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Environmental Implementation Review 2022
Country Report - CROATIA

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) 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) 276 final} - {SWD(2022) 277 final} - {SWD(2022) 278 final}

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Executive summary

In previous Environmental Implementation Reviews (EIRs), the main challenges identified for Croatia in implementing EU environmental policy and law were:

- to improve **waste management**, in particular the separate collection of waste, and support municipalities in improving recycling performance and reducing landfilling;
- to strengthen the policy sector in order to speed up the uptake of the **circular economy** by all economic sectors;
- to finish **designating Natura 2000 (Special Area of Conservation – SAC) sites**, set up mechanisms for cooperation on Natura 2000 management with other sectors and ensure adequate funding;
- to implement **projects in the water sector**, in particular related to flood protection, and reach compliance with the requirements of the **Urban Waste Water Directive**, especially those laid down in Article 5 regarding more stringent treatment, in particular in big cities;
- to **accelerate the reduction** of particulate matter ($PM_{2.5}$ and PM_{10}) emissions and concentrations, nitrogen oxide (NO_x) emissions, nitrogen dioxide (NO_2) concentrations and ammonia (NH_3) emissions.

Progress on the separate collection and recycling of **waste** has been rather slow. Despite steady improvement, Croatia's recycling rate of 30.2% remains far below the EU average for 2019 (47.7%) and falls significantly short of the EU target for 2020 (50%). Most municipal waste is still landfilled, often without prior treatment. In 2021, the Commission opened an infringement procedure for the landfilling of waste without prior treatment in five Croatian counties (based on the *Malagrotta* case law), though most of the country's counties lack waste infrastructure. More efforts are needed to ensure that waste is managed in compliance with EU waste legislation in Croatia. There is no comprehensive circular economy strategy, but Croatia has included reforms relating to the circular economy in its national recovery and resilience plan (RRP), including a new legal framework and a reform of the tourism sector.

Progress with the **designation of SAC** sites has been slow, as 99% of Sites of Community Importance (SCIs) (740 out of 745) have not yet been designated as SACs. Extensive work is underway, but more efforts are necessary to put in place concrete conservation measures, in particular in the marine environment. Regarding conservation status, in particular that of species, large gaps in the monitoring system are evident. The main human-induced pressures on nature come from agriculture, forestry, urban development, changes in the water regime, climate change and alien species, and a mechanism is needed to limit the impact of these factors on nature.

As regards **water management**, the risk of floods is rising due to climate change. Flood protection efforts must be strengthened, taking into account alternative options and adequate mitigation measures. Compliance with the Urban Waste Water Treatment Directive is significantly lower than the EU average: 93% of urban waste water is not collected or treated. Greater efforts must therefore be made to reach compliance. Implementation of the Nitrates Directive has improved slightly.

Progress on **air quality** has been limited. Although key air pollutants have decreased significantly in Croatia in recent years, exceedances above the EU limit values established by the Ambient Air Quality Directive (AAQD) were registered for particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) and the Commission has opened an infringement procedure. Additional steps should be taken to address these non-compliance issues.

EU financing continues to provide substantial support to close the gap in the implementation of environmental measures. Croatia is due to receive over EUR **6 393.7** million in grants from its RRP (2021-2026) and EUR **8 707.6** million from the cohesion policy (2021-2027). Croatia's national RRP responds to the urgent need to foster a strong recovery and make Croatia future-ready. 40.3% of RRP spending will support climate objectives, while the 76 reforms and 146 investments contained in the RRP will help Croatia become more sustainable and resilient and better prepare it for the challenges and opportunities presented by the green and digital transitions.

Total environmental financing in Croatia amounted to around 1.32% of GDP in 2014-2020 (around EUR 4.5 billion), balanced between EU and national sources. Investment needs for 2021-2027 are estimated to be at least 1.79% of GDP, signalling a financing gap of 0.48% of GDP (assuming baseline financing levels).

Part I: Thematic areas

1. Circular economy and waste management

Measures towards a circular economy

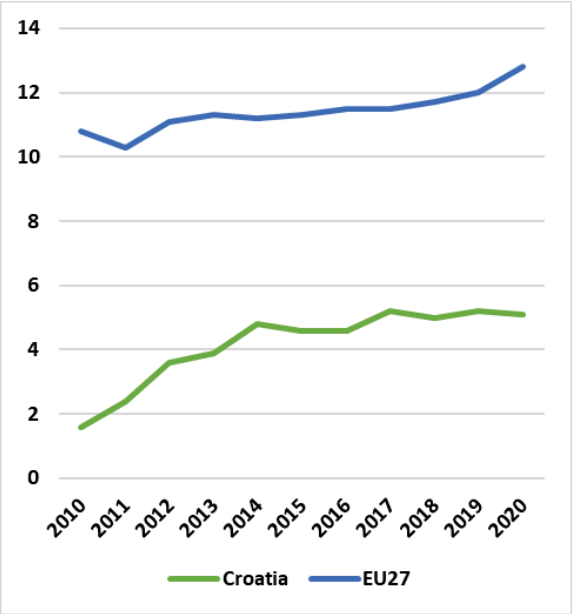
The new circular economy action plan, adopted in March 2020, is one of the main building blocks of the European Green Deal. The EU's transition to a circular economy will reduce pressure on natural resources and create sustainable growth and jobs. It is also a prerequisite for achieving the EU's 2050 climate neutrality target and halting biodiversity loss.

The action plan sets out initiatives for every stage of the product life cycle, aiming to reduce the EU's consumption footprint and 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 (also known as the circularity rate) is a good indicator of an economy's circularity, as it includes all the materials that are fed back into the economy. The circularity rate differs greatly from one country to another. To help achieve the EU circular economy action plan's goal of doubling the EU's circular material use rate by 2030, the Member States need to take ambitious measures targeting the whole product life cycle. Such measures range from sustainable product design, which would increase the durability, reparability, upgradability and recyclability of products, to other measures like remanufacturing, increasing circularity in production processes, recycling, boosting eco-innovation and increasing the uptake of green public procurement.

Croatia's circular (secondary) use of material was 4.8% in 2014 and 5.1% in 2020, compared to the EU average of 12.8 %. Since Croatia's circularity rate is increasing more slowly than the average EU increase, Croatia's gap to the EU average has grown. The lowest rate was recorded in Romania (1%), followed by Ireland and Portugal (both 2%). Differences in the circularity rate among the Member States are based not only on the amount of recycling in each country but also on structural factors in national economies.

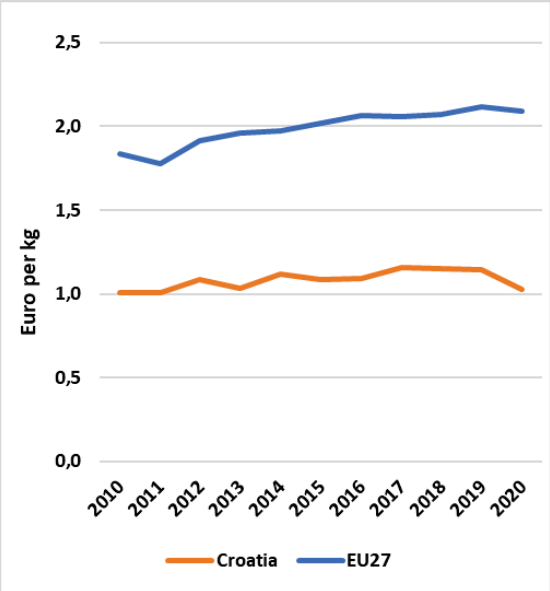
Figure 1: Circular material use rate (%), 2010-2020[1]



Resource productivity refers to 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, Croatia's resource productivity, with EUR 1.02 generated per kg of material consumed in 2020, is well below the EU average of EUR 2.09 per kg.

[1] Eurostat, Circular Economy Monitoring Framework.

Figure 2: Resource productivity 2010-2020[2]



Circular economy strategies

The Commission encourages Member States to adopt and implement national/regional circular economy strategies covering the whole product life cycle, as they are one of the most effective ways to progress towards a more circular economy at Member State level. Since the European Circular Economy Stakeholder Platform was launched in 2017[3], national, regional or local authorities have used it to share their strategies and roadmaps.

Beyond some isolated initiatives, Croatia has no comprehensive circular economy strategy, nor any sectoral strategies.

Croatia has included the following circular economy-related reforms in its national RRP:

- a new legal framework to facilitate the prevention, reuse and recycling of waste;
- a reform to improve food donation systems;
- a reform enhancing the sustainability of the tourism sector, with the aim of developing a new model of tourism that contributes to the green transition and adheres to circular economy principles;

the development of a framework for the design and implementation of green urban renewal strategies, with the aim of to developing models for the circular management of space and buildings.

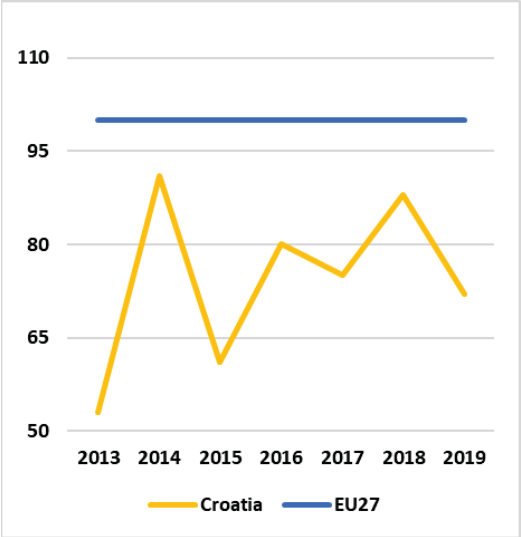
[2] Eurostat, Resource productivity.
[3] Circular Economy Stakeholder Platform.

Eco-innovation

A successful transition to a circular economy requires social and technological innovation, because the full potential of the circular economy can only be reached when it is implemented across all value chains. Eco-innovation is therefore 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.

With a total score of 86, Croatia ranked 21st on the 2021 European eco-innovation scoreboard, placing it among the countries catching up with eco-innovation. While Croatia performed below the EU average on all components of the 2021 EU eco-innovation index, its highest scores were seen in eco-innovation activities (1% below the EU average) and resource efficiency outcomes (11% below the EU average). Croatia's performance on eco-innovation inputs, eco-innovation outputs and socio-economic outcomes is significantly below the EU average.

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. Green public procurement (GPP) can therefore help drive the demand for sustainable products that meet reparability

[4] European Commission - Directorate-General for Environment (DG ENV), Eco-innovation Observatory, Eco-innovation index.

and recyclability standards. Croatia has had a national action plan on green public procurement since 2015.

A 2020 study developed a methodology for calculating carbon dioxide (CO_2) savings in the five public procurement categories in which most purchases are made and for which there are EU GPP criteria. These categories are:

- electricity supply;
- cars and light commercial vehicles;
- energy renovation of the outer shells of office buildings;
- IT devices (computers and monitors) and mobile phone chargers;
- reconstruction/modernisation of public lighting.

According to this study, the CO_2 savings from GPP in these product categories amounted to 121 000 tonnes in 2018.

In Croatia, uptake of green public procurement is monitored annually through the official Electronic Public Procurement Advertisement channel. According to the data gathered, green public procurement uptakeuptake increased sharply between 2016 and 2019. In 2019, contracting authorities concluded 1 731 contracts incorporating green public procurement criteria, while in 2021, the Croatian government adopted a decision under which the Central Public Procurement Office (Croatia's fourth largest contracting authority) will implement green public procurement.

EU Ecolabel and the Eco-Management and Audit 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.

In September 2021, Croatia had 43 products and 18 licences registered in the EU Ecolabel scheme out of 83 590 products and 2 057 licences in the EU. Take-up of these licences is therefore low[6]. However, take-up in Croatia has increased compared to the numbers mentioned in the 2019 EIR country report (5 products and 2 registered licences). Moreover, three organisations from Croatia are currently registered in EMAS, the European Commission's Eco-Management and Audit Scheme[7], whereas the 2019 EIR country report states that there were none previously. Some progress has therefore been made, as the country is starting from a low level of Ecolabel and EMAS take-up.

Croatia has made limited progress on strengthening its circular economy policy framework, so the priority action from 2019 has been retained and a new one on improving the circular material use rate has been added.

2022 priority actions

- Strengthen the policy framework to speed up the transition towards the circular economy by all economic sectors, including priority sectors like plastics, textiles, and construction.
- Adopt measures to increase 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 per capita in absolute terms;
(iii) limiting energy recovery to non-recyclable waste and phasing out landfilling of recoverable waste.

This section focuses on management of municipal waste[8] for which EU law sets mandatory recycling targets.

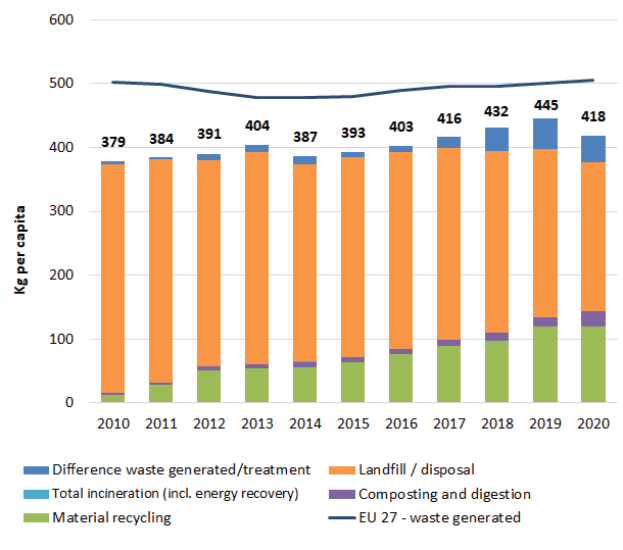
Preventing products and materials from becoming waste for as long as possible is the most efficient way to improve resource efficiency and reduce the environmental impact of waste. Waste prevention and re-use are the most preferred options and top the waste hierarchy. The amount of municipal waste generated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

After a downward trend, municipal waste[9] generation in Croatia has started to increase in recent years. It came

[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] As of May 2018. European Commission, Eco-Management and Audit Scheme.
[8] 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.
[9] Municipal waste consists of waste collected by or on behalf of municipal authorities, or directly by the private sector (business or private non-profit institutions) not on behalf of municipalities.

to 418 kg/year/inhabitant in 2020 but remains below the EU average (505 kg/year/inhabitant), as Figure 4 shows. This indicates that Croatia's economic growth is not yet decoupled from its generation of waste.

Figure 4: Municipal waste by treatment in Croatia, 2010-2020[10]



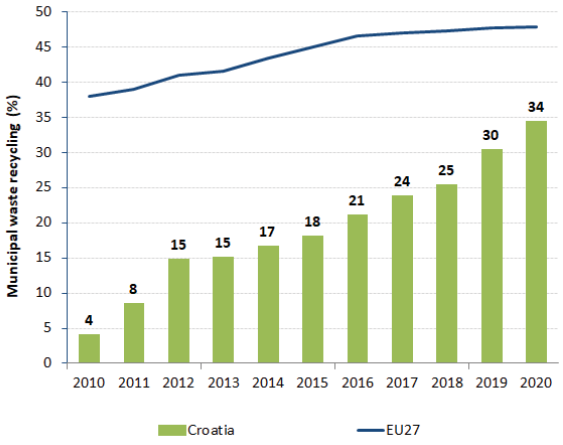
According to the European Environment Agency (EEA), 95% of municipal waste was landfilled in 2010 and 59% in 2019. Furthermore, in 2015, the amount of biodegradable municipal waste landfilled was 110% of the amount landfilled in 1997, which is taken as a reference year. The EU Accession Treaty target for 2013 – to landfill a maximum of 75% of biodegradable municipal waste – was therefore missed by a wide margin. According to the Accession Treaty, after 31 December 2018 waste must no longer be deposited in landfills that do not comply with the requirements of the Landfill Directive. Moreover, the information available to the Commission suggests that a significant number of irregular and substandard landfills operate in Croatia, presenting serious risks for human health and the environment. Studies and investigations launched by the European Commission found that municipal waste was being landfilled without any treatment in all the sites visited (Diklo, Karepovac, Mraclinska Dubrava, Sv. Juraj and Totovec). These sites also lack infrastructure capacities, as do the counties where they are located[OBJ][11] and the rest of Croatia's counties[12]. The Commission therefore opened an infringement procedure against Croatia in November 2021[13]

Despite efforts to close and remedy illegal dumping sites, there is still scope for improvement. On 2 May 2019, the Court of Justice of the EU delivered its judgment in Case C-250/18 and condemned Croatia for breach of Articles 5(1), 13 and 15(1) of the Waste Framework Directive (2008/98/EC). The case concerns the illegal dump site in Biljane Donje, where approximately 140 000 tonnes of production residue from the processing of ferromanganese and silicomanganese has been deposited directly on the ground, less than 50 metres from houses, since 2010. As Croatia still had not executed the judgment, in August 2021 a letter of formal notice was issued under Article 260 TFEU.

Additionally, in January 2022 the Commission opened an infringement procedure against Croatia in respect of the non-communication of transposition measures for Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment.

Over the past decade, Croatia has made slow but steady progress on stepping up its recycling rate and diverting municipal waste from landfilling. However, after increasing modestly since 2017, the recycling rate for municipal waste stood at 34.3% in 2020. This is well below the EU average for 2020 (47.8%) and falls far short of the EU target for 2020 (50%). Figure 5 shows that Croatia needs to invest more in recycling to meet the EU recycling targets for 2020 and 2025.

Figure 5: Recycling rate of municipal waste, 2010-2020[14]



[10] Eurostat, Municipal waste by waste operation, April 2022.
[11] Directive 1999/31/EC.
[12] Directive 2008/98/EC.
[13] *Malagrotta* case law.
[14] Eurostat, Recycling rate of municipal rate, April 2022.

