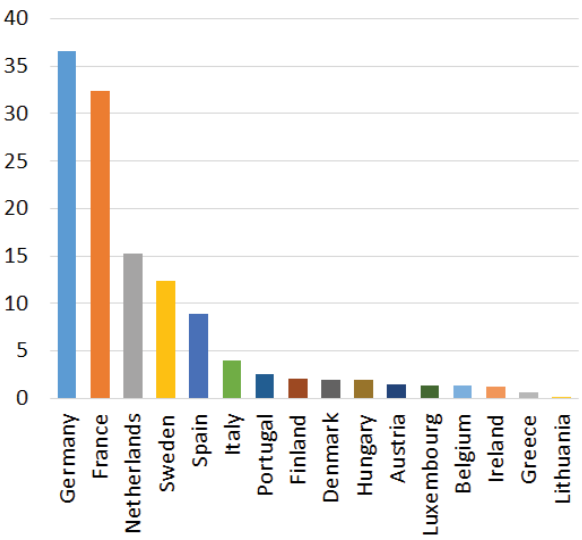
Figure 41: EU-27 Member States' environmental protection investments (Capex) by institutional sector (Total economy = 100%), 2018[177]



Breakdown of investment by environmental topic is partially available at the level of institutional sectors only (rather than at economy level), due to different reporting patterns. At the level of Latvia's general government, 36% of environmental protection investments went to waste management, 20% to air protection and 10% to biodiversity in 2018. As regards the country's specialist producers, most environmental investments went to waste management (52%) and wastewater (42%). As regards industry (businesses), anti-pollution measures were clearly the priority: air protection attracted 53% of environmental investments, water- and soil protection 28%, followed by wastewater (13%).

The total annual European **green bond** issuance[178] in 2020 was USD 156 billion (EUR 137 billion[179]), growing from USD 117 billion (EUR 105 billion) in 2019, and including some non-EU European countries. Annual green bond issuance by EU-27 Member States only was EUR 124 billion in 2020. Of the green bonds issued by European countries, 83% served energy, buildings or transport objectives in the period 2014-2020, 8% supported water and waste, with a further 6% supporting land use – with links to ecosystem conservation and restoration, based on the Climate Bonds Taxonomy being broadly similar to the EU Taxonomy[180]. Latvia did not issue any EU green bonds in 2020.

Figure 42: Annual EU green bond issuance in 2020 (EUR billion)[181]



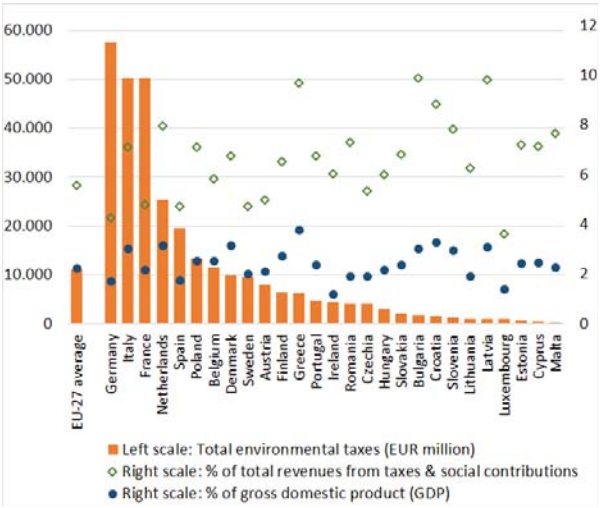
Green budget tools

Green taxation and environmental tax reform

Latvia's revenue from environmentally-related taxes, at EUR 914.2 million, remained among the lowest in 2020, as shown in Figure 43, accounting for 3.1% of GDP. Energy taxation represented the highest share of this figure, at 83% in 2020, while transport tax represented 13% and pollution/resources tax accounted for 3.9%.