For this reason, the Commission's Early Warning Report[15] identified Croatia as one of the countries at risk of missing the EU target of recycling 50% of municipal waste by 2020. The report listed key priority measures which Croatia should take to close the implementation gap. The Commission is currently finalising its analysis of the progress made on the recommendations from the 2018 Early Warning Reports and an analysis of progress towards achieving the 2025 waste recycling targets. The report will be presented at the end of 2022.

Implementation of the 2018 waste legislative package

Member States had until 5 July 2020 to bring their national laws into line with the amendments included in the revised Waste Framework Directive, the Packaging and Packaging Waste Directive and the Landfill Directive[16]. Croatia still had not done this for the whole waste package by July 2021, so the Commission sent a reasoned opinion urging Croatia to fully enact the new EU rules on waste into national legislation, as the case may be referred to the Court of Justice otherwise. Croatia adopted a new waste management act in July 2021.

Waste management plans and waste prevention programmes are instrumental for the sound implementation of the 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.

The waste management plan for 2017-2022 was adopted in January 2017 and includes the waste prevention programme. A revised version of the Croatian waste management plan - for 2022 only - was adopted in December 2021. This plan is currently being assessed. Work has begun on preparing the next waste management plan for 2023-2027. Moreover, a food waste prevention and reduction plan for 2019-2022 was adopted in 2019, and efforts are underway to prepare the food waste prevention and reduction plan for 2023-2028.

Four priority actions were identified for Croatia in the 2019 EIR. As there has been little to no progress in their implementation, they have been retained and a new priority action on compliance with EU waste rules has been added.

2022 priority actions

- Improve and extend separate collection of waste, including bio-waste. Establish minimum service standards for separate collection (e.g. frequency of collections, types of containers) in municipalities to ensure high capture rates for recyclable waste.
- Develop and run implementation support programmes for municipalities to support efforts to organise separate collection, implement 'pay-as-you-throw' schemes and improve recycling performance.
- Improve the functioning of extended producer responsibility systems, in line with the relevant general minimum requirements.
- Introduce and gradually increase landfill taxes to phase out landfilling of recyclable and recoverable waste.
- Implement a national waste management plan that is in line with the revised Waste Framework Directive.

[15] 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.

[16] 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.

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.

Croatia's nature protection strategy and action plan, adopted by the Parliament on 7 July 2017[17], contains many relevant national activities.

In May 2020, the Commission opened an infringement procedure against Croatia for systematically failing to appropriately assess the impact of changes to wind farm projects on Natura2000 sites, contrary to Articles 6(3) and 7 of Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

Nature protection and restoration

The EU Habitats and Birds Directives are the cornerstone of EU legislation to conserve of the EU's wildlife, natural habitats and ecosystems. As such, they are key legislative tools for delivering on the targets of the EU Biodiversity Strategy for 2030[18].

Natura 2000[19], the largest coordinated network of protected areas in the world, is the core instrument for achieving the Birds and Habitats Directives' objectives of ensuring the long-term protection, conservation and survival of Europe's most valuable and threatened species and habitats and the ecosystems they underpin. Setting up a coherent Natura 2000 network, designating Sites of Community Importance (SCIs) as Special Areas of Conservation (SACs)[20] and identifying 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

Croatia hosts 76 habitat types and 244 species covered by the Habitats Directive. The country is also home to populations of 125 bird taxa listed in Annex I to the Birds Directive.

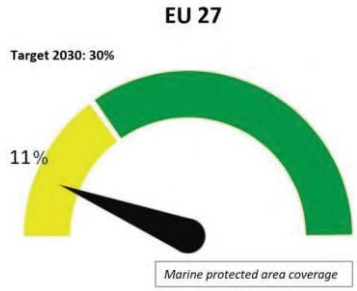
By 2021, 36.7% of Croatia's land area was covered by Natura 2000 (EU average: 18.5%), with Special Protection Areas (SPAs) classified under Birds Directive covering 30.2% (EU average: 12.8%) and SCIs under the Habitats Directive covering 28.4% (EU average: 14.2%) of the country's territory. Although the terrestrial network can be considered largely complete, there are still gaps in the marine network.

Considering both Natura 2000 and other nationally designated protected areas, Croatia legally protects 37.8% of its terrestrial areas (EU-27 average: 26.4%) and 9.5 % of its marine areas (EU-27 average: 10.7%)[21].

[17] Nature Protection Strategy and Action Plan (2017-2025), Croatian Official Gazette No 72/2017.
[18] They should be reinforced by the Nature Restoration Law, according to the new EU Biodiversity Strategy.
[19] Natura 2000 comprises Sites of Community Importance (SCIs), designated pursuant to the Habitats Directive, and Special Protection Areas (SPAs), classified pursuant to the Birds Directive. The coverage figures do not add up because some SCIs and SPAs overlap. Special Areas of Conservation (SACs) are SCIs designated by the Member States.

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

Figure 6: Marine & terrestrial protected area coverage, 2021[22]



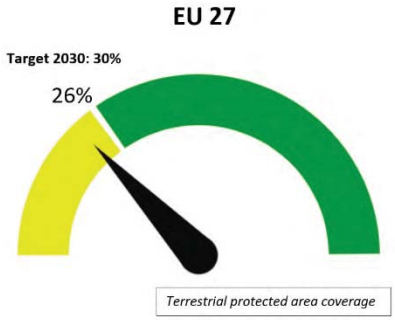
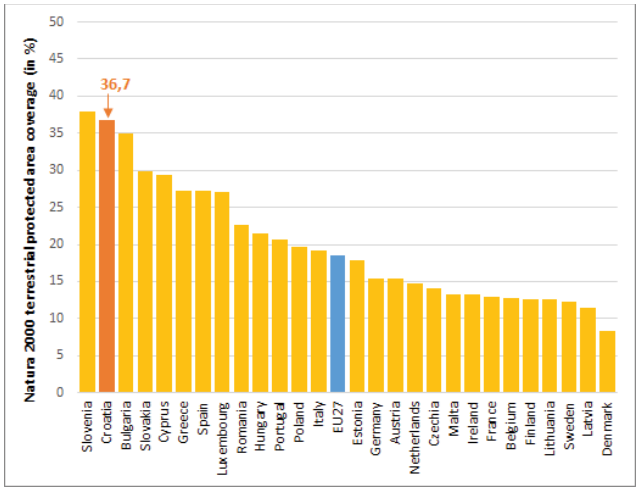


Figure 7: Natura 2000 terrestrial protected area coverage, 2021[23]



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

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

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

The six-year deadline set by the Habitats Directive for designating SCIs as SACs and establishing appropriate conservation objectives and measures expired on 4 December 2020 for all but a few sites in Croatia.

Nevertheless, 99% of SCIs (740 out of 745) have not yet been designated as SACs. Moreover, site-specific conservation objectives have not been established for the sites. As regards the necessary conservation measures, Croatia has defined management plans for only a few SCIs.

Several national projects, supported by EU funds, are engaged in extensive work to:

- establish the Natura 2000 management framework;
- draw up management plans for the sites;
- develop monitoring and reporting systems; and
- map coastal and seabed habitats and biodiversity in waters under Croatian jurisdiction.

However, more efforts are necessary to put in place concrete conservation measures for the sites with regard to activities linked to the most important pressures, in particular agriculture, forestry, fisheries, energy, and water management. Therefore, Croatia is still to identify the necessary conservation objectives and measures for the designated sites and fill the gap in designation for the marine environment.

Progress in maintaining or restoring favourable conservation status of species and habitats

The results of 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 for measuring the performance of Member States[24].

According to Croatia's report on the conservation status of habitats and species covered by the Article 17 of the Habitats Directive in 2013-2018 (the first such report it had ever submitted), 39.2% of habitat assessments show good conservation status. However, the share of protected-species assessments showing good conservation status in 2018 was only 7.14%. Many conservation status assessments, particularly for species (46.67%), are reported as unknown, which indicates a very large gap in the monitoring system. As far as birds

[24] Conservation status and trends of habitats and species — European Environment Agency (europa.eu).

are concerned, only 10% of breeding species showed increases or stability in their short-term population trends (for key wintering species, this figure was 11%). However, there is a very large knowledge gap (83% for breeding and 84% for key wintering species).

The habitat groups faring poorly are, in particular, dunes, bogs, mires and fens, grasslands, freshwater habitats and coastal habitats. The species groups faring poorly are, in particular, mammals, fish, vascular plants and molluscs. However, it should be noted that there are large knowledge gaps on the conservation status of species.

Figure 8: Assessments on the conservation status of habitats for the 2007-2012 and 2013-2018 reporting periods[25]

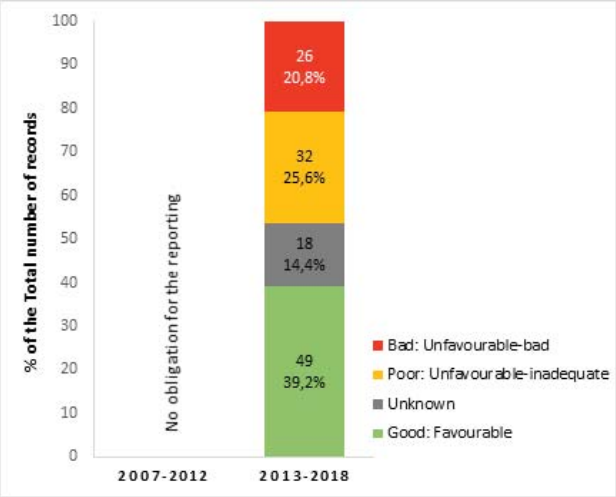
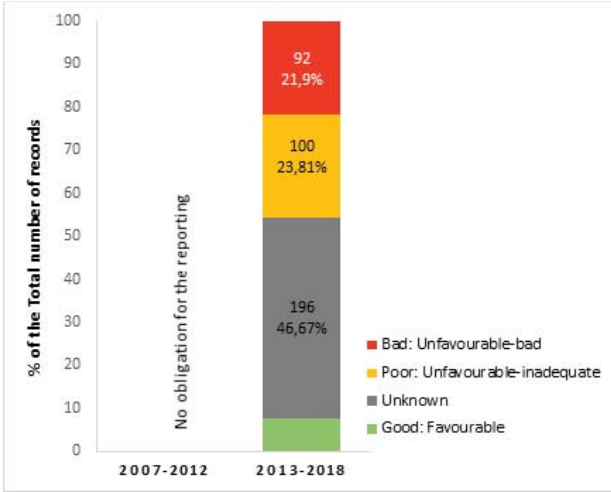


Figure 9: Assessments on the conservation status of species for the 2007-2012 and 2013-2018 reporting periods[26]



In May 2020, the Commission issued Croatia with a letter of formal notice for incorrect application of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, as it had failed to ensure that changes to wind farm projects were assessed appropriately.

Progress on maintaining or restoring favourable conservation status of species and habitats is slow, In part due to a large knowledge gap on monitoring. The main human-induced pressures as reported under Art. 17 HD and Art. 12 BD are from agriculture, forestry, urban development, changes in the water regime, climate change and alien species.

Bringing nature back to agricultural land and restoring soil ecosystems

Agricultural land

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 of 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 of the use of fertilisers);
- bring back at least 10% of agricultural area under high-

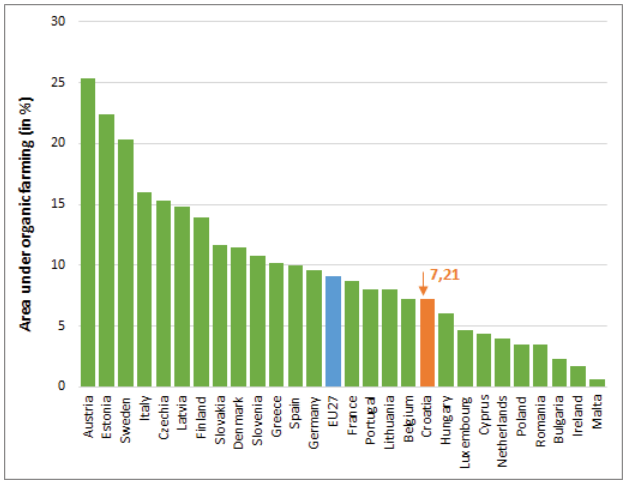
[25] European Environment Agency, Conservation status and trends of habitats and species, December 2021. When comparing the figures shown for 2007-2012 and 2013-2018, please note that these may also be affected by changes in method or better data availability. Data for 2007-2012 are not available as Croatia did not join the European Union until 2013.

[26] Idem.

diversity landscape features and increasing areas under organic farming to at least 25%.

With an estimated 7.21% of its agricultural area under organic farming, Croatia is below the EU average of 9.07% (2020 data, Eurostat).

Figure 10: Share of total utilised agricultural area occupied by organic farming per Member State, 2020[27]



Croatia's agricultural sector lags behind the EU average in competitiveness and productivity, but performs better on environmental/climate-related issues connected with agriculture (e.g. biodiversity, greenhouse gas emissions). As in many other EU Member States, generational renewal remains a challenge and rural areas face negative demographic trends, depopulation and a lack of basic infrastructure.

Soil ecosystem

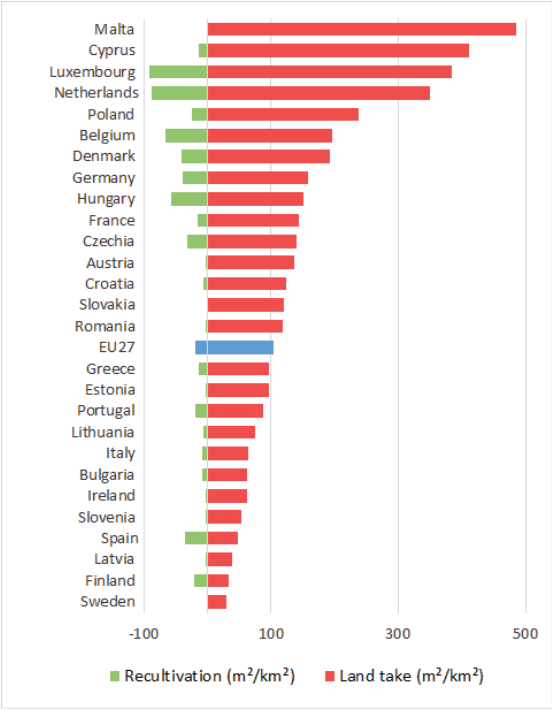
The new EU soil strategy, adopted on 17 November 2021, stresses the importance of soil protection, of sustainable soil management and of restoring degraded soils to achieve the Green Deal objectives as well as land degradation neutrality by 2030.
This entails:
(i) preventing further soil degradation;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

One factor of degradation is the area of soil that is sealed or artificialised[28]. In Croatia, the land taken per year between 2012 and 2018 (see Figure 11) can be seen as a measure of one important source of pressure on nature and biodiversity: land use change. This also constitutes a source of environmental pressure on people living in urbanised areas.

Land take in the EU-28 amounted to 539km^2/year between 2012 and -2018 despite decreasing in the last decade (from over 1 000 km^2/year in 2000-2006).

Net land take compares the area of land taken with the area returned to non-artificial land categories (re-cultivation). While some land was re-cultivated in the EU-28 in 2000-2018, 11 times more land was taken. Croatia ranks above[29] the EU average as regards net land take, with 179.4 m^2/km^2 (EU-27 average: 83.8 m^2/km^2).

Figure 11: Land take and re-cultivation in the EU-27 (m^2/km^2), 2012-2018[30]



Forests and timber

The EU forest strategy for 2030, adopted in July 2021, is part of the 'Fit for 55' package. The strategy promotes

[27] https://ec.europa.eu/eurostat/databrowser/view/sdg_02_40/default/table?lang=en (Eurostat, Area under organic farming, February 2022.).

[28] 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).

[29] Land take in Europe — European Environment Agency (europa.eu), Fig. 6.

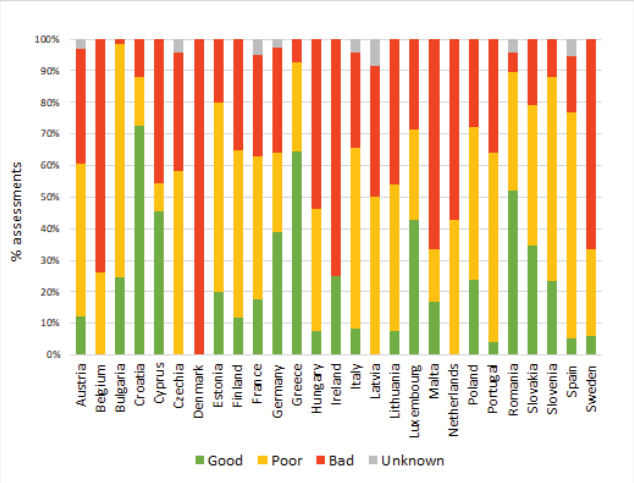
[30] European Environment Agency, Land take in Europe, December 2021.

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 ambition.
Forests are important carbon sinks and conserving them is vital if the EU is to achieve climate neutrality by 2050.

Although 27% of EU forest area is protected under the Habitats Directive, less than 15% of assessments show a favourable conservation status[31]. The share of assessments showing bad conservation status increased from 27% to 31% in the EU compared to 2015.

Forests cover 47.86% of Croatia's territory[32] and more than 25% of the assessments show a favourable conservation status, which is well above the EU average[33] In 2020, Croatia had 7 000 ha of primary forests[34].A complaint concerning illegal logging in Natura 2000 areas was filed in 2021 and is being assessed by the Commission.

Figure 12: Conservation status of forests protected under the Habitats Directive in EU Member States, 2013-2018 (% assessments)[35]



The European Union Timber Regulation (EUTR)[36], which prohibits the placing on the EU market of illegally harvested timber, requires the competent authorities in the EU Member States to conduct regular checks on operators and traders and apply penalties in the event of non-compliance. With the amendment of Article 20 of the EUTR, biennial reporting became annual; as of 2019, reports cover the calendar year.