[177] Eurostat, Environmental Protection Expenditure Accounts (env_epe).
[178] Green bonds were created to fund projects that have positive environmental and/or climate benefits. The majority of green bonds issued are green 'use of proceeds' or asset-linked bonds. The very first green bond was issued in 2007 with a rating of AAA from multilateral institutions, the European Investment Bank (EIB) and the World Bank.
[179] At Eurostat's annual average EUR/USD exchange rates.
[180] Interactive data platform at www.climatebonds.net. Further information on Climate Bonds Taxonomy: https://www.climatebonds.net/standard/taxonomy.
[181] Climate Bonds Initiative, 2022.

Figure 43: Environmental taxes in the EU-27, 2020[182]



The 2019 European Green Deal underlines that well-designed tax reforms can boost economic growth and resilience and foster a fairer society and a just transition by sending the right price signals and incentives to economic actors. The Green Deal creates the context for broad-based tax reforms, fossil fuel subsidies removal, shifting the tax burden from labour to pollution, and takes into account social considerations. The application of the 'polluter pays principle' (PPP)[183], stipulating that polluters should bear the cost of measures to prevent, control and remedy pollution, is facilitated by the European Commission's Technical Support Instrument flagship programme on greening taxes[184].

In February 2022, Latvia introduced a deposit system for beverage packaging. According to a Commission study on Green taxation and other economic instruments (2021) Latvia could introduce a forest felling charge and a pay-as-you-throw mechanism to further address particular areas of environmental concern[185].

Environmentally-harmful subsidies

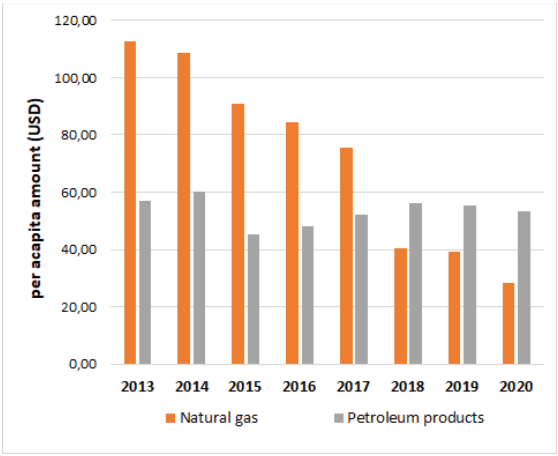
Addressing and removing environmentally-harmful subsidies (EHS) is a further step towards wider fiscal reform[186].

Fossil fuel subsidies are costly for public budgets and adversely impact the achievement of the Green Deal objectives. In many cases they also go against incentives for green investments and do not contribute to levelling the playing field. Fossil fuel subsidies have been worth around EUR 55 billion annually in the EU since 2015. They rose by 4% between 2015 and 2019, however some countries, including Latvia, managed to reduce them. In the EU, subsidies on petroleum products, in sectors such as transport and agriculture, continued to grow over that period, while subsidies on coal and lignite decreased, due to the diminishing role of solid fuels in electricity generation.

As a share of GDP, fossil fuel subsidies ranged from 1.2% in Hungary to less than 0.1% in Malta in 2019 (the EU average was 0.4%). In 2019 in Latvia, total fossil fuel subsidies amounted to EUR 0.1 billion, representing 0.42 % of GDP. In 2020, total fossil fuel subsidies in the EU-27 decreased to EUR 52 billion (due to falling consumption trends amid the COVID-19 restrictions) and, without Member State action, they are likely to rebound as economic activity picks up from 2020[187].

Latvia allocates more than the EU average to fossil fuel subsidies — and more than the EU average to renewable energy subsidies[188]. Further details on fossil fuel subsidy trends are shown below.

Figure 44: Trends in natural gas and petroleum subsidies in Latvia[189]



% GDP	2013	2014	2015	2016	2017	2018	2019	2020
Natural gas	0,76	0,70	0,67	0,59	0,48	0,2	0,22	0,16
Petroleum	0,38	0,39	0,33	0,3	0,33	0,3	0,31	0,30

[182] Eurostat, Environmental taxes accounts (env_eta).

[183] Article 191(2) of the Treaty on the Functioning of the European Union: 'Union policy on the environment (…) shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay'.

[184] European Commission, Greening taxes- applying polluter pays principle in practice, green budgeting TSI participation.

[185] European Commission, Green taxation and other economic instruments, 2021.

[186] European Commission, Study on assessing the environmental fiscal reform potential for the EU-28, 2016.

[187] See table on EU FFS data in 2019 which is based on (for info) COM(2021) 950 and Annex.

[188] European Court of Auditors, Energy taxation, carbon pricing and energy subsidies, 2022.

[189] OECD, Fossil Fuel Subsidy Tracker.

products	4

Current green budgeting practices

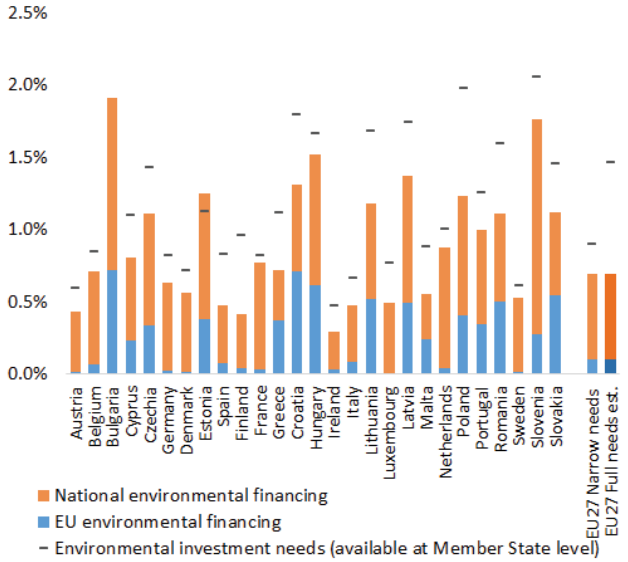
Green budgeting encompasses various climate and environmental tagging and tracking practices in budgets, and some EU Member states already use green budgeting elements[190]. Green budgeting helps identify and track green expenditure and green revenue to increase transparency on the environmental impacts of budgetary policies, improving policy coherence and supporting green policies (including climate and environmental objectives)[191].

EU climate proofing and sustainability proofing guidance have also been developed as tools to assess project eligibility and compliance with environmental legislation and criteria[192]. The European Commission established a green budgeting reference framework[193] and in 2021 launched a flagship technical support project (TSI) on green budgeting to assist Member States in developing or further developing national green budgeting frameworks to reap the benefits for policy coherence and the green transition. Latvia participates in the European Commission's green budgeting flagship, launched in 2021.

Overall financing compared to the needs

The overall environmental financing for investments is estimated to have been 0.6-0.7% of GDP in the 2014-2020 period in the European Union, taking into account major EU funds and national financing. This ranged from 0.3% (Ireland) to 1.91% (Bulgaria), linked to the level of individual environmental challenges in Member States. The overall EU environmental investment needs in the 2021-2027 period are estimated to range between 0.9-1.5% of projected GDP (2021-2027), suggesting a potential environmental financing gap of 0.6-0.8% of GDP (at EU level), assuming previous financing patterns[194].

Figure 45: Total environmental financing baseline (2014-2020) and estimated needs (2020-2030) in the EU-27 (% of GDP)[195]



Latvia's environmental financing for investments is estimated to have been 1.37% of GDP (above the EU average of 0.7%) in the period 2014-2020, with over a third coming from EU sources. The country's environmental investment needs in the period 2021-2027 are found to be over 1.74% of GDP (including needs with country-level breakdown), suggesting a potential environmental financing gap of at least 0.37% of GDP. This gap is likely to be higher when also accounting for needs currently estimated at EU-level only (e.g. water protection, circularity, biodiversity strategy etc.) – to be addressed through additional environmental financing measures.