Between March 2017 and February 2019[37], Croatia carried out 104 checks on operators importing timber. It is estimated that Croatia had 3 589 operators placing imported timber types on the internal market over the reporting period.

A proposal for the Regulation on the making available on the EU market and the export of products associated with deforestation and forest degradation (Deforestation Regulation) was adopted on 17 November 2021 following a 2019 request from the Council to table a legislative proposal to address the problem and a European Parliament resolution recommending the Commission come forward with an EU legal framework to halt and reverse EU-driven global deforestation. This Regulation will repeal and replace the EU Timber Regulation, as it will essentially incorporate and improve the existing system for controlling timber legality.

Invasive alien species (IAS)

IAS 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 (the IAS Regulation)[38] is the list of Invasive Alien Species of Union concern.

There are currently 66 invasive alien species (IAS) of Union concern, of which 30 are animal species and 36 are plant species.

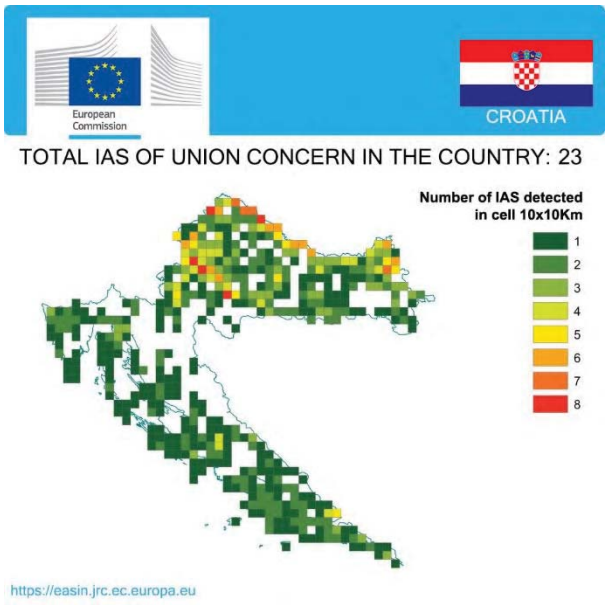
According to a 2021 report[39] on the review of the application of the IAS Regulation, the Regulation's implementation is already starting to deliver on its objectives, such as a coherent framework for addressing IAS at EU level and increased awareness of the problem

[31] EEA, State of Nature in the EU.
[32] EEA, Forest information system for Europe.
[33] COM SWD (2021) 652.
[34] JCR, Mapping and assessment of primary and old-growth forests in Europe, p. 13.
[35] European Environment Agency, Conservation status and trend in conservation status by habitat group - forests, January 2022.
[36] Regulation (EU) No 995/2010.
[37] COM/2020/629 final.
[38] Regulation (EU) No 1143/2014.
[39] 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 October 2021.

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 were staggered between July 2016 and July 2019, it would be premature to draw conclusions about several aspects of the implementation of the IAS Regulation.

A 2021 report[40] on the baseline distribution shows that of the 66 species on the EU list, 23 have been observed in the environment in Croatia. The spread can be checked in Figure 13.

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



2022 priority actions

- Complete the process of designating SCIs in the marine environment. Designate all SACs and put in place site-specific conservation objectives and necessary conservation measures for all Natura 2000 sites.
- Complete an adequate framework for managing the Natura 2000 network, including by ensuring sufficient financial and human resources in accordance with the needs identified in the prioritised action framework[41].
- Set up a mechanism for effective cooperation with economic sectors, in particular water management, forestry, agriculture, fisheries and energy, on Natura 2000 management and the restoration of habitats and species.
- Fill in the gaps in the system for monitoring the conservation status of protected habitats and species.
- Enhance control of logging in Natura 2000 areas, efficiently preventing and prosecuting illegal logging in particular.
- Implement the action plans necessary to control the spread of IAS in accordance with the IAS Regulation.

Marine ecosystems

The EU Biodiversity Strategy 2030 aims to substantially reduce the negative impacts on sensitive species and habitats in marine ecosystems and to achieve good environmental status as well as eliminate or reduce the incidental catches of protected, endangered, threatened and sensitive species to a level that allows species recovery and conservation[42].

The Marine Strategy Framework Directive (MSFD) requires Member States to achieve good environmental status (GES) of their 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 provide an initial assessment of their marine waters (Article 8), both by 15 October 2018. The Commission then assesses whether this constitutes an appropriate framework to meet the requirements of the Directive

The Commission assessed Croatia's 2018 determinations of GES for each MSFD's 11 descriptors[43] and established their level of adequacy in relation to the Commission Decision on criteria and methodological

[40] De Jesus Cardoso A., 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 v. JRC baselines, EUR 30689 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-37420-6, doi:10.2760/11150, JRC123170.

[41] The prioritised action framework for the Croatian Natura 2000 network is currently in the national process of adoption. The version of the document distributed for public consultation is available HERE (in Croatian only).

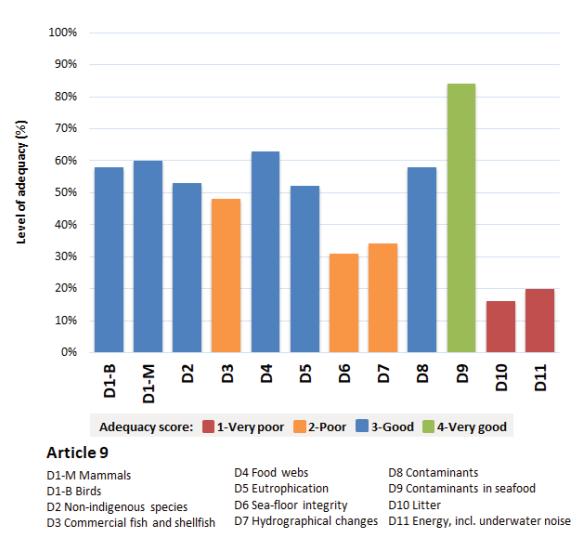
[42] The EU Common Fisheries Policy (CFP) aims to contribute to the achievement of the objectives of the environmental legislation for marine ecosystems.

[43] Annex I of Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive), OJ L 164, 25.6.2008, p. 19–40.

standards on good environmental status of marine waters[44].

A good or very good score indicates that the national determinations of GES are well aligned with requirements of the Commission GES Decision, providing qualitative and quantitative national environmental objectives to be achieved for their marine waters.

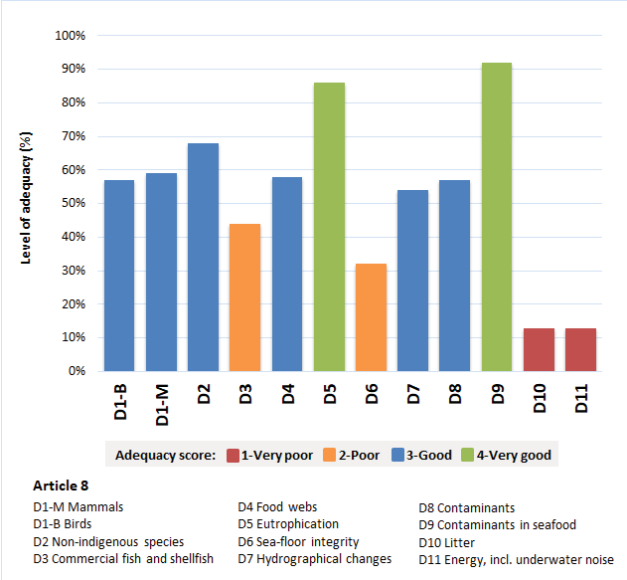
Figure 14: Level of adequacy of GES determination by Croatia (MAD region) with criteria set out in Article 9 of the Commission GES Decision (2018 reporting exercise)[45]



Croatia has one marine subregion, MAD (Mediterranean: Adriatic Sea). In this marine subregion, 6 out of 11 determinations of GES were assessed as good or very good, indicating that the national determination of GES by Croatia is consistent for 6 out of 11 descriptors.

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

Figure 15: Level of adequacy of national assessment of Croatia's marine environment (MAD region) with the criteria set out in Article 8 of the Commission GES Decision (2018 reporting exercise)[46]



7 descriptors out of 11 were scored as good or very good. Croatia's assessment of its marine environment is therefore consistent with the requirements set under the Commission GES Decision for 7 out of 11 descriptors.

In the EIR 2019, the Commission recommended that Croatia ensure timely reporting of the different elements under the Marine Strategy Framework Directive so that Croatia could be part of future Commission assessments. This priority action has been fulfilled. As highlighted in the Commission's report on the implementation of the MSFD[47], 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 the Member States. The Commission assessment highlights that the Member States need to step up their efforts to determine the good environmental status and improve their use of the criteria and methodological standards laid down in the Commission GES Decision. These considerations form the basis for the 2022 priority actions.

[44] The Commission GES Decision, Commission Decision (EU) 2017/848, OJ L 125, 18.5.2017, p. 43-74.

[45] 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 them.

[46] Idem.

[47] COM(2020)259.

2022 priority actions

- Improve the status of descriptors that were assessed as very poor.
- Implement the Commission's recommendations regarding the preparation of marine strategies, encompassing: assessment, determination of good environmental status and establishment of environmental targets.
- Ensure regional cooperation with Member States sharing the same marine (sub)region in order to address predominant pressures.

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.

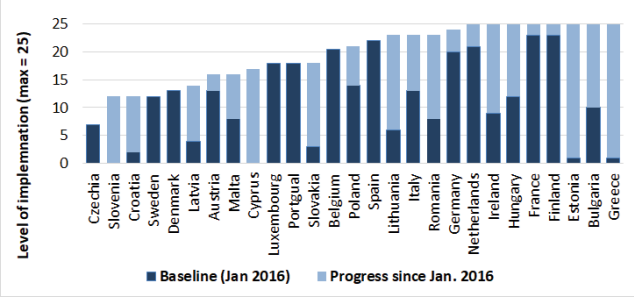
The first study on the mapping and evaluation of ecosystems on the national level was made in 2015. This was the first initiative towards implementing the Member States' obligations under the EU Biodiversity Strategy by 2020. The result of the project is a map of ecosystems and a summary overview of the state of ecosystem types in Croatia. Unfortunately, this map was made in 1:100 000 scale and provides only rough information about the distribution of ecosystems of Croatia.

In 2018, the Croatian Agency for the Environment and Nature started a project to evaluate the quality of data available for assessing ecosystem services and identify and connect the scientists and other relevant experts who could implement ecosystem services essessment in Croatia.

There has been a great increase in the number of local-level studies of ecosystem services in recent years. All of these studies, together with the above projects, are contributing to work on the national project to map and assess the state of ecosystems and ecosystem services nationwide.

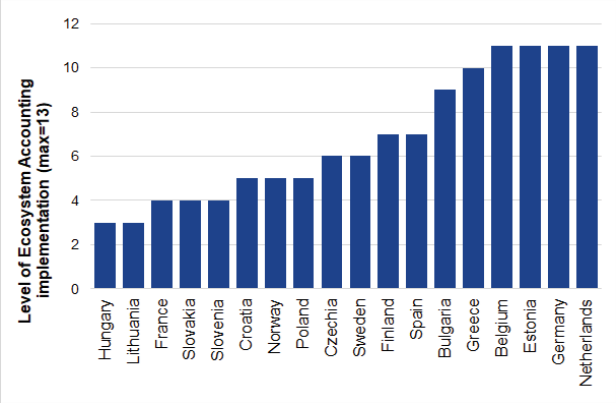
Croatia has provided up-to-date information and significant progress has been recorded since January 2016 (Figure 16). This assessment is based on 27 implementation questions and is updated every six months.

Figure 16: ESMERALDA MAES barometer (January 2016 - March 2021)[48]



Progress on the implementation of ecosystem accounting is assessed at national level, based on 13 questions (see Figure 17).

Figure 17: Ecosystem accounting barometer[49]



2022 priority actions

- Continue supporting the mapping and assessment of ecosystems and ecosystem services, and the development of ecosystem accounting, through appropriate indicators for integrating ecosystem extent, ecosystem condition and ecosystem services (including some monetary values) into national accounts; continue supporting the development of

[48] European Commission, Joint Research Centre, Publication Office, EU Ecosystem Assessment: summary for policymakers, May 2021, p. 80.
[49] MAIA portal, Mapping and Assessment for Integrated Ecosystem Accounting (EU Horizon 2020 project), 2022. MAIA uses the System of Environmental Economic Accounting – Ecosystem Accounting (SEEA EA) as the methodological basis for ecosystem accounting. The SEEA EA is an integrated and comprehensive statistical framework that is based on five core accounts: ecosystem extent, ecosystem condition, ecosystem services (physical and monetary) and monetary ecosystem asset.

national business and biodiversity platforms, including natural capital accounting systems, to monitor and evaluate the impact of business on biodiversity.

3. Zero pollution

Clean air

EU clean air policies and legislation need to significantly improve air quality in the EU, by moving the EU closer to the air 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% compared to 2005.

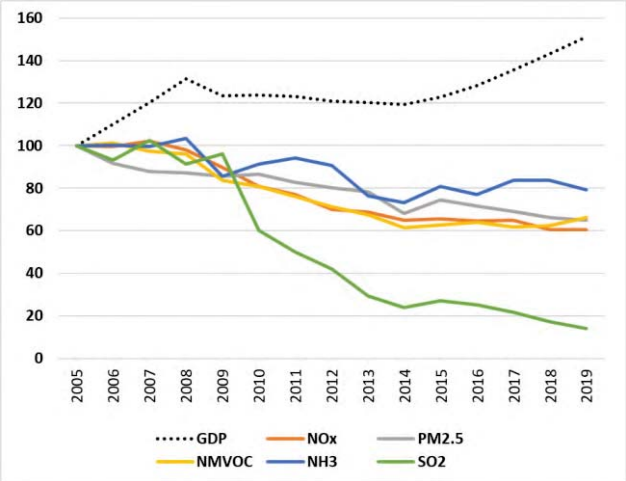
The EU has developed a comprehensive body of air quality legislation, which establishes health-based standards[50] and emission reduction commitments[51] for a number of air pollutants.

Air quality in Croatia gives cause for concern. The latest available annual estimates (for 2019) by the European Environment Agency[52] point to about 4 200 premature deaths (or 43 400 years of life lost (YLL)) attributable to fine particulate matter concentrations[53], 240 (2 600 YLL) to ozone concentration[54] and 170 (1 700 YLL) to nitrogen dioxide[55] concentrations[56].

Emissions of key air pollutants have decreased significantly in Croatia in recent years, while GDP growth continued (see Figure 18) According to the latest projections submitted under Article 10(2) of the National Emission Reduction Commitments Directive (NECD)[57], Croatia expects to fulfil its emission reduction commitments for all air pollutants covered by the Directive for the period 2020 to 2029 and for most pollutants for the period from 2030 onwards. However, the projections do not indicate that the emission reduction commitments for NO_x will be fulfilled for the period from 2030 onwards. The latest inventory data submitted by Croatia, prior to review by the Commission, indicate that Croatia is in compliance with the emission reduction commitments for all pollutants in 2020.

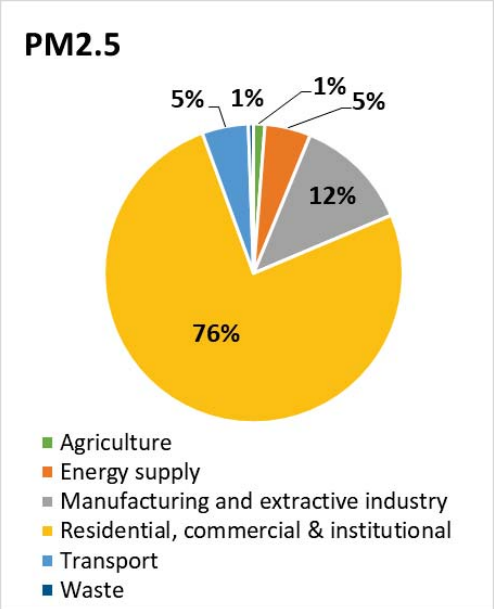
Croatia submitted its national air pollution control programme on 11 October 2019.

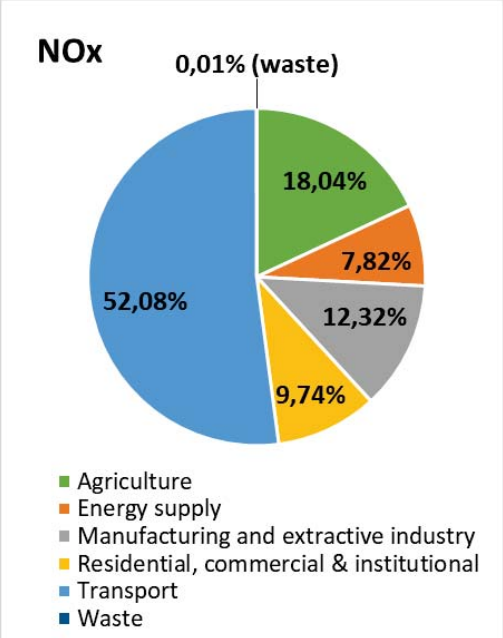
Figure 18: Emission trends for main pollutants/GDP in Croatia, 2005-2019[58]



[50] European Commission, 2016, Air Quality Standards.
[51] European Commission, Reduction of National Emissions.
[52] European Environment Agency, Air Quality in Europe –2021 RapportEuropean Environment Agency, Air Quality in Europe – 2021 report. Please see the report for details of the underpinning methodology (p.106).
[53] Particulate matter (PM) is a mixture of aerosol particles (solid and liquid) covering a wide range of sizes and chemical compositions. PM_{10} ($PM_{2.5}$) refers to particles with a diameter of 10 (2.5) micrometres or less. PM is emitted from many human sources, including combustion.
[54] Low-level ozone is produced by photochemical action on pollution.
[55] NO_x is emitted during fuel combustion by e.g. industrial facilities and the road transport sector. NO_x is a group of gases comprising nitrogen monoxide (NO) and nitrogen dioxide (NO_2).
[56] Please note that these figures refer to the impact of individual pollutants. To avoid double-counting, they cannot be added up to derive a sum.
[57] Directive 2016/2284/EU.
[58] European Environment Agency.