2022 priority actions

- To devise an environmental financing strategy to maximise opportunities for closing environmental implementation gaps, bringing together all relevant administrative levels.
- To ensure an increased level of financing, including to further stimulate private financing flows, for the environment to cover investment needs across the environmental objectives and prevent significant investment gaps.

[190] European Commission, Green Budgeting Practices in the EU: A First Review, 2021, and OECD, Public Governance Directorate, Climate Change and Long-term Fiscal Sustainability, Working Paper, February 2021. Climate Change and Long-term Fiscal Sustainability (oecd.org).

[191] European Commission, European Commission Green Budgeting Reference Framework.

[192] European Commission, Technical guidance on sustainability proofing for the InvestEU Fund.

[193] European Commission, green budgeting reference framework, based on the review of the OECD Paris Collaborative on Green Budgeting initiative, 2017.

[194] Source: DG Environment data analysis. EU financing sources covered: ESI Funds (ERDF, CF, ESF, YEI, EAFRD, EMFF), Horizon 2020, LIFE, EFSI (EU amount), EIB loans. National financing: total national environmental protection capital expenditure (investments) - source: Eurostat EPEA dataset. Cut-off date for data: end 2021. N.B. The total financing may be higher, in particular through further indirect investments, requiring further analysis in the future.

[195] Eurostat, ESI Funds Open Data, 2021.

6. Environmental governance

Information, public participation and access to justice

Citizens can more effectively protect the environment if they can rely on the three 'pillars' of the Aarhus Convention:
(i) access to information;
(ii) public participation in decision making;
(iii) access to justice in environmental matters.
It is of crucial importance to public authorities, the public and businesses that environmental information is shared efficiently and effectively[196]. Public participation allows authorities to make decisions that take public concerns into account. Access to justice is a set of guarantees that allows citizens and NGOs to use national courts to protect the environment[197]. It includes the right to bring legal challenges ('legal standing')[198].

Environmental information

This section focuses on Latvia's implementation of the INSPIRE Directive. The INSPIRE Directive aims to establish a European spatial data infrastructure for sharing environmental spatial information between public authorities across Europe, assist with policy-making across boundaries and facilite public access to this information. Geographical information is needed for good governance at all levels and should be readily and transparently available.

As part of a general compliance promotion exercise on the accessibility of priority data sets for reporting, a letter of formal notice was sent to Latvia on 8 March 2019. Latvia has responded to the formal notice by steadily improving implementation.

Nevertheless, Latvia's implementation of the INSPIRE Directive could be better. Its performance has been reviewed based on the country's 2021 country fiche[199]. Good progress has been made on data identification and documentation; implementation levels need improvement. More effort needed to:

- make the data more widely accessible, and
- prioritise environmental datasets in implementation, especially those identified as high-value spatial datasets for implementing environmental legislation[200].

Table 4: Country dashboard on the implementation of the INSPIRE Directive (2016-2020)[201]

	2016	2020
Effective coordination and data sharing		
Ensure effective coordination	■	■
Data sharing without obstacle	■	■
INSPIRE performance indicators		
i. Conformity of metadata	■	■
ii. Conformity of spatial data sets[202]	■	■
iii. Accessibility of spatial data sets through view and download services	■	■

Legend

■ Implementation of this provision is well advanced or (nearly) complete. Outstanding issues are minor and can be addressed easily. Percentage: >89%

■ Implementation of this provision has started and some or substantial progress has been made but is still not close to completion. Percentage: 31–89%

■ Implementation of this provision is falling significantly behind. Serious efforts are necessary to close the implementation gap. Percentage: <31%

[196] The Aarhus Convention, the Access to Environmental Information Directive (Directive 2003/4/EC) and the INSPIRE Directive (Directive 2007/2/EC) together create a legal foundation for the sharing of environmental information between public authorities and with the public. This EIR focuses on the INSPIRE Directive's implementation.