Figure 19: $PM_{2.5}$ and NO_x emissions by sector in Croatia (2019)[59]





For the year 2020, exceedances of the EU limit values establish*ed by the Ambient Air Quality Directive (AAQD)* were registered for particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) in two agglomerations and one zone respectively. Furthermore, the target values regarding ozone concentration have not been met for one air quality zone[60] .

Persistent breaches of air quality requirements, which have severe negative effects on health and environment, are being followed up by the European Commission through infringement procedures (mainly for PM_{10} and NO_2 limit value exceedances) in all Member States concerned, including Croatia. The aim is for appropriate measures to be put in place to bring all air quality zones into compliance.

There is an ongoing infringement procedure concerning daily exceedances of PM_{10} and $PM_{2.5}$ limit values for three air quality zones in Croatia. Continuous monitoring of PM_{10} in Croatia shows persistent exceedance of PM_{10} limit values: in two agglomerations (Zagreb and Osijek) and one zone (Industrijska zona), limit values were exceeded for more than 35 days (and in some years as many as 100 days) per year from 2013 until at least 2018, while the limit value for the annual average was also exceeded in Industrijska zona.

Monitoring of $PM_{2.5}$ in Croatia shows that the annual limit value for $PM_{2.5}$ (25 µg/m³) was exceeded in the agglomeration of Zagreb and in Industrijska zona from 2015 until at least 2018; some years, $PM_{2.5}$ concentrations even reached 41 µg/m³).

The trends of exceedance in these areas show no signs of changing, indicating that the measures taken under the Croatian authorities' air quality plans are not effective.

As emissions of particulate matter have not decreased, it is evident that the 2019 priority actions have not been addressed completely.

2022 priority actions

- Take additional measures to attain the emission reductions required to fulfil NECD emission reduction commitments, as the latest air pollutant emission projections suggest that such measures are necessary.
- Take, in the context of the national air pollution control programme, actions towards reducing the main emission sources.
- Maintain downward trends for air pollutant emissions and reduce the adverse effects of air pollution on health and the economy with a view to reaching WHO guideline values in future and fully comply with EU air quality standards where these are not met.

[59] European Environment Agency.

[60] European Environment Agency, Eionet Central Data Repository

Industrial emissions

The main objectives of EU policy on industrial emissions are to:
(i) protect air, water and soil;
(ii) prevent and manage waste;
(iii) improve energy and resource efficiency;
(iv) clean up contaminated sites.

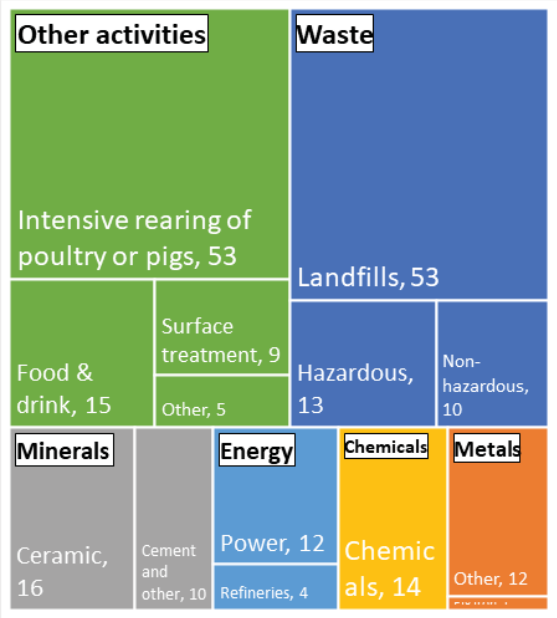
To achieve this, the EU takes an integrated approach to the prevention and control of routine and accidental industrial emissions. The cornerstone of the policy is the Industrial Emissions Directive (IED)[61]. The Commission tabled a proposal in April 2022[62]. The revision seeks to improve the Directive's contribution to the zero-pollution objective, as well as its consistency with climate, energy and circular economy policies.

The below overview of industrial activities regulated by the IED is based on data reported to the EU Registry (2018)[63].

In Croatia, around 230 industrial installations are required to have a permit based on the IED. The distribution of installations is shown in the figure below.

In 2018, the industrial sectors in Croatia with the most IED installations were the intensive rearing of poultry and pigs (23%), followed by landfill sites (23%), mineral production (12%) and the food and drink industries (7%).

Figure 20: Number of IED industrial installations per sector in Croatia, 2018[64]



The industrial sectors identified as placing the largest burden on the environment in terms of **emissions to air** were the energy sector (power and refineries) for sulphur oxides (SO_x), particulate matter ($PM_{2.5}$), arsenic (As), chromium (Cr) and nickel (Ni); surface treatment using organic solvents for non-methane volatile organic compounds (NMVOCs); intensive rearing of poultry or pigs for ammonia (NH_3); other industrial product use for lead (Pb), copper (Cu) and cadmium (Cd); mineral production for nitrogen oxides (NO_x), mercury (Hg) and zinc (Zn); and waste management for dioxins. The breakdown is shown in the following graph.

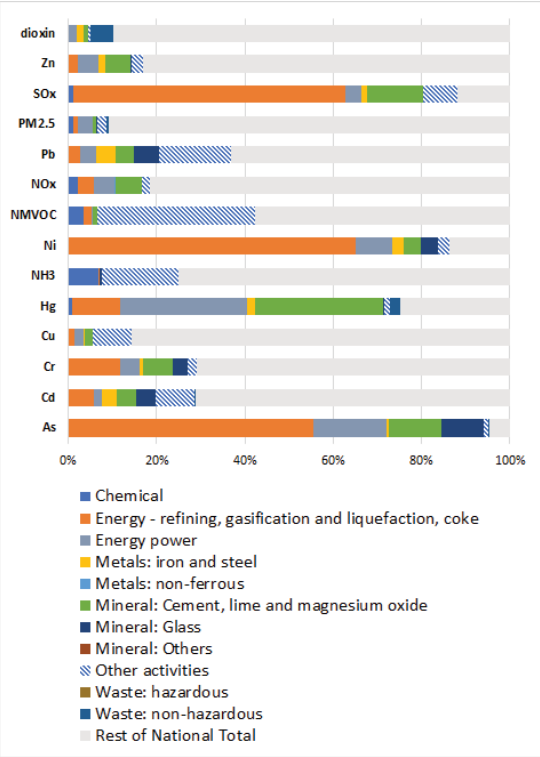
[61] Directive 2010/75/EU covers industrial activities carried out above certain thresholds. It covers the energy industry, metal production, the mineral and chemical industry, waste management, and a wide range of industrial and agricultural sectors (e.g. intensive rearing of pigs and poultry, pulp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

[62] European Commission, proposal for a revision of the Industrial Emissions Directive, 4 April 2022. 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).

[63] European Environment Agency, European Industrial Emissions Portal.

[64] European Environment Agency, EU Registry, European Industrial Emissions Portal (data retrieved on 3 November 2021).

Figure 21: Emissions to air from IED sectors and other national total air emissions in Croatia, 2018[65]

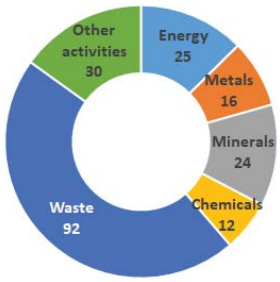


The environmental burdens for industrial emissions to water mainly result from the production of chemicals, in the case of nitrogen, and refineries, in the case of heavy metals (based on E-PRTR data).

The EU's enforcement approach under the IED creates strong rights for the public to have access to relevant information and to participate in the permitting process for IED installations. This empowers the general public and NGOs to ensure that permits are appropriately granted and their conditions complied with.

As part of their environmental inspection work, the competent authorities conduct site visits to IED installations to take samples and gather the necessary information. Article 23(4) of the IED requires site visits to be carried out between once a year and once every 3 years, depending on the environmental risks posed by the installations. In 2018 Croatia undertook around 200 site visits, the majority of which to landfill sites (38%), followed by mineral production installations (12%), refineries (7%) and food and drink production sites (7%).

Figure 22: Number of inspections in IED installations in Croatia in 2018[66]



The development of best available techniques reference documents and BAT conclusions ensures good collaboration with stakeholders and a better implementation of the IED[67]. 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 product preservation with chemicals.

The Commission relies on the national competent authorities to implement the legally binding BAT conclusions and associated BAT emission levels in environmental permits. Their efforts have resulted in considerable and continuous reduction in pollution.

In 2019, Croatia's priority actions included reviewing permits to ensure that they complied with the newly adopted BAT conclusions and strengthening control and enforcement to ensure compliance with the BAT conclusions. The Commission followed up these actions through Croatia's reporting to the EU Registry, finding no systematic breaches of EU law in the relevant areas. No non-compliant permits were reported in 2018. In 2019 Croatia identified implementing BAT in the waste management sector as a key challenge. The Commission developed tools to support implementation in this domain, such as an implementation exchange platform and dedicated workshops.

Croatia has still not transposed some articles of the IED correctly and is subject to a pending infringement procedure. Among other things, the definitions of 'installation', 'best available techniques' and 'baseline condition' have been transposed incorrectly. In addition, national legislation lacks special requirements on the frequency of site visits and the timeliness of inspections

[65] European Environment Agency, LRTAP, Air pollutant emissions data viewer (Gothenburg Protocol, LRTAP Convention) 1990-2019 (data retrieved on 3 November 2021).

[66] European Environment Agency, EU Registry, European Industrial Emissions Portal (data retrieved on 3 November 2021).

[67] European Commission, BAT reference documents.

and fails to lay down a clear obligation for the inspection report to describe the relevant findings.

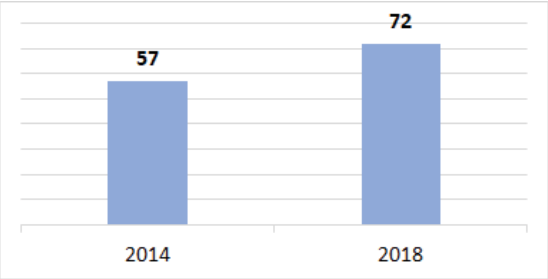
Prevention of major industrial accidents– SEVESO

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)[68].

The below overview of industrial plants regulated by the Seveso III Directive ('Seveso establishments') is based on data reported to the eSPIRS database (2018)[69] and Croatia's report on the implementation of the Seveso III Directive for 2015-2018[70].

Of Croatia's 72 Seveso establishments, 37 are categorised as lower-tier establishments (LTEs) and 35 as upper-tier establishments (UTEs) based on the quantity of hazardous substances likely to be present. The UTEs are subject to more stringent requirements. Figure 24 presents the change in the number of Seveso establishments.

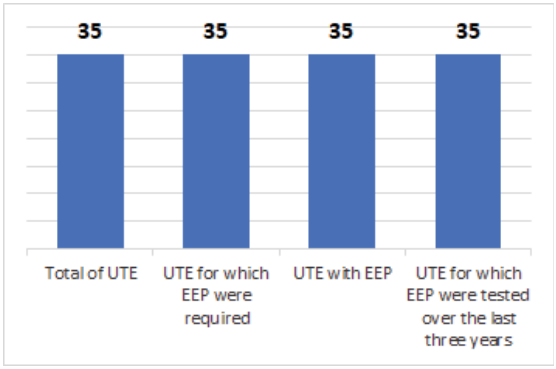
Figure 23: Number of Seveso establishments in Croatia, 2014 and 2018[71]



[68] Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.
[69] European Commission, Seveso Plants Information Retrieval System.
[70] As provided for by Article 21(2) of the Seveso III Directive.
[71] 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.

According to Croatia, an external emergency plan (EEP) is required for 37 UTEs. In 2018, all 37 UTEs had an EEP and all 37 of these EEPs had been tested in the past 3 years. The summary is shown in Figure 25. 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 happen.

Figure 24: Situation regarding EEPs in Croatia, 2018[72]

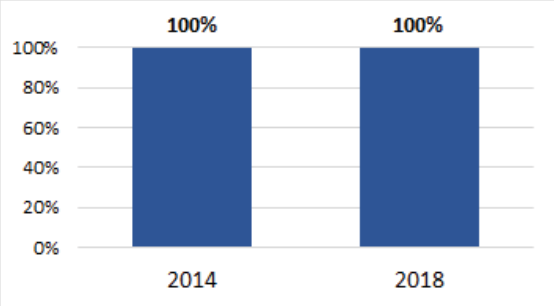


The information to the public referred to in Annex V of the Seveso III Directive – especially information about how the public concerned will be warned in the event of a major accident, the appropriate behaviour in the event of a major accident and the date of the last site visit – is permanently available for all the Seveso establishments in Croatia.

Figure 26 shows the share of UTEs for which information on safety measures and appropriate behaviours was actively made available to the public in recent years.

Figure 25: Share of UTEs for which information on safety measures and appropriate behaviours was actively made available to the public in Croatia, 2014 and 2018[73]

[72] Idem.
[73] Idem.



Croatia's transposition of several provisions of the Seveso III Directive was non-compliant. This includes definitions that are important for defining the Directive's scope, provisions on the time limits for submitting the safety report, a provision on operators' obligations if establishments and installations are modified and certain requirements regarding emergency plans. In addition, Croatian legislation does not contain all the guarantees relating to the public's rights to access information and participate in decision-making. An infringement procedure opened by the Commission has been pending since October 2019.

Noise

The Environmental Noise Directive[74] 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 strategic noise mapping and planning. A key target under the 2030 zero pollution action plan is to reduce by 30% the share of people chronically disturbed by transport noise compared to 2017.

Excessive noise from aircraft, railways and roads is one of the main causes of environmental health-related issues in the EU. It leads to ischaemic heart disease, stroke, interrupted sleep, cognitive impairment and stress[75].

In Croatia, according to a limited set of data[76], environmental noise is estimated to cause at least around 100 premature deaths and 200 cases of ischaemic heart disease annually[77]. Moreover, some 15 000 people suffer from disturbed sleep. The reported data show that overall noise exposure in Croatia decreased by 22% between 2012 and 2017. Based on 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.

Water Framework Directive

The Water Framework Directive (WFD)[78] is the cornerstone of EU water policy in the 21st century[79]. Along with other water-related legislation[80], the WFD sets out the framework for sustainable and integrated water management, which aims at a high level of protection of water resources, prevention of further deterioration and restoration to good status.

Member States have to report the third generation of River Basin Management Plans (RBMPs) drawn up under the WFD by March 2022. The Commission will assess the reported status and progress, checking how the findings identified in the assessment of the second RBMPs[81] have been addressed. Croatia has not yet reported the third RBMPs.

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[74] Directive 2002/49/EC.

[75] WHO 2018, Environmental Noise Guidelines for the European Region.

[76] For further information, see European Environment Agency, Noise Fact Sheets 2021.

[77] 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) European Topic Centre on Air Pollution, Transport, Noise and Industrial Pollution (ETC/ATNI) 2021, ETC/ATNI Report 06/2021: Noise indicators under the Environmental Noise Directive 2021: Methodology for estimating missing data; Croatian Official Gazette the methodology for health impact calculations methodology for assessing the impact on health set out in ETC/ACM 2018, Eionet Report ETC/ACM 2018/10, Implications of environmental noise on health and wellbeing in Europe.

[78] The Water Framework Directive (2000/60/EC).

[79] EU Water Policy.

[80] 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).

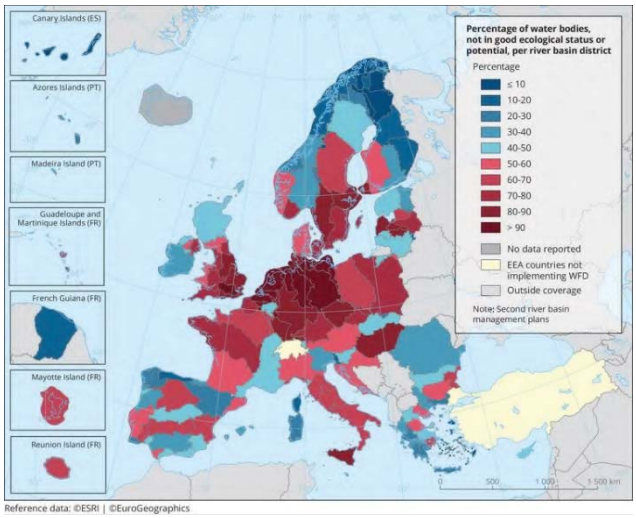
[81] Detailed information can be found in the fifth report from the Commission on the implementation of the Water Framework Directive and the Floods Directive, as well as in the 2019 EIR.

The Commission published its sixth report on the implementation of the WFD and the Floods Directive (FD) in December 2021[82]. It includes an interim assessment of the progress made in implementing the Programmes of Measures and of the monitoring of the new priority substances. The assessment report for Croatia[83] estimated that implementing the Programme of Measures would not enable the water protection objectives to be achieved by the end of 2021.

According to the reporting on the second RBMPs and to data published in 2020[84], in Croatia 42.1% of all surface water bodies[85] have good ecological status and 91.8% have good chemical status, while 9.1% of groundwater bodies failed to achieve good chemical status and 3% have poor quantitative status.