[197] These guarantees are explained in the Commission Notice on access to justice in environmental matters, OJ C 275, 18.8.2017 and a related Citizen's Guide.

[198] This EIR report focuses on the means implemented by Member States to guarantee rights of access to justice, legal standing and to overcome other major barriers to bringing cases on nature and air pollution.

[199] https://inspire.ec.europa.eu/INSPIRE-in-your-Country/LV

[200] European Commission, List of high value spatial data sets.

[201] INSPIRE knowledge base.

[202] In 2016, the deadlines for implementation of spatial data interoperability were still in the future: 23/11/2017 for Annex I data and 21/10/2020 for Annex II and III data. It must also be considered that this conformity indicator will never reach 100% conformity in many cases, as the majority of countries provide as-is data sets in addition to the INSPIRE harmonised data sets.

iv. Conformity of network services	■	■

Public participation

The Ministry of Environmental Protection and Regional Development provides an overview of Environmental Impact Assessment on its website[203], outlining the procedures and the legal framework and providing a link to the Environmental State Bureau, which is responsible for implementation. The Environmental State Bureau provides further information, including case-by-case information on who has submitted a proposal, links to relevant documentation and information on when and where public consultation hearings will take place[204]. Comprehensive information on completed EIAs is also published[205], and the website has an infographic detailing the entire procedure for carrying out an EIA along with a brief explanation of its purpose[206].

No data could be identified regarding the actual level of public participation in EIA and Strategic enviromnmental assessment (SEA) procedures; however, the Environmental State Bureau annual report for 2020 expresses concern and states that the public often fail to find out about such opportunities in a timely manner[207].

It is also noted that minor gaps have been identified based on the EIA conformity study with regard to public participation. Despite the lack of transposition of certain provisions (e.g. Article 6(2)(d) and 6(3)(c)) into the Latvian legal system, the mechanisms of public participation and access to information remain unaffected by these minor gaps in transposition.

Access to justice

NGOs do not have to demonstrate an interest to have standing in an environmental court case or in cases that have a significant effect on the environment. Actio popularis (a right of access to justice in the public interest) exists in environmental matters. This means that people have access to administrative authorities and courts not only to protect their own individual interests, but also to protect general environmental interests.

If a plan is adopted in the form of an administrative act, the scope of administrative review is the same as in other administrative cases. The court would revise both the procedural and substantive legality of the final decision confirming the plan.

If the planning decision is embodied in a normative act, the Constitutional Court is also competent to review both the procedural and substantive legality of the normative act.

Normative legal acts or legislative acts (legislation) implementing EU environmental legislation usually take the form of laws enacted by the Parliament (the Saeima) or Cabinet regulations. On the basis of laws and Cabinet regulations, local government regulations also include rules derived from EU law.

It can be concluded that there is a system of regular and substantive supervision of legally binding regulatory acts that is accessible to members of the public and NGOs.

There is no information available on access to justice maintained by the government.

In 2019, there was a priority action addressed to Latvia on access to justice, namely to better inform the public about their rights on access to justice. It was concluded that limited progress had been made.

2022 priority actions

- Address concerns about levels of public engagement in EIA processes, including through enhanced publicity and accessibility of information, allowing timely identification of current applications.
- Better inform the public about their access to justice rights, in particular by referring to Commission e-Justice fact sheets on access to justice in environmental matters on judicial and administrative portals.

Make spatial data more widely accessible and prioritise environmental datasets in the implementation of the INSPIRE Directive, especially those identified as high-value spatial datasets for implementing environmental legislation.

[203] Environmental Impact Assessment, Ministry of Environmental Protection and Regional Development, available at: https://www.varam.gov.lv/en/environmental-impact-assesment, accessed 09.10.2021.