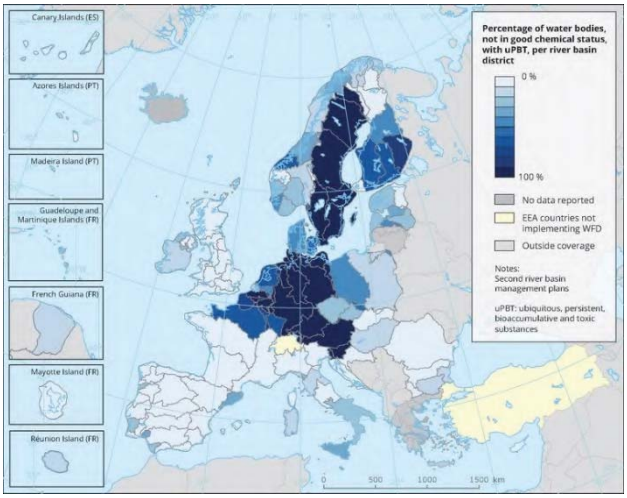
The figure below illustrates the proportion of surface water bodies failing to achieve good ecological status in Croatia and other European countries.

Figure 26: Proportion of surface water bodies (rivers, lakes, transitional and coastal waters) not in good ecological status in each river basin district[86]



The following figure presents the percentage of surface water bodies failing to achieve good chemical status in Croatia and other European countries. For Croatia, the percentage is 8.2%; this includes the water bodies failing due to ubiquitous persistent, bio-accumulative and toxic substances. If the bodies failing due to these substances are excluded, the percentage is 6%.

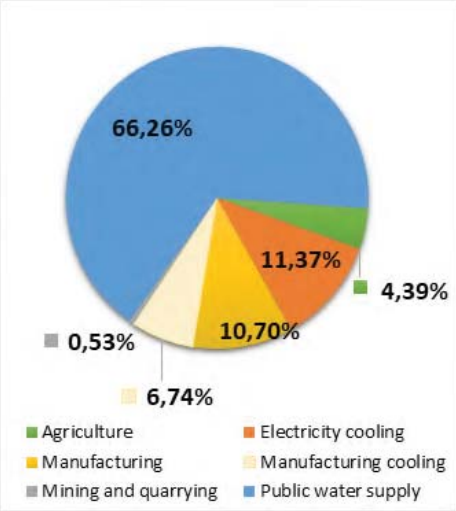
Figure 27: Percentage of surface water bodies not achieving good chemical status[87]



The total volume of water abstracted annually (corresponding to 2019 baseline) from surface and groundwater sources in Croatia is 680.74 hm^3 (EEA, 2022). The percentage of this water abstracted by each sector is 4.39% for agriculture, 66.26% for public water supply, 11.37% for electricity cooling, 10.70% for manufacturing, 6.74% for manufacturing cooling and 0.53% for mining and quarrying, as illustrated in the following figure. Croatia uses a register to record water abstractions that are subject to permits. This is automatically updated any time there are changes to the permits. Low-volume abstractions do not require permits in Croatia and are not listed in the register.

[82] See the sixth report on the implementation of the WFD and the FD.
[83] 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: Croatia, 2022.
[84] WISE Freshwater (europa.eu)
[85] Rivers, lakes, and transitional, coastal and territorial waters.
[86] European Environment Agency, 2021.
[87] European Environment Agency, December 2019.

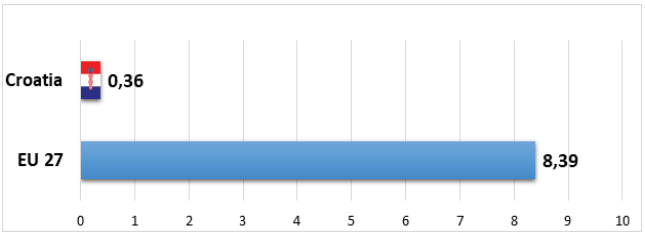
Figure 28: Water abstraction per sector in Croatia[88]



Croatia's Water Exploitation Index plus (WEI+)[89] is 0.36%, which is much less than the 20% generally considered to be indication of water scarcity.

The bar chart below presents the WEI+ for Croatia and other European countries. Croatia is ranked 25th (from high to low score) in the in terms of WEI+.

Figure 29: Water exploitation index plus for Croatia and the EU, 2017[90]



Croatia has developed a reporting system based on best practices (EstuarIS project) in order to share knowledge about environmental data management and reporting in the field of water. This can be highlighted as a good practice. The system can be used to manage data storage, receive, store and process data, view information, and prepare, draft and distribute reports.

[88] European Environment Agency, Water abstraction by source and economic sector in Europe, 2022.
[89] The WEI+ is a measure of total fresh water use as a percentage of 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 to the environment after use.
[90] European Environment Agency, Water Exploitation Index plus, 2022.

Floods Directive

As mentioned previously, the Commission published its sixth implementation report in December 2021. The report includes the review and update of the preliminary flood risk assessments (PFRAs) performed during the second cycle (2016-2021).

The assessment report[91] showed that climate change was taken into consideration in the assessment of future flood risks. Also, flood risk was assessed for every settlement and for all historic floods for which data could be found (since 1667). The significance of historical floods was assessed using expert judgement. However, the PFRA could be improved in future cycles by adopting an approach to risk assessment based on improved data collection.

Croatia has not adopted and reported the second generation of Flood Risk Management Plans under the Floods Directive. The European Commission will assess progress since the adoption of the first Flood Risk Management Plans and publish a new report, as it did in 2019.

Drinking Water Directive

As regards the Drinking Water Directive[92], no new assessment of drinking water quality has been issued since the EIR 2019. The quality of drinking water in Croatia has not been indicated as an area of concern.

The recast Directive [93]entered into force on 12 January 2021 and Member States have until 12 January 2023 to transpose it into their national legal systems. Croatia will have to comply with the revised quality standards it contains.

Bathing Water Directive

Regarding the Bathing Water Directive, Figure 31 shows that in 2020, 95.1% of Croatia's 935 bathing waters were of excellent quality[94]. Detailed information on Croatia's bathing waters is available from a national portal[95] and

[91] 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: Croatia, 2022.
[92] OJ L 330, 5.12.1998, p. 32–54.
[93] OJ L 435, 23.12.2020, p. 1–62.
[94] European Environment Agency, 2021. State of bathing water — European Environment Agency (europa.eu) , p. 17.
[95] Kakvoća mora u Republici Hrvatskoj (izor.hr).

via an interactive map viewer provided by the European Environment Agency[96].

Figure 30: Bathing water quality in Europe in the 2020 season[97]

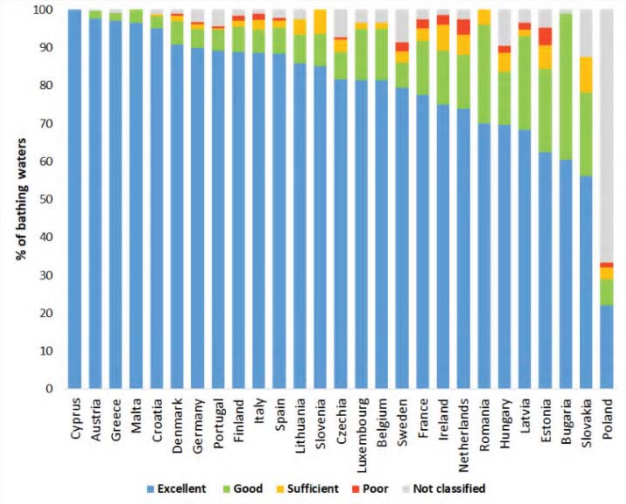
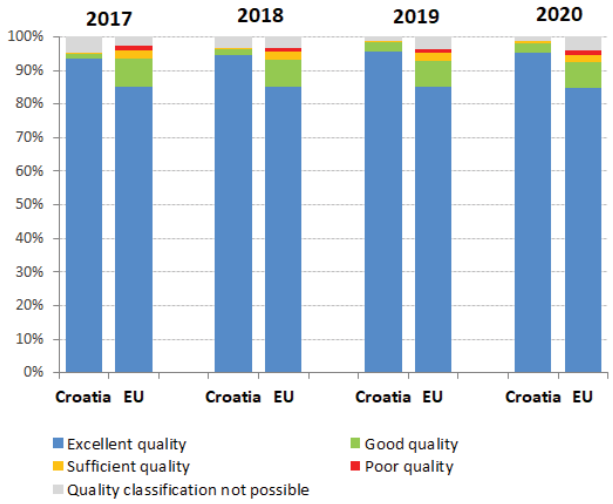


Figure 31: Bathing water quality in Croatia and the EU, 2017-2020[98]



**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[89], covering 2016-2019[90], 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 waters, this has had a positive impact on 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.

According to the 2016-2019 implementation report, groundwater quality has improved slightly compared to the previous reporting period: the percentage of stations reaching or exceeding 40 or 50 mg of nitrates per litre decreased from 23.91% to 21.4% and from 20.4% to 17.9% respectively. The situation concerning nitrate concentrations in surface water is rather good and stable, and some improvements were recorded in the reduction of eutrophication of surface water.

Croatia has a low livestock density, the surplus of nitrogen is about the EU average and the surplus of phosphorus is low. There is a well-developed network of monitoring stations in nitrate vulnerable zones, but no monitoring station outside these zones. Groundwater quality is generally good. However, many bodies of surface water are eutrophic.

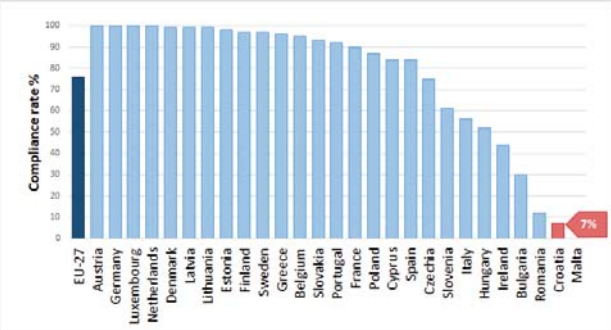
Urban Waste Water Treatment Directive

Croatia has, over the years, encountered difficulties in meeting its obligations under the Urban Waste Water Treatment Directive (UWWTD). In 2018 Croatia's overall compliance rate was 7%, which is significantly lower than the EU average of 76%. 93% of urban wastewater in Croatia is not collected and/or does not meet the requirements for biological treatment.

Pursuant to its Accession Treaty, Croatia should reach full compliance with the requirements of the Directive by the end of 2023. However, it is already clear that Croatia will need to step up its efforts if it is to meet the deadlines set out in its Accession Treaty.

[96] EEA, State of bathing waters in 2020 — European Environment Agency (europa.eu).
[97] European Environment Agency, Bathing water quality in 2020, 2022.
[98] European Environment Agency, European bathing water quality in 2017, 2018, 2019 and 2020.

Figure 32: 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'), 2018[99]



2022 priority actions

- Assess new physical modifications to water bodies in line with Article 4(7) of the WFD, ensuring these assessments include alternative options and adequate mitigation measures.
- Continue current efforts to ensure that hydrotechnical flood protection activities do not lead to additional serious hydromorphological deterioration.
- Better coordinate the implementation of between water, marine and nature policies.
- Implement the Urban Waste Water Treatment Directive in full in all agglomerations by building up the necessary infrastructure.

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. On 14 October 2020, the European Commission published its chemicals strategy for sustainability 'Towards a Toxic-Free Environment'[100], which led 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[101] 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 the Registration, Evaluation Authorisation and Restriction of Chemicals (REACH) and the Classification, Labelling and Packaging (CLP) Regulations since 2007. In December 2020, the Commission assessed the Member States' reports on the implementation and enforcement of these Regulations[102] in line with REACH Article 117(1) and CLP Article 46(2). According to the new data (for 2015-2019), national enforcement structures have not changed much. However, it is apparent from the latest report (2020) that there are still many disparities in REACH-CLP implementation, notably in the area of enforcement.

In August 2021, the Commission published a measurable assessment of the enforcement[103] of the two main EU Regulations on chemicals using a set of indicators covering different aspects of enforcement.

Responsibility for checking compliance with REACH in Croatia lies with the state inspectorate[104].

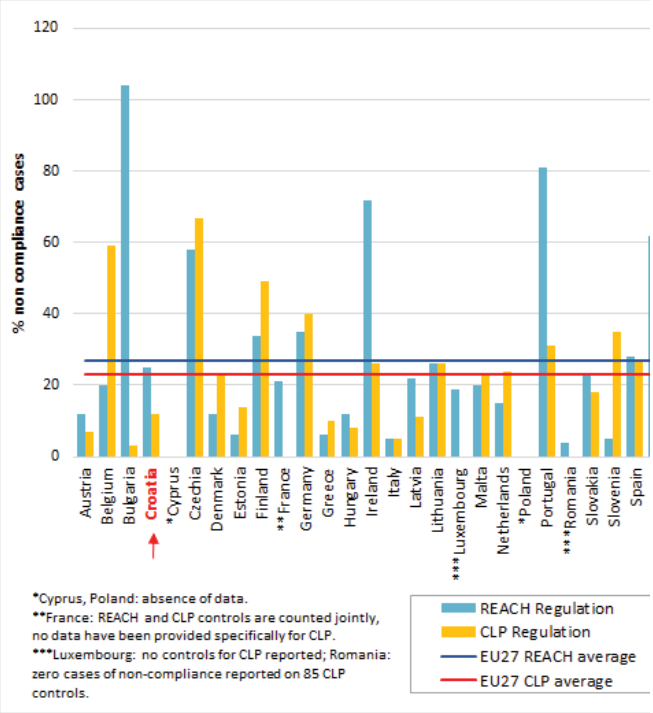
Croatia has not devised or implemented any strategy for the enforcement of the REACH or CLP Regulations, but there are plans to devise one[105].

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 Croatia, 4 inspectors have been allocated to REACH and CLP enforcement at national level and 30 at regional level[106]. As a result, the number of REACH controls carried out in the reporting period (62) remains well below average. Most of the controls carried out are proactive (inspections) rather than reactive/non-routine (i.e. investigations in response to complaints, accidents and referrals). The percentage of cases of non-compliance out of the total number controls is below the EU average[107].

[99] European Commission, WISE Freshwater, 2021.
[100] COM(2020) 667 final.
[101] REACH: OJ L 396, 30.12.2006, p.1. - CLP: OJ L 252, 31.12.2006, p.1.
[102] European Commission, final report on the implementation and enforcement of REACH and CLP, Final report REACH-CLP MS reporting 2020.pdf (europa.eu).
[103] European Commission, REACH and CLP enforcement: EU level enforcement indicators.
[104] Final report REACH-CLP MS reporting 2020.pdf (europa.eu), p.68.
[105] Final report REACH-CLP MS reporting 2020.pdf (europa.eu), p.76.
[106] Final report REACH-CLP MS reporting 2020.pdf (europa.eu), p. 74.
[107] Final report REACH-CLP MS reporting 2020.pdf (europa.eu), p.87-88.

Figure 33: Percentage of cases of non-compliance out of the total number of REACH and CLP controls carried out in 2019, per Member State and compared to the EU average[108]



2022 priority actions

- Upgrade the implementation and enforcement Enhance administrative capacities for implementation and enforcement to move towards zero tolerance for non-compliance.
- Devise and implement a REACH and CLP enforcement strategy.

[108] Final report REACH-CLP MS reporting 2020.pdf (europa.eu), p.87-88, 2022.

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[109] and sets binding GHG emission standards for different vehicle categories[110].

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 land use, land use change and forestry (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[111], 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

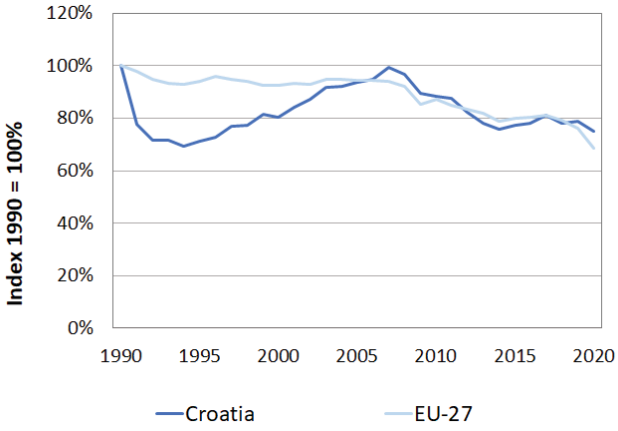
Croatia has an integrated national energy *and* climate plan (NECP) for 2021-2030. In 2021, it adopted a long-term strategy for decarbonisation, which sets the goal of reducing GHG emissions by between 57% and 73% by 2050 (excluding land use and forestry). While Croatia is likely to meet the proposed and more ambitious target for 2030 if all additional measures are implemented, the economy will need to be decarbonised more quickly if climate neutrality is to be reached by 2050.

In its RRP, Croatia allocates around 40% of spending to climate objectives and outlines crucial reforms and investments to support the transition to a more sustainable, low-carbon and climate-resilient economy.

The Climate Change and Ozone Layer Protection Act (Croatian Official Gazette No 127/19) is the Republic of Croatia's basic legal act regulating the issue of adaptation to climate change. It determines the relevant responsibilities and implementing documents and identifies the sectors most exposed to climate change. Croatia has had a strategy *on* climate change adaptation since 2020.

By 2020, the country's total GHG emissions had decreased substantially compared to 1990, although less than in the EU as a whole. Between 1990 and 2020, GHG emissions in Croatia decreased by 25%. However, the Croatian economy remains GHG-intensive.

Figure 34: Total GHG emissions (incl. international aviation) in Croatia, 1990-2020



Effort Sharing target

For emissions not covered by the EU ETS, Member States have binding national targets under the Effort Sharing legislation[112]. In 2019, Croatia's emissions from sectors

[109] 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.

[110] Regulation (EU) 2019/631

[111] Article 29 of Regulation (EU) 2018/1999.

[112] Regulation (EU) 2018/842

not covered by the EU emissions trading system (such as buildings, road transport, agriculture, small industry and waste) were lower than its 2020 target of limiting the increase to 11% compared to 2005. Croatia therefore met its Effort Sharing emissions reduction target for 2020.

Croatia's national energy and climate plan aims to achieve greater reductions than the 2030 target of 7% set down in the Effort Sharing Regulation.