[204] Available at: https://www.vpvb.gov.lv/lv/jaunumi?title=&category%5B449%5D=449&category%5B461%5D=461&created%5Bmin%5D=--.--.----&created%5Bmax%5D=--.--.----

[205] Available at: https://www.vpvb.gov.lv/lv/ietekmes-uz-vidi-novertejumu-projekti?combine=&tcat_vid_1%5B677%5D=677&created%5Bmin%5D=--.--.----&created%5Bmax%5D=--.--.----

[206] See: https://www.vpvb.gov.lv/lv/ivn-procedura

[207] State Environmental Bureau, 2020 Annual Report, available at: https://www.vpvb.gov.lv/lv/media/3554/download, accessed 09.10.2021.

Compliance assurance

Environmental compliance assurance covers all the work undertaken by public authorities to ensure that industries, farmers and others fulfil their obligations to protect water, air and nature, and manage waste[208]. It includes support measures provided by the authorities such as:
(i) compliance promotion[209];
(ii) inspections and other checks that they carry out, i.e. compliance monitoring[210];
(iii) the steps that they take to stop breaches, impose sanctions and require damage to be remedied, i.e. enforcement[211].
Citizen science and complaints enable authorities to focus their efforts better. Environmental liability[212] ensures that the polluter pays to remedy any damage.

Compliance promotion and monitoring

A good general level of information on the Nature and Nitrates Directives is provided online by both the Ministry of Environmental Protection and Regional Development and the Ministry of Agriculture. The information on the Nature Directive provided by the Ministry of Environmental Protection and Regional Development enables easy identification of relevant restrictions by area; on the Nitrates Directive, the Ministry of Agriculture has a webpage providing clear information on water quality issues[213], and has produced a simple list of the farm measures required by the latest national legislation implementing this Directive[214]. More user-friendly information, such as case studies and examples, does not seem to be available. The accessibility and quality of various informative materials appears to have improved in recent years.

Legislation implementing the Industrial Emissions Directive is currently in the process of being revised, with a new 'Pollution prevention law' being drafted to replace existing legislation. The State Environmental Service currently prepares inspection plans; the latest covers the years 2020-2025 and is available on its website[215]. Reports on inspections are published[216].

Some data is provided in the State Environmental Service biannual review of activity, including data structured by the types of inspections conducted monthly. However, the results of inspections are stated in quantitative (number of enforcement actions taken), not qualitative (nature of the action, nature of the breach), terms. A yearly statistical report[217] provides information on calculations of environmental damage, types of breach and fines imposed.

Complaint handling and citizen science

In general, an overhaul of most Government websites in 2020 has made it easier to locate information and facilitated public engagement. Further, in 2020 the State Environmental Service set up an Operations Coordination Centre which, among other tasks, coordinates the handling of reports on environmental breaches[218]. A new online tool for the management of such complaints was created, which registers reports received from phone calls, e-mails, the Environmental SOS app, and social media. The Environmental SOS app[219], which allows people to register complaints about environmental issues, has been used increasingly since the 2019 EIR (2018: 1 974 complaints; 2020: 5 124 complaints). Data on the number of complaints received by other means (calls, e-mails, etc.) could not be located.

As noted above, the State Environmental Service has explicit and well-publicised arrangements for the handling of complaints, and makes use of information provided by citizens through a range of means. In addition, a network of public environmental inspectors exists, allowing citizens to volunteer to support the work of the inspectors of the State Environmental Service on environmental enforcement. At the moment, there are 77 public environmental inspectors and, according the State Environmental Service website, they seem to be