Figure 35: Emissions and targets for Croatia under the Effort Sharing Decision/ Effort Sharing Regulation, 2020 and 2030 as percentage change from 2005

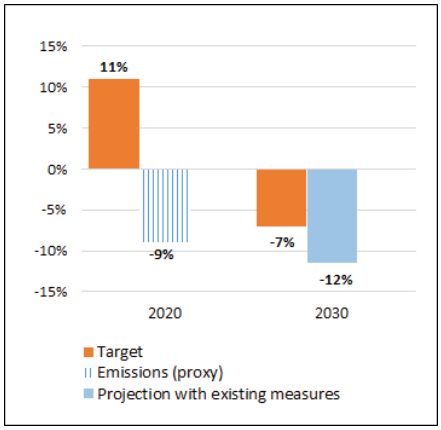
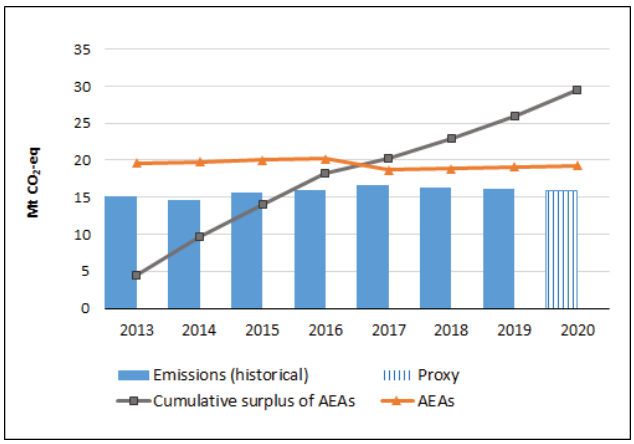


Figure 36: Emissions, annual emission allocations (AEAs) and accumulated surplus/deficit of AEAs for Croatia under the Effort Sharing Decision, 2013-2020 -

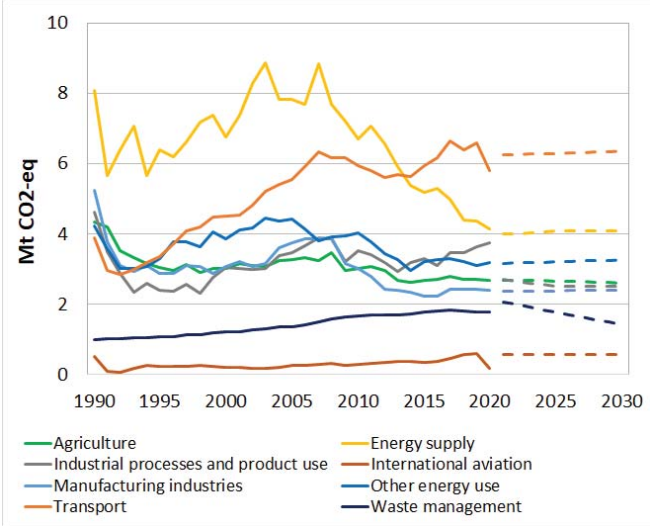


Key sectoral developments

In road transport, the GHG intensity of vehicle fuels in Croatia decreased by 2.5% from 2010 to 2019. The country needs to act swiftly to meet the current target of a 6% reduction by 2020. Member States can take several types of action in this regard, such as 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.

In 2019, road transport accounted for 27% of total GHG in Croatia. Emissions have increased by almost 20% compared to 2005 and emissions in the transport sector are projected to continue to increase. The share of renewable energy sources in transport is among the lowest in the EU. Although the number of electric vehicle charging points in Croatia is above the EU average, the market share of newly registered electric passenger cars is among the lowest in the EU.

Figure 37: Greenhouse gas emissions by sector in Croatia[113] – historical emissions 1990-2020, projections 2021-2030[114]



More building renovation is needed to reduce emissions in buildings. Croatia's residential sector accounts for over a third of total energy consumption, well above the EU average.

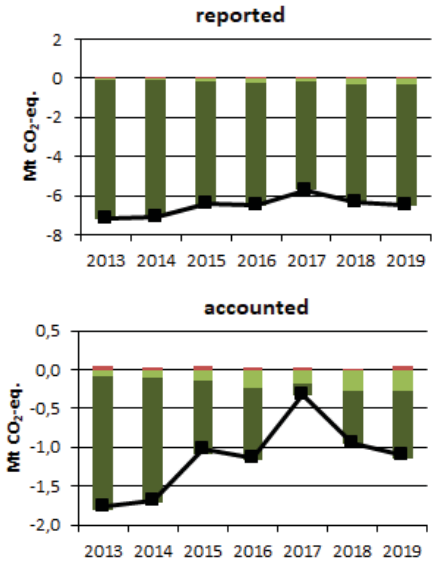
In the land use, land use change and forestry (LULUCF) sector, Croatia's projections in its national energy and climate plan indicate that net removals will decrease further by 2030. The quantities reported under the Kyoto Protocol for the LULUCF sector in Croatia show average net removals of -6.36 Mt CO_2-eq for 2013-2019. In this

[113] 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.

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

regard, Croatia contributes 1.9% to the EU-27's annual average sink of -344.9 Mt CO_2-eq. Accounting for the same period shows average net credits of -1.1 Mt CO_2-eq, which corresponds to 1.0% of the EU-27 accounted sink of -115.0 Mt CO_2-eq. Reported net removals decreased between 2013 and 2017 and increased slightly towards 2019. This trend is more defined for accounted net credits.

Figure 38: Reported and accounted emissions and removals from LULUCF in Croatia[115]



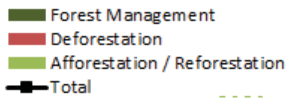
Use of revenues from the auctioning of EU ETS allowances

Croatia's revenues from the auctioning of emission allowances under the EU ETS in 2012-2021 totalled EUR 463 million. Pursuant to the Climate Change and Ozone Layer Protection Act, 100% of Croatia's auctioning revenues are spent on the climate and energy.

2022 priority actions

- Support funding of incentives for purchasing electric vehicles, subsidies and car scrapping schemes together with further roll-out of adequate and matching recharging and refuelling infrastructure.
- Encourage energy renovation of residential buildings especially, and decarbonise heating system.

[115] 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.



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' (DNSH) principle, which runs across the EU budget. The renewed commitments made at the COP26 (Glasgow, October-November 2021) and the Biodiversity Convention (April-May 2022)[116] 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 the baselines (i.e. the investment 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)[117], plus a further EUR 130 billion to achieve the EU's core environmental objectives[118]. 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[119]. These investment needs reflect the implementation objectives to 2020 and to 2030 (except for climate adaptation, the costs of which are expected to linger over a longer period).

The following table provides a preliminary update of the EU's core environmental investment gap[120]. Almost 40% of the environmental investment gap relate to dealing with pollution, while pollution and water management together account for nearly two-thirds of the total gap. The investment gap in the circular economy and waste is estimated to be between EUR 13-28 billion p.a., 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's environmental investment gaps by environmental objective, 2021-2030 per annum[121]

Environmental objective	Estimated investment gap EU-27, EUR billion p.a.	
	EUR billion	%
Pollution prevention & control	42.8	39%
Water management	26.6	24%
Circular economy & waste	13.0	12%
Biodiversity & ecosystems[122]	21.5	20%
R&D&I and other	6.2	6%
Total	**110.1**	**100%**

Environmental investment needs in Croatia

Priorities include sustainable management of natural resources (particularly waste management and the circular economy), a shift away from landfilling towards separate collection and recycling, decarbonisation, and

[116] The Convention on Biological Diversity (cbd.int); Post-2020 Global Biodiversity Framework | IUCN.
[117] SWD(2021)621, accompanying proposal COM(2021)557 to amend the REDII Directive (EU) 2018/2001.
[118] SWD(2020) 98 final/2.
[119] SWD(2018)292. Impact assessment accompanying the Proposal for the LIFE Regulation (COM(2018)385). https://ec.europa.eu/commission/sites/beta-political/files/budget-may2018-life-swd_en.pdf.
[120] Taking account of 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.
[121] European Commission, DG Environment, Study supporting EU green investment needs analysis (ongoing, 2021-2023), and DG Environment internal analysis, Environmental Investment needs and financing in the EU's green transition, July 2020.
[122] 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 to fully cover the strategy (including restoration) EUR 30-35 billion may be needed, indicating a gap of EUR 10-20 billion a year compared to current baseline expenditure.

climate change adaptation (including risk prevention and disaster resilience). The investment gap remains large as Croatia is still substantially below the EU average for municipal and packaging waste recycling, its sewage systems are underdeveloped and its water supply networks have high leakage rates.

Pollution prevention & control

The EU's first Clean Air Outlook[123] under the Clean Air Programme estimated that in order to fulfil the NECD emissions reduction requirements[124] by 2030, the total air pollution control costs for Croatia would be equivalent to EUR 448 million per year, including EUR 291 million for capital investment.

As the second Clean Air Outlook suggests[125], implementing all 2018 legislation, the 2030 climate/energy measures and the NAPCP will largely facilitate reaching the targets by 2030 (except for ammonia for 15 Member States, though Croatia is not one of these).

However, the NEC Directive also requires certain emission reductions as early as 2020-2029. This includes reductions aimed at reaching pro-rata progress towards the 2030 targets by 2025 (based on a linear trajectory, or another trajectory if flexibilities are applied), implying that investments need to be implemented in a timely manner.

Water management

According to the OECD's 2020 study 'Financing water supply, sanitation and flood protection'[126], Croatia faces significant challenges in financing expansion of water supply, sewerage, wastewater treatment and flood protection infrastructure to meet the requirements of the EU water directives[127]. The affordability of water supply and sanitation tariffs remains a concern for poor households and limits Croatia's ability to raise tariffs. In addition, water losses are high (50%). Croatia is hit regularly by flooding events (river, pluvial and coastal), with serious economic damage costs. Climate change will increase the severity and frequency of extreme flood events. Moreover, the recent 6th Water Framework Directive and Floods Directive Implementation Report and the financial - economic study accompanying it, are also a relevant source of information in this domain.

Waste & the circular economy

According to a Commission study[128], if Croatia is to meet the recycling targets for municipal waste and packaging waste, it needs to invest an additional EUR 99 million (around EUR 14.1 million per annum) over the baseline in collection, recycling reprocessors, biowaste treatment, waste sorting facilities and waste registry digitalisation between 2021 and 2027.

This does not include the investment required to address other key waste streams (plastics, textiles, furniture) or unlock a higher uptake of circularity and waste prevention across the economy.

Biodiversity & ecosystems

The prioritised action frameworks (PAFs) adopted by the Member States under Article 8 of the Habitats Directive present the conservation priorities for the Natura 2000 network and its supporting green infrastructure, the associated costs and the planned funding sources for the period corresponding to the current multiannual financial framework (MFF), i.e. 2021-2027. For Croatia, the total identified costs amount to EUR 182.4 million per year (including EUR 24.5 million in one-off costs)[129]. The main conservation priorities relate to the establishment of the Natura 2000 management framework (management plans and resources), the establishment of new sites and the restoration and/or maintenance of grassland and forest habitats.

This covers some of the preliminary additional costs of implementing the priorities stemming from the Biodiversity Strategy up to 2030, including costs for increased protection and restoration. However, the final EU ambition levels are not yet known.

EU environmental funding 2014-2020

The MFF for 2014-2020 allocated almost EUR 960 billion (in commitments, 2011 prices)[130] for the EU. The green

[123] International Institute for Applied Systems Analysis (IIASA), Progress towards the achievement of the EU's air quality and emissions objectives, 2018, https://ec.europa.eu/environment/air/pdf/clean_air_outlook_overview_report.pdf.

[124] Covering the reduction of and the emission ceilings for five atmospheric pollutants (SO_x, NO_x, $PM_{2.5}$, NH_3 and VOC) by 2030 compared to 2005. Requirements are based on Directive (EU) 2016/2284.

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

[126] OECD, Financing a Water Secure Future, 2022.

[127] Implementation of the Water Framework Directive (2000/60/EC), the Environmental Quality Standards Directive (2008/105/EC amended by Directive 2013/39/EU) and the Floods Directive (2007/60/EC), report-implementation-wfd.pdf.

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

[129] The N2K Group, Strengthening investments in Natura 2000 and improving synergies with EU funding instruments report to the European Commission, 2021.

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

transition commitment included a 20% climate spending target and funding opportunities for the environment, in particular, under the European structural and investment funds (ESIFs)[131]. The 2014-2020 budget was subsequently topped up with over EUR 50 billion (current prices) from REACT-EU (Recovery Assistance for Cohesion and the Territories of Europe) for cohesion policy action against COVID-19[132].

Croatia received EUR 12 091.9 million from the ESIFs 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 1 829.8 million and a further EUR 611 million was identified as indirect environmental investment value, bringing total investment to EUR 2.4408 billion. Figure 41 provides an overview of the (planned) individual ESIFs from which amounts were earmarked for Croatia for 2014-2020 (the graph shows EU amounts, without national amounts) and the environmental investments these included.

Figure 39: ESIFs allocated to Croatia, including environmental investments, 2014-2020[133]

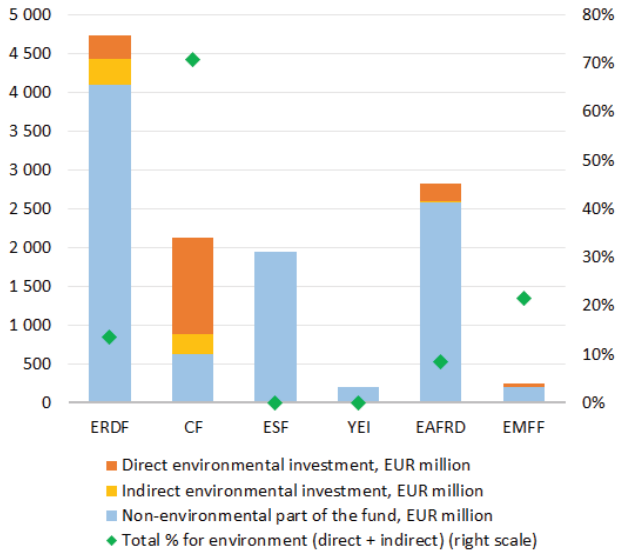


Table 2: Direct and indirect environmental investments under the ESIFs in Croatia, 2014-2020[134]

Instrument	Allocations for the environment (EUR million)
Under cohesion policy (ERDF + CF)	**2 145.5**
Direct environmental investments	1 553.0
water	849.3
waste	276.0
air quality	18.7
biodiversity and nature	125.0
land rehabilitation	74.8
climate and risk management	209.1
Indirect environmental investments	592.6
renewable energy	38.0
energy efficiency	127.9
other energy[135]	40.0

[131] The ESIFs 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).

[132] Regulation (EU) 2020/2221.

[133] European Commission, DG Environment - Data analysis based on the ESIF 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. Environmental investments are calculated via the combined use of intervention fields and coefficients under Regulation (EU) No 1303/2013 and Regulation (EU) 2021/1060, allowing more precise identification and valuation of relevant environmental investments. Indirect environmental investments are valued using the environmental coefficients found in Annex I of Regulation (EU) 2021/1060 (as opposed to the full value).

[134] European Commission, DG Environment - Data analysis. The values of environmental investments identified here for the specific environmental areas may differ from the tracking values at cohesiondata.ec.europa.eu, e.g. for clean air or biodiversity. This is 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 ESIFs. See also the previous footnote.

sustainable transport	256.0
Under EAFRD/rural development	**240.1**
Direct environmental investments	224.9
climate and risk management	224.9
Indirect environmental investments	16.1
renewable energy	16.1
Under EMFF	**54.3**
Direct environmental investments	52.0
environment protection & resource efficiency	52.0
Indirect environmental investments	2.3
business development, R&I	2.3
Total under ESIFs	**2 440.8**
Direct environmental investments	1 829.8
Indirect environmental investments	611.0

Environmental funding under the ESIFs has been supplemented by other EU funding programmes available to all Member States, such as the LIFE programme, Horizon 2020 or loans from the European Investment Bank (EIB). This additional funding comes to an estimated total of EUR 2.5 billion for Croatia for 2014-2020.

The LIFE programme[136] is entirely dedicated to environmental and climate objectives. It finances demonstration and best-practice actions for green solutions that are to be deployed. In 2014-2020, Croatia received EU support for five LIFE nature projects, with EUR 10.0 million from the LIFE programme (from a total of out of 1 028 LIFE projects in the EU-27 and a total EU contribution of EUR 1.74 billion)[137].

In 2014-2020, Horizon 2020 allocated about EUR 7.3 million to Croatia for the environment, in particular for thematic area within the societal challenges pillar (climate action, environment, resource efficiency and raw materials). The share for the environment was therefore around 5.3% of Croatia's total allocation[138]. Croatia received a total of EUR 89 million from the European fund for strategic investments (EFSI); this did not cover projects with an environmental objective[139]. Overall EIB lending to Croatia in the period amounted to EUR 3 212.6 million; none of the loans related directly to the environment[140]. The country ranks 19th in terms of total EIB lending.

In 2020, the EIB provided EUR 24.2 billion to fight climate change, accounting for 37% of its total financing, and EUR 1.8 billion (3% of its financing) for the environment[141].

EU environmental funding 2021-2027

The 2020 European Green Deal investment plan calls for EUR 1 trillion in green investments (public and private) by 2030. The MFF for 2021-2027 and NextGenerationEU programme will mobilise EUR 2.018 trillion (in current prices) to support COVID-19 recovery and the EU's long-term priorities, including environmental protection[142]. In line the EU Green Deal's[143] 'do no harm' pledge and the Interinstitutional Agreement on the 2021-2027 MFF[144], 30% of the EU budget will support climate efforts and 7.5% (from 2024) and 10% (from 2026) biodiversity. To reach these targets, more increased financial resources must be allocated to biodiversity, specifically under the 2021-2027 cohesion policy and the 2023-2027 common agricultural policy (CAP).