[208] The concept is explained in detail in the Communication on 'EU actions to improve environmental compliance and governance' COM(2018)10 and the related Commission Staff Working Document, SWD(2018)10.
[209] This EIR focuses on the help given to farmers to comply with nature and nitrates legislation.
[210] This EIR focuses on inspections of major industrial installations.
[211] This EIR focuses on the availability of enforcement data and coordination between authorities to tackle environmental crime.
[212] The Environmental Liability Directive, 2004/35, creates the framework.
[213] See https://www.zm.gov.lv/lauksaimnieciba/statiskas-lapas/vides-aizsardzibas-prasibas-lauksaimnieciskai-darbibai/udens-kvalitates-aizsardziba?nid=2752.
[214] See https://www.zm.gov.lv/public/ck/files/ZM/lauksaimnieciba/MK_834_vides_aizsardzibas_prasibas.pdf).
[215] Available at: https://www.vvd.gov.lv/lv/media/8512/download.
[216] https://registri.vvd.gov.lv/vides-aizsardzibas-kontrole/zinojumi-par-a-b-un-c-iekartu-parbaudes-rezultatiem-pieejami-saisinati/?company_name=&company_code=&collapsed=true&pollution_category=&org_id=&core_area_id=&perm_date_from=&perm_date_to=&s=1.
[217] Available at: https://www.vvd.gov.lv/lv/statistika.
[218] See the detailed infographic available at: https://www.vvd.gov.lv/lv/infografikas.
[219] Available for download at http://www.videssos.lv.

mainly focused on enforcement of fishing and angling controls[220].

Enforcement

Information on prosecution of environmental crimes and the results of prosecutions are not publicly available, apart from the overall statistics on fines, warnings for breaches of relevant legislation etc. published by the State Environmental Service mentioned above. A useful page of infographics on the State Environmental Service website also includes a simple graphic showing breaches and penalties imposed in 2020[221]. However, no substantive follow-up information on enforcement actions is being published, contrary to the recommendation made in the 2019 EIR. Latvia still has no recorded environmental crimes that would be classified as very serious. Moreover, the overall amount of environmental crime committed is decreasing.

The environmental inspection plan 2020-2025[222] states that, in its permitting and monitoring activities, the State Environmental Service cooperates with the Health Inspectorate, State Labour Inspectorate, State Fire and Rescue Service, State Revenue Service, Rural Support Service, State Plant Protection Service, Food and Veterinary Service, State Forest Service, Environmental Protection Agency, Consumer Rights Protection Centre, and municipalities. However, no cooperation agreements/memorandums are publicly available regarding serious environmental crimes. The 2019 EIR had recommended the publication of information on institutional cooperation – no evidence of the fulfilment of this recommendation could be identified, therefore the situation does not appear to have changed significantly since then.

Environmental Liability Directive

The Latvian Environment, Geology and Meteorology Centre compiles information submitted to it by operators regarding cases in which there is an imminent threat of damage or environmental damage, and its website has a publicly available database listing contaminated and potentially contaminated sites, detailing the specific address, type of pollution and its source[223]. The State Environmental Service also publishes a yearly statistics report[224] on pollution incidents, specifying the region, the type of pollution and its cause (traffic accidents, maritime accidents, etc.).

National legislation does not require insurance against potential environmental liabilities, nor does it specify types of financial security. However, all major insurance companies operating in Latvia appear to provide relevant cover.

The 2019 EIR recommended to Latvia that it improve financial security for liabilities and Environmental Liability Directive (ELD) guidance, and that it publish information on environmental damage. Since 2019, Latvia has made no progress on those issues.

2022 priority actions

- Improve the availability of public information on enforcement of environmental crime.
- Consider publishing reports of environmental inspections or providing more detailed information on results thereof and follow-up.
- Publish information on institutional cooperation and its role in enforcement actions.
- Provide more detailed reports on types of environmental crime, including specifying how many qualify as serious environmental crimes.
- Publish more guidance materials on the ELD.

Effectiveness of environmental administrations

Those involved in implementing environmental legislation at EU, national, regional and local levels need to have the knowledge, tools and capacity to ensure that the legislation and the governance of the enforcement process bring about the intended benefits.

Administrative capacity and quality

Environmental policy developments in Latvia are mainly driven by EU directives and regulations, and the relevant EU rules are generally transposed in time. At present, the

[220] See https://www.vvd.gov.lv/lv/sabiedriskie-vides-inspektori.
[221] See "Pārkāpumi un sodi 2020", available at https://www.vvd.gov.lv/lv/infografikas.
[222] COM(2019) 149 final - Brussels, 4.4.2019.
[223] See https://www.meteo.lv/autorizacija/?josso_back_to=http://parissrv.lvgmc.lv/signon#viewType=pppvListView&incrementCounter=2.
[224] Statistics | State Environmental Service (vvd.gov.lv)

number of complaints and infringements handled by the Commission in the environmental field is below the EU average.

Overall, during the last decade an improvement in the implementation of EU environmental law in the different sectors has been observed. For instance, there has been progress regarding the implementation of environmental assessments. There were some doubts about a recent package of legislation aimed at speeding up the licencing of the 'projects of national interest', but no serious problems were identified when it was implemented.

In the DESI Report 2021[225], Latvia ranked No. 17. It performs well in the provision of digital public services, is a front-runner in broadband coverage and the number of e-government users continues to increase. However, the integration of digital technologies is hampered by a lack of investment in R&D.

Latvia has identified the development of digital skills at all levels as a national priority in its Digital Transformation Guidelines 2021-2027[226] and included the following objectives under the digitalisation of environmental management action: digital transformation of environmental management processes; modelling of environmentally polluting activities; digital transformation of environmental disaster management through data-driven risk management and development of prevention measures; digitisation of environmental and geospatial data.

Coordination and integration

The Commission encourages the streamlining of environmental assessments in order to reduce duplication and avoid overlaps in environmental assessments applicable to projects. Moreover, streamlining helps to reduce unnecessary administrative burden and accelerates decision-making, provided it is done without compromising the quality of the environmental assessment procedure[227]. Latvia had already introduced the streamlining of environmental assessments under the EIA and Habitats Directives prior to the revision of the EIA Directive. Coordinated procedures have been established for the EIA Directive, Water Framework Directive and Industrial Emissions Directive.

Reforms through the Commission's Technical Support Instrument

The Commission supports environmental implementation and the green transition, not only through the EU financing programs, but also by granting technical assistance such as the Technical Support Instrument (TSI).

In 2021, the Commission's TSI supported a project related to EU taxonomy implementation in Latvia and development of a sustainable finance strategy. Apart from this project, Latvia was not active in seeking the support of the TSI for environmental reforms until 2022, when it submitted a request for technical support under the RRF. However, the request related to an improvement of the End-of-life vehicles system which was not sufficiently prepared. DG REFORM encourages Latvia to improve and resubmit the request in the next TSI cycle.

TAIEX EIR peer-to-peer projects

The TAIEX EIR Peer 2 Peer tool[228] has been launched by the Commission to facilitate peer-to-peer learning between environmental authorities.

In 2019, Latvia participated in three Taiex EIR Peer 2 Peer multi-country workshops: on air pollution from household heating, on the EU Timber Regulation for Nordic Baltic competent authorities and on life cycle approach and circularity in policy and procurement planning, hosting the last one in Riga. Latvia participated in a workshop on sustainable finance in 2020. More recently, Latvia has taken part in two multi-country workshops on ammonia-reducing technology and measures (2021) and zero pollution (2022).

[225] https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-2021.
[226] https://www.varam.gov.lv/lv/digitalas-transformacijas-pamatnostadnes-2021-2027gadam.
[227] The Commission issued a guidance document in 2016 regarding the setting up of coordinated and/or joint procedures that are simultaneously subject to assessments under the EIA Directive, Habitats Directive, Water Framework Directive, and the Industrial Emissions Directive, OJ C 273, 27.7.2016, p. 1.

[228] https://ec.europa.eu/environment/eir/p2p/index_en.htm