Sustainable finance significantly increases transparency regarding environmental sustainability (a goal promoted by the EU Taxonomy)[145], strengthens non-financial reporting requirements and facilitates green bond issuance (by the EU green bond standard[146]). Reinforced by the Renewed Sustainable Finance Strategy (2020)[147], it will increase investment flows to climate and the environment. In support of financing climate adaptation, the new strategy on adaptation to climate change[148] can facilitate the closing of the insurance protection gap for non-insured climate-related events[149]. The EIB will align

[135] Intelligent energy distribution systems (smart grids) and high efficiency co-generation and district heating, based on intervention fields 53 and 54 respectively (with environmental coefficients of 40%) of Regulation (EU) 2021/1060, Annex I.

[136] European Commission, LIFE Programme.

[137] Ref. to be added.

[138] Source: https://sc5.easme-web.eu/.

[139] Approved and signed EFSI financing - EIB, 2015-2020: Source: https://www.eib.org/en/products/mandates-partnerships/efsi/index.htm.

[140] EIB loans in EU countries in 2014-2020. Source: EIB Open Data Portal: https://www.eib.org/en/infocentre/eib-open-data.htm.

[141] The EIB Group works with the European Commission to implementing several programmes that finance environmental implementation: InvestEU, the successor of EFSI, Pillar II and III of the Just Transition Mechanism. The EIB Group is as a key implementing partner for InvestEU and is responsible for managing 75% of the overall budgetary capacity of the mandate.

[142] European Commission, 2021-2027 long-term EU budget & NextGenerationEU.

[143] COM/2019/640 final.

[144] Interinstitutional Agreement, OJ L 433I, 22.12.2020, p. 28-46.

[145] EU taxonomy of sustainable activities.

[146] EU Green Bond Standard - 2021/0191 (COD).

[147] COM (2021) 390 final - European Commission, Strategy for Financing the Transition to a Sustainable Economy.

[148] COM(2021) 82 final.

[149] The strategy would support improved insurance gap coverage including through the natural catastrophe markets, as reflected in the EIOPA (Association for European Insurance and Occupational Pension Authorities) dashboard on the insurance protection gap for natural catastrophes. See: pilot dashboard on insurance protection gap for natural catastrophes | Eiopa (europa.eu).

50% of its lending with climate and environment by 2025[150] with a EUR 250 billion contribution to the Green Deal investment plan by 2027.

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

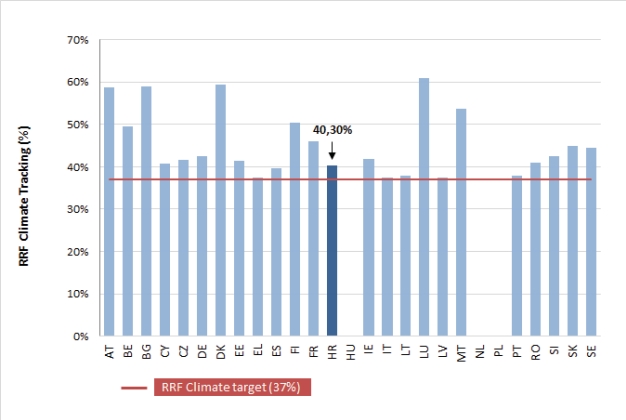
Table 3: Key EU funds allocated to Croatia (current prices), 2021-2027

Instrument	Country funding allocation (million EUR)
Cohesion policy	**Total:8 708.2[151]**
ERDF	5 355.7
CF	1 182.4[152]
ESF	1 982.6
ETC (ERDF)	187.6[153]
Just Transition Fund	**185.9[154]**
EAFRD/rural development under CAP strategic plans forStrategic Plans 2023-2027[155]	**1 486.5[156]**
European maritime, fisheries and aquaculture fund (EMFAF)	**243.6[157]**
Recovery and resilience facility (RRF) 2021 – 2026[158]	**6 393.7[159] (grants)**

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

Croatia's RRP responds to the urgent need to foster a strong recovery and make Croatia future-ready. The reforms and investments will help Croatia become more sustainable and resilient and better prepare it for the challenges and opportunities presented by the green and digital transitions. To this end, the plan comprises 146 investments and 76 reforms. Croatia requested almost EUR 6.4 billion in grants, and 40.3% of the plan will support climate objectives (see Figure 42). Croatia's RRP supports the green transition, through investments in: energy efficiency and post-earthquake reconstruction of buildings (EUR 789 million), sustainable mobility (EUR 728 million), low-carbon energy transition (EUR 658 million) and assistance for businesses for green transition and energy efficiency (EUR 542 million)[160].

Figure 40: Climate expenditure in RRPs, 2021-2026[161]



Under NextGenerationEU, the Commission will issue up to EUR 250 billion of EU green bonds (one third of NextGenerationEU funds) by 2026. These bonds will comply with the general spirit of the DNSH principle, but will not be subject to the current delegated acts relating to the EU Taxonomy and will not fully align with the proposed EU green bond standard.

In addition to the EU funds earmarked specifically for Croatia in 2021-2027, there are also funding programmes that can been accessed at EU level and are open to all Member States. These include the LIFE programme[162] (EUR 5.4 billion), Horizon Europe (EUR 95.5 billion)[163], the Connecting Europe Facility[164] (EUR 33.7 billion)[165] and the

[150] EIB Climate Bank Roadmap 2021-2025, November 2020.
[151] European Commission, 2021-2027 Cohesion policy EU budget allocations.
[152] The transfer to the Connecting Europe Facility (Transport) is not included.
[153] Interreg initial allocations per MS including ETC transnational and ETC cross-border co-operation.
[154] European Commission, 2021-2027 Cohesion policy EU budget allocations.
[155] European Commission, CAP strategic plans.
[156] Regulation (EU) 2021/2115, Annex XI.
[157] Regulation (EU) 2021/1139, Annex V.
[158] The actual reforms and investments under the RRF have to be implemented by 31 December 2026.
[159] Council Implementing Decision, FIN 592.
[160] European Commission, Croatia's recovery and resilience plan.
[161] European Commission. The contributions to climate objectives have been calculated using Annex VI of the RRF Regulation (EU) 2021/241.
[162] European Commission, LIFE Programme.
[163] European Commission, Multiannual financial framework 2021-2027 (in commitments) - Current prices.
[164] The CEF (Transport) includes also EUR 11.3 billion transferred from the cohesion fund. Of the transferred amount, 30 % will be made available, on a competitive basis, to all Member States eligible for the cohesion fund, while the remaining 70% will be distributed in line with

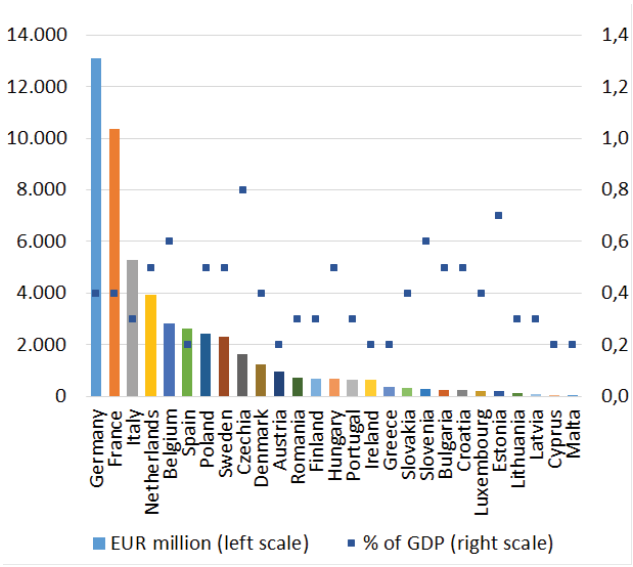
funds to be mobilised via InvestEU[166]. These programmes will also support the green transition, including research and innovation activities for environmental protection (Horizon Europe)[167], clean transport and energy (the Connecting Europe Facility)[168] or sustainable infrastructure (InvestEU)[169].

National environmental protection expenditure

Total national environmental protection expenditure (including all relevant current and capital expenditure)[170] in the EU-27 was EUR 272.6 billion in 2020. This represents 2% of the EU's GDP and 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 and 2%, while Croatia's expenditure is slightly higher (2.3% of GDP).

Of the above total, the EU-27's capital expenditure (CapEx) on environmental protection (i.e. investment in environmental protection) amounted to EUR 56.3 billion in 2018, falling to EUR 54.5 billion in 2020 (around 0.4% of GDP). While most Member States invested 0.2-0.5% of their GDP in environmental protection, Croatia invested 0.6%. Between 2014 and 2020, investment in environmental protection totalled around EUR 376 billion for the EU-27 and EUR 1.67 billion for Croatia.

Figure 41: Direct and indirect environmental protection investments in the EU-27 (EUR million and % of GDP), 2018[171]



By institutional sector, around half of Croatia's environmental protection investments (CapEx) came from the business sector, 35% from the general government and 14% from specialist producers (of environmental protection services, e.g. waste and water companies). At EU level, 37% comes from governments, 33% from specialist producers and 30% from industry (business).

national pre-allocations until 31 December 2023. Any amount of national pre-allocation that has not been spent by that date will be used to support all cohesion fund-eligible Member States.

[165] Regulation (EU) 2021/1153.

[166] The InvestEU Fund is expected to mobilise over EUR 372 billion in investment through an EU budget guarantee of EUR 26.2 billion to back investments made by financial partners such as the European Investment Bank (EIB) Group and others.

[167] European Commission, Horizon Europe.

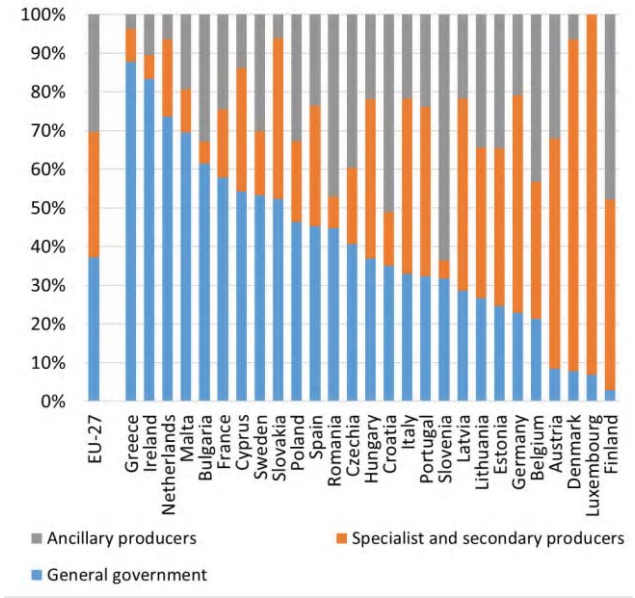
[168] European Commission, Connecting Europe Facility.

[169] European Union, InvestEU.

[170] From the economy as a whole, including final consumption, intermediate consumption and capital expenditure of households, corporations and governments relating to environmental protection goods and services. This excludes EU funds, but may include some international expenditure in addition to domestic expenditure. Data source: Environmental Protection Expenditure Accounts (EPEAs), Eurostat. EPEAs are based on the CEPA 2000 classification, excluding climate, energy and circular economy.

[171] Eurostat, Environmental Protection Expenditure Account, 2021.

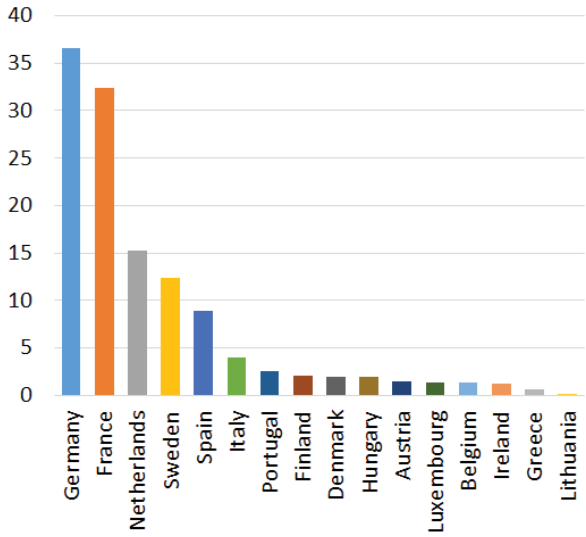
Figure 42: EU-27 Member States' environmental protection investments (CapEx) by institutional sector (total economy = 100%), 2018[172]



A partial breakdown of investment by environmental topic is available, but only at the level of institutional sectors (instead of the entire economy) due to different reporting patterns[173]. Of the environmental protection investments made by Croatia's general government 47% went to waste management, 38% to tackling pollution and 15% to waste water. Around two-thirds of investments by the country's specialist producers concern waste management and one-third wastewater, while 72% of the business sector's investments went to waste water and 18% to the protection of air, to name just the most significant items.

In 2020, total annual green bond issuance[174] by European countries was USD 156 billion (EUR 137 billion), up from USD 117 billion (EUR 105 billion) in 2019. This figure includes bonds issued by some non-EU European countries[175]. The 2020 annual green bond issuance by the EU-27 was EUR 124 billion. Croatia did not issue green bonds. Between 2014 and 2020, 83% of the green bonds issued by European countries served energy, buildings or transport objectives, 8% water and waste objectives and 6% land use objectives, with links to ecosystem conservation and restoration[176].

Figure 43: Annual EU green bond issuance in 2020 (EUR billion)[177]



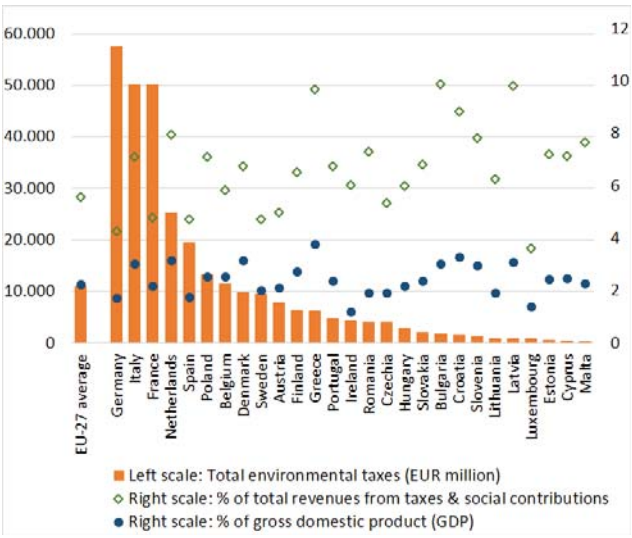
Green budget tools

Green taxation and tax reform

Croatia's revenue from environment-related taxes remained amongst the highest in the EU in 2020, accounting for 3.28% of GDP (EU average: 2.24%). Of this revenue, almost 77% was derived from energy tax%, 22% from transport-related tax and 1.1% from tax linked to pollution and resources. This last type of tax accounted for 0.04% of GDP, half of the EU average.

[172] Eurostat, Environmental Protection Expenditure Accounts (env_epe).
[173] Data reporting is different for the three institutional sectors, leading to aggregation difficulties. Specialist companies provide comprehensive data across all environmental areas (CEPA 1-9), while this is less often the case for general government and industry: they often report (non-obligatory) data in merged categories only (making it difficult to get a breakdown), if at all.
[174] 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 the AAA-rated issuance from multilateral institutions, the European Investment Bank (EIB) and the World Bank.
[175] Climate Bonds Taxonomy: https://www.climatebonds.net/standard/taxonomy. The USD value was converted using Eurostat's annual average EUR/USD exchange rates.
[176] Interactive Data Platform at www.climatebonds.net. The Climate Bonds Taxonomy is similar to the EU Taxonomy.
[177] Climate Bonds Initiative, 2022.

Figure 44: Environmental taxes in the EU-27, 2020[178]



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, removing fossil fuel subsidies, shifting the tax burden from labour to pollution and accounting for social considerations[179]. The application of the 'polluter pays principle' (PPP)[180], which stipulates that polluters should bear the cost of measures to prevent, control and remedy pollution, is facilitated by the Commission's Technical Support Instrument (TSI) flagship on greening taxes.

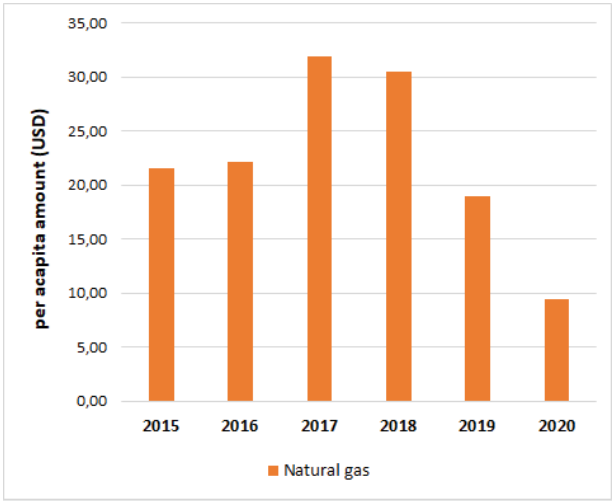
Environmentally-harmful subsidies

Addressing and removing environmentally-harmful subsidies is a further step towards wider fiscal reforms[181].

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 as they do not contribute to levelling the playing field. Fossil fuel subsidies in the EU have stood at around EUR 55 billion since 2015. They increased by 4% between 2015 and 2019, although some countries, such as Latvia, Lithuania Sweden, Greece and Ireland, managed to decrease them. In the EU, subsidies for petroleum products, in sectors such as transport and agriculture, kept growing over the period, while subsidies for 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 (EU average: 0.4%). For Croatia, the share was 0.29% of GDP, which is below the EU average.

In 2020, the EU27's total fossil fuel subsidies decreased to EUR 52 billion (due to falling consumption trends amid the COVID-19-related restrictions). However, -without Member State action, they are likely to rebound as economic activity has picked up from 2020[182].

Figure 45: Trends in natural gas subsidies in Croatia[183]



% GDP	2015	2016	2017	2018	2019	2020
Natural gas	0.18	0.18	0.24	0.21	0.13	0.07

Current green budgeting practices

Green budgeting encompasses various climate and environmental tagging and tracking practices in budgets. It helps identify and track green expenditure and green revenues to increase transparency on the environmentl implications of budgetary policies, improving policy coherence and supporting green policies (including climate end environmental objectives).[184] Some EU Member states already use green budgeting elements.[185]

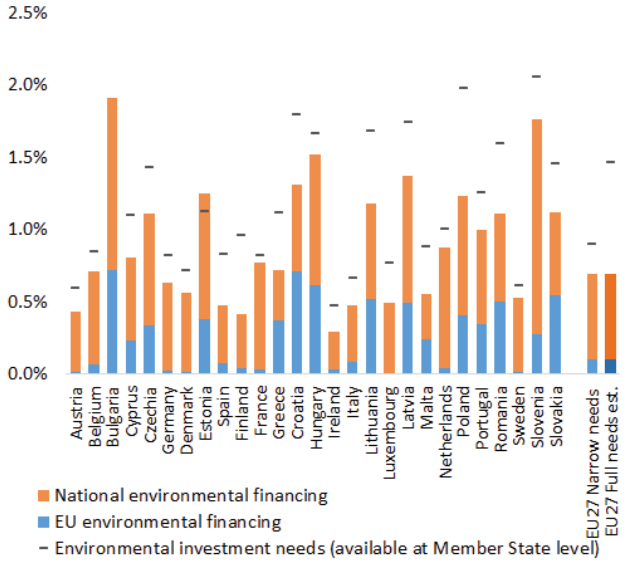
[178] Eurostat, Environmental taxes accounts (env_eta).
[179] European Commission, The European Green Deal, COM (2019) 640 final, p.17.
[180] Article 191(2) of the Treaty on the Functioning of the European Union: 'Union policy on the environment (…) shall be based on the precautionary principle and on 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.'
[181] European Commission, Study on assessing the environmental fiscal reform potential for the EU28, January 2016, https://ec.europa.eu/environment/integration/green_semester/pdf/Eunomia%20EFR%20Final%20Report%20MAIN%20REPORT.pdf
[182] State of the Energy Union report, COM(2021) 950 and Annex.
[183] OECD inventory.
[184] European Commission, European Commission Green Budgeting Reference Framework. European Commission, Green Budgeting in the EU Key insights from the 2021 Commission survey.
[185] European Commission, Green Budgeting Practices in the EU: A First Review, 2021.

EU climate proofing and sustainability proofing guidance have also been developed. It is intended as a tool for assessing project eligibility and compliance with environmental legislation and criteria[186]. The European Commission established a green budgeting reference framework[187] and launched a technical support project (supported by the TSI) on green budgeting in 2021 to assist Member States in developing or further developing national green budgeting frameworks so that they can reap the benefits for policy coherence and the green transition. Croatia is participating in this technical support project.

Overall financing compared to the needs

Overall environmental financing for investments in the EU is estimated to have been 0.6-0.7% of GDP in 2014-2020, taking into account major EU funds and national financing. Total environmental financing in each Member State ranged from 0.3% of GDP (Ireland) to 1.91% (Bulgaria), linked to the level of environmental challenges in the country. The EU's environmental investment needs for 2021-2027 are estimated at 0.9-1.5% of GDP[188], suggesting a potential environmental financing gap of at least 0.6-0.8% of GDP at EU level (previous financing levels assumed)[189].

Figure 46: Total environmental financing baseline (2014-2020) and estimated needs (2020-2030) in the EU 27 (% of GDP)[190]



Croatia's environmental financing for investments is estimated to have been 1.32% of GDP (higher than the EU average) in 2014-2020. The bulk of this (54%) came from EU funding. Environmental investment needs for 2021-2027 (based on partial information available at country level) are estimated to reach over 1.79% of GDP, suggesting an environmental financing gap of at least 0.48% of GDP. The actual financing gap is likely to be greater be higher taking into account needs that are estimated at EU level (e.g. water protection, circularity, biodiversity strategy, etc.).– This is to be addressed by mobilising additional financing for environmental implementation priorities.

2022 priority actions

- The investment gap remains significant as Croatia is still substantially below the EU average for municipal and packaging waste recycling, sewage systems are underdeveloped and water supply networks face high leakage rates.
- In terms of prioritisation of environmental investments in Croatia, waste management and circular economy is considered as a main priority, followed by water– that provides an opportunity to potentially increase the share of private financing as well for the environment (which is around one-third overall in Croatia).
- Technical assistance could support capacity building for management bodies of the Natura sites in line with the Environmental Implementation Review (EIR) 2019 priority action.

[186] European Commission, Technical guidance on sustainability proofing for the InvestEU Fund.
[187] European Commission, Green Budgeting Reference Framework, based on the review of the OECD Paris Collaborative on Green Budgeting initiative, 2017.
[188] Excluding needs for certain environmental sub-objectives, where the detailed breakdown by country was not directly available at the time of analysis (e.g. noise, water protection, higher stages of circular economy, increased needs from the 2030 Biodiversity Strategy). Including these could increase total needs at EU level (by around 50%).
[189] DG Environment data analysis. EU financing sources covered: ESIFs (ERDF, CF, ESF, YEI, EAFRD, EMFF), Horizon 2020, LIFE, EFSI (EU amount), EIB loans. National financing: total national CapEx on (investments in) environmental protection – source: Eurostat EPEA data set. Cut-off date for data: end 2021. NB Total financing may be higher, in particular as a result of further indirect investments. Further analysis is therefore required in the future.
[190] Eurostat, ESIFs 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[191]. 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[192]. It includes the right to bring legal challenges (legal standing)[193].

Environmental information

Croatia's implementation of the INSPIRE Directive could be better. Its performance was reviewed based on its 2021 country sheet[194]. Progress on data identification and documentation has been slow and implementation levels need to improve. More efforts are needed to:

- make the data more widely accessible; and
- prioritise environmental data sets in implementation, especially those identified as high-value spatial data sets for implementing environmental legislation[195].

Table 4: Country dashboard on the implementation of the INSPIRE Directive, 2016-2020[196]

	2016	2020
Effective coordination and data sharing		
Ensure effective coordination	🟨	🟨
Data sharing without obstacles	🟨	🟩
INSPIRE performance indicators		
i. Conformity of metadata	🟩	🟨
ii. Conformity of spatial data sets[197]	🟥	🟥
iii. Accessibility of spatial data sets through view and download services	🟥	🟥
iv. Conformity of network 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 although some or substantial progress has been made, it is not yet 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%

Public participation

Extensive and useable information is available to the public on environmental impact assessment (EIA) and strategic environmental assessment (SEA) cases, both at national and regional level[198]. This includes links to relevant documentation and details of how members of the public can participate in the process. However, there are no centrally collected statistics on public participation in practice and it is not possible to identify whether participation is increasing or decreasing or assess how participation is contributing to improved decision-making.

[191] 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.

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

[193] 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.

[194] https://inspire.ec.europa.eu/INSPIRE-in-your-Country/HR.

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

[196] INSPIRE knowledge base.

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

[198] See https://mingor.gov.hr/o-ministarstvu-1065/djelokrug/uprava-za-procjenu-utjecaja-na-okolis-i-odrzivo-gospodarenje-otpadom-1271/procjena-utjecaja-na-okolis-puo-spuo/7370 (in Croatian only).

Access to justice

Significant progress must be made on informing the general public about the ways in which individuals and environmental associations can access justice in environmental matters under Croatian and EU law. The information available online does not give a sufficient and clear picture on access to justice in environmental matters and is focused on cost exposure.

Croatia allows both individuals and environmental associations to bring legal cases in environmental matters under Article 168 of its Environmental Protection Act (Croatian Official Gazette Nos 80/13, 153/13, 78/15, 12/18 and 118/18). The system is quite liberal.

However, plans and programmes for which SEAs are conducted are considered general acts. Their legality can only be reviewed by the High Administrative Court using a *sui generis* review procedure. Although anyone has the right to bring a case for the review of the legality of general acts, this right is limited by the condition that a review can only be initiated based on the individual act that was passed on the basis the general act, e.g. a location permit issued based on the spatial plan in question.

Under the general rules of judicial review, when a person claims that a public body has failed to enact certain decision, that person may initiate a judicial review in respect of this failure if they have legal standing – for instance, if they feel their right to a healthy life has been violated. However, an action for judicial review can only be brought before the Administrative Court if the decision at issue was an individualised decision. A judicial review therefore cannot be initiated in respect of the public authorities' failure to enact an act of general application. The rules on standing for individuals and NGOs wishing to obtain an administrative review and bring a legal challenge before the national court are limited in such cases. The main problem is that decisions on such plans or programmes do not take the form of an administrative act (*upravni akt*). As such, these decisions (*odluke*) cannot be the subject of an administrative review or disputed before the Administrative Court. Such decisions do not even have information on legal remedies at the end (uputa o pravnom lijeku).

In 2019, priority actions were addressed to Croatia as regards access to justice. In particular, Croatia was invited to provide broader standing to the public and better inform them about their rights. It can be concluded that there has been only limited or no progress on both aspects.

2022 priority actions

- Improve access to courts by the public concerned when it comes to challenging administrative or regulatory decisions, in particular under the areas of planning related to water, nature and air quality.
- Better inform the public about their access to justice rights, particularly by referring, on judicial and administrative portals, to the Commission eJustice fact sheets on access to justice in environmental matters[199].
- Take action and carry out monitoring to ensure that costs are not a hindrance to effective access to justice.
- Make spatial data more widely accessible and prioritise environmental data sets in the implementation of the INSPIRE Directive, especially those identified as high-value spatial data sets for implementing environmental legislation.

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[200]. It includes support measures provided by the authorities, such as:
(i) compliance promotion[201];
(ii) inspections and other checks that they carry out, i.e. compliance monitoring[202];
(iii) the steps that they take to stop breaches, impose sanctions and require damage to be remedied, i.e. enforcement[203].
Citizen science and complaints enable authorities to focus their efforts better. Environmental liability[204] ensures that the polluter pays to remedy any damage.

Compliance promotion and monitoring

Although there is a wide range of material available online about Natura 2000 sites, it is mainly concerned with designation and the development of management plans. There does not appear to be much material focused on communicating with farmers and land managers about practical measures to improve

[199] https://e-justice.europa.eu/content_access_to_justice_in_environmental_matters-300-en.do

[200] The concept is explained in detail in the Communication on EU actions to improve environmental compliance and governance (COM(2018)10) and the associated Commission Staff Working Document (SWD(2018)10).

[201] This EIR focuses on the help given to farmers to comply with nature and nitrates legislation.

[202] This EIR focuses on inspections of major industrial installations.

[203] This EIR focuses on the availability of enforcement data and co-ordination between authorities to tackle environmental crime.

[204] The Environmental Liability Directive, 2004/35/EC, creates the framework.

biodiversity outcomes. Similarly, there does not appear to be online material explaining to farmers how to comply with the Nitrates Directive, and a guidance document on fertiliser use and manure storage mentioned in the 2019 report can no longer be found on the relevant website.

Coordination of inspections under the Industrial Emissions Directive has been improved, with the State Inspectorate for Environmental Pollution having an enhanced role since April 2019. Information on the planning of inspections is published regularly, and the state inspectorate publishes quarterly reports[205] listing the installations inspected and the inspection dates and providing a colour-coded summary of the key aspects of the inspection report. Reasonably comprehensive summary statistics are published, although the latest such report was for 2019[206].

Complaint handling and citizen science

The State Inspectorate for Environmental Protection operates a platform (e-Citizen) that provides the public with information on types of infringements, the competent authorities, how to submit a complaint and how complaints are handled. Any person may submit a complaint about a wide range of environmental infringements on this government platform using a standardised online complaint form[207]. The State Inspectorate for Nature Protection has an equivalent platform where the public may submit complaints about nature protection issues[208].

The authorities appear to actively use information provided by the public to investigate potential infringements and members of the public are informed about the action taken in response to their complaint. More broadly, there are active efforts to encourage public participation, with platforms enabling members of the public to report killings of or accidental injuries to endangered species and sightings of invasive alien species.

Enforcement

There is no centralised database or statistics on environmental crimes and their outcomes. However, general publications on crimes issued by the National Statistical Institute, the Prosecutor's Office and the Ministry of the Interior provide some data. For instance, the annual report on police activity published by the Ministry of the Interior includes a summary of statistical data on the chapter of the Criminal Code relating to environmental crimes. However, none of the data available provide a clear picture of the outcomes relating to the prosecution of environmental crimes (convictions, penalties, etc.).

There appear to be no formal systems for cooperation between professionals dealing with environmental crimes. There is some concern among environmental inspectors that the police give little priority to environmental crime, and that national-level priorities are not always pursued effectively at regional level. A lack of knowledge sharing and training on environmental crime and a lack of information exchange between local and national level are also barriers to improved enforcement.

Environmental Liability Directive

There does not appear to be a central database on Environmental Liability Directive cases. The Ministry of the Economy and Sustainable Development maintains an environmental protection information system, ISZO, which is a series of interconnected databases and data sources on the state of individual components of the environment. While it focuses mainly on spatial characteristics and other data and information important for monitoring the state of the environment at national level[209], the portal also contains major accident reports that could lead to environmental liability cases. Only one such report has been recorded on the portal.

Although Croatia's legislation sets out details of the operator's duty to ensure, through insurance or other appropriate means, that funds are available to compensate for environmental damage, no specific forms of product or insurance are indicated and no information has been found on the availability of relevant insurance products.

2022 priority actions

- Develop online and other resources to help farmers understand the practical measures they can take to improve compliance with biodiversity and nitrates legislation.
- Improve and formalise coordination among the bodies responsible for enforcing laws on environmental crime and ensure better training and knowledge exchange on environmental issues for the police and criminal justice systems.

[205] See https://inspektorat.gov.hr/o-drzavnom-inspektoratu-9/ustrojstvo-77/16-sektor-za-nadzor-zastite-okolisa-zastite-prirode-i-vodopravni-nadzor/izvjesca/383 (in Croatian only).
[206] Available at the same webpage.
[207] https://gov.hr/hr/inspekcija-zastite-okolisa/1340.
[208] https://gov.hr/hr/inspekcija-zastite-prirode/1342.
[209] http://envi.azo.hr/?topic=9.

- Collect and publish detailed statistics on environmental crime and enforcement activity.
- Further develop the information system on Environmental Liability Directive cases or instances of environmental damage.
- Encourage better availability of insurance products to ensure that operators can meet the costs of any environmental damage for which they are liable.

Effectiveness of environmental administrations

Those involved in implementing environment legislation at EU, national, regional and local levels need 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

At present, the number of complaints and infringements relating to the environment can be considered below the EU average.

Overall, the implementation of EU environmental law in the different sectors has improved over the last decade. For instance, there has been progress regarding the implementation of the environmental assessments. Although some doubts were raised about a recent package of legislation aimed at speeding up the licensing of projects of national interest, no serious problems were identified when it was implemented.

According to the authorities responsible for their detection, investigation and prosecution, environmental crimes are currently one of the most profitable and fastest-growing areas of criminal activity. Statistical indicators show that 242 environmental crimes were recorded in Croatia in 2020, an increase of 46 (or 23.5%) on the previous year.

Coordination and integration

As mentioned in the 2017 EIR report, the transposition of the revised EIA Directive[210] provides an opportunity to streamline the regulatory framework on environmental assessments. Despite not completing transposition by the deadline (May 2017), Croatia has transposed the revised Directive. However, in March 2019, the Commission opened an infringement procedure concerning the non-conformity of Croatian legislation with the obligations arising from the EIA Directive (2011/92/EU) as amended by Directive 2014/52/EU.

The Commission encourages the streamlining of environmental assessments in order to reduce duplication and avoid overlaps in the environmental assessments applicable to projects. Moreover, streamlining helps reduce the administrative burden and accelerates decision-making without compromising the quality of the environmental assessment procedure[211]. Croatia introduced the streamlining of environmental assessments under the EIA and Habitats Directives even before the EIA Directive was revised. Coordinated procedures have been established for the EIA Directive, the Water Framework Directive and the Industrial Emissions Directive.

Croatia's single environmental permitting platform may be highlighted as a good practice: it was developed to operationalise the single environmental permitting regime, which simplifies, harmonises and links many environmental permits.

Reforms through the Commission's Technical Support Instrument (TSI)

The Commission supports environmental implementation and the green transition both through the EU financing programmes and by granting technical assistance through mechanisms such as the Technical Support Instrument (TSI).

The Commission's TSI supported several environment-related projects in Croatia in the reporting period. This includes a 2020 project on reviewing expenditure in the areas of water and waste management and a 2021 project aimed at reorienting the work of the Croatian development bank (HBOR) towards sustainable financing and the green transition in 2021. Two new projects have been selected under the 2022 TSI: a project to develop a national loss reduction plan and build capacity among water suppliers, and a project to bridge the climate financing gap with public policy instruments.

TAIEX EIR peer to peer projects

The Commission launched the TAIEX EIR peer-to-peer tool[212] to facilitate peer-to-peer learning between environmental authorities. Croatia benefited from two

[210] Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

[211] 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, the Habitats Directive, the Water Framework Directive, and the Industrial Emissions Directive, OJ C 273, 27.7.2016, p. 1.

[212] TAIEX – Environmental Implementation Review – PEER 2 PEER – Environment – European Commission (europa.eu).

expert exchanges in the reporting period: one on the EU Eco-Management and Audit Scheme (EMAS) in 2019, and one on models of communication on the value of eco-labels in 2020. Moreover, Croatia has taken part in three multi-country workshops on air pollution from household heating (2019), ammonia-reducing technology and measures (2021), and zero pollution for air, water and soil (2022).