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COMMISSION STAFF WORKING DOCUMENT

The EU Environmental Implementation Review 2019
Country Report - THE NETHERLANDS

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 2019:
A Europe that protects its citizens and enhances their quality of life

{COM(2019) 149 final} - {SWD(2019) 111 final} - {SWD(2019) 112 final} -
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Executive summary

The Netherlands and the Environmental Implementation Review (EIR)

In the 2017 EIR, the main challenges identified with regard to implementation of EU environmental policy and law in the Netherlands were:

- **improving water quality**, in particular regarding nutrient concentrations in surface waters;
- **improving air quality**, in particular the concentrations of nitrogen dioxide and ozone to prevent premature deaths; and
- **optimising the contribution of the Natura 2000 and the national ecological networks** to achieve good conservation status, and to reduce habitat fragmentation and biodiversity loss, atmospheric nitrogen deposition, desiccation and acidification.

The Netherlands organised an **EIR dialogue** in April 2018 focusing on air and water quality, the circular economy and green public procurement. The event confirmed the authorities' commitment to tackling the main gaps in the implementation of EU environmental legislation and go further in some areas, such as tackling water pollution by pharmaceutical products. The 'bilateral dialogue on the action plan for nature, people and the economy' in October 2018 was further proof of this commitment.

In 2017, the Commission launched the TAIEX-EIR Peer-to-Peer (**EIR P2P**), as a new practical tool facilitating peer-to-peer learning between environmental authorities. As of January 2019, the Netherlands had participated in six P2P events on different topics, including air pollution and circular economy.

Progress on meeting challenges since the 2017 EIR

The **2019 EIR** shows that for **water quality** there has been **some progress** in reducing nutrient concentration and eutrophication. Nitrate pollution remains a major concern despite the efforts made by the Dutch government through the national action programme for nitrates. A derogation for nitrogen from livestock has been granted on a series of conditions, including limits to phosphate production and an enhanced enforcement strategy to address, inter alia, improper animal registration. However, **continued progress is needed to achieve full compliance**.

For **air quality**, there has been **some progress** on reducing the number of non-compliant areas. However, air quality is still cause for concern: in 2015, there were 1 900 premature deaths attributable to nitrogen dioxide, 9 800 to fine particulate matter concentrations, and an additional 290 to ozone concentration. The steady decrease seen in previous years has continued. Innovative solutions to reduce traffic congestion are being tested in a number of cities. They are helping to reduce the use of older diesel cars, which will have a positive impact on air pollutants. The national strategy on air quality and the national air quality cooperation programme will be key instruments to reduce air pollution in the country.

Regarding **nature conservation**, **some progress** has been made to improve the status of species and habitats. However, there is still **considerable room for improvement**. Habitat fragmentation, atmospheric nitrogen deposition, desiccation and acidification affect the Natura 2000 network, which is still smaller than the EU average. In addition, farmland bird populations continue to experience significant decline despite national protection measures.

The Netherlands continues to be efficient in making **use of EU funds and loan opportunities**. The country is also a model to follow on national green funding, thanks to the use of **'green deals'**.

Examples of good practice

- **Circular economy** actions continue to play an important role. The country is an example of public-private partnership and the best performer in terms of resource productivity. Small businesses are becoming increasingly circular and the recycling rate for municipal waste is among the highest in the EU. The programme 'A circular economy in the Netherlands by 2050' is one of the most far-reaching in the EU.
- **Green public procurement** already exceeds Commission recommendations. The Netherlands has several **circular procurement** practices in place and the 'green deal' programme has begun with a number of pilots and guidance for functional specifications.
- The Netherlands is making good use of **green tax instruments** to tackle climate and environmental problems. Several subsidies and exemptions for petroleum and natural gas have been removed in recent years and CO_2-based taxes are becoming more common.
- Environmental authorities are jointly making information on environment and health available through the portal **Atlas Living Environment** (Atlas Leefomgeving) in the form of searchable maps.

Part I: Thematic areas

1. Turning the EU into a circular, resource-efficient, green and competitive low-carbon economy

Measures towards a circular economy

The Circular Economy Action Plan emphasises the need to move towards a life-cycle-driven 'circular' economy, reusing resources as much as possible and bringing residual waste close to zero. This can be facilitated by developing and providing access to innovative financial instruments and funding for eco-innovation.

Following the adoption of the Circular Economy Action Plan in 2015 and the setting up of a related stakeholder platform in 2017, the European Commission adopted a new package of deliverables in January 2018[1]. This included additional initiatives such as: (i) an EU strategy for plastics; (ii) a Communication on how to address the interplay between chemical, product and waste legislation; (iii) a report on critical raw materials; and (iv) a framework to monitor progress towards a circular economy[2].

The EU's circular economy monitoring framework tracks key trends and patterns to understand how the various parts of the circular economy are developing and whether sufficient action has been taken.

Circular (secondary) use of materials in the Netherlands stood at 29 % in 2016, a remarkable share compared with the EU-28 average of 11.7 %[3]. By contrast, the Netherlands performed slightly below the EU-28 average for the number of persons employed in the circular economy (at 1.19 % of total employment in 2016, against an EU-28 average of 1.73 %)[4].

There is clear support for circular economy initiatives and environmental protection in both society and government.

Citizens seem aware of the problems of a linear economy[5]. In 2017, 81 % of Dutch citizens expressed concern about the effects of plastic products on the environment (EU-28: 87 %), and 83 % about the impact of chemicals (EU-28: 90 %). Moreover, 88 % supported greater EU investment in environmental protection (EU-28: 85 %).

In addition, the Netherlands was one of the first EU countries to present a circular economy programme (2014), followed in September 2016 by the comprehensive programme 'A circular economy in the Netherlands by 2050'[6]. The country is in many cases leading by example and partnering up to push circularity in the EU[7].

The 2017 Coalition Agreement reaffirmed the government's commitment to transition towards a circular economy. It also promised to identify bottlenecks to sustainable innovation in legislation, supervision and enforcement, and see whether these can be resolved[8].

All national policy efforts related to the circular economy are captured in the action plan 'From waste to resource' (the VANG programme), covered in the 2017 EIR.

Since 2017, the government has built the circular economy into its climate action plans. According to various studies, the 2016 circular economy programme could have a decisive impact on the reduction of greenhouse gas (GHG) emissions by 2050. Plastics reuse and recycling could account for 28 % of emissions reduction, while biomass and food circular actions might add up to around 35 %[9].

New developments are expected in the way the Netherlands deals with measuring progress towards a circular economy. In January 2018 three government agencies called for a new monitoring system[10]. Statistics Netherlands (CBS), the Netherlands Environmental Assessment Agency (PBL) and the National Institute for Public Health and the Environment (RIVM) proposed to go further than the Commission's circular economy monitoring framework, to address whether all activities that stakeholders need to carry out are on schedule. The Dutch government will reply to this with a monitoring

[1] European Commission, 2018 Circular Economy Package.
[2] COM(2018) 029.
[3] European Commission, Circular material use rate. This indicator measures the share of material recovered and fed back into the economy.
[4] European Commission, Indicators for the Circular Economy Monitoring Framework, 2018.
[5] European Commission, Special 486 Eurobarometer 'Attitudes of European citizens towards the environment', 2017.
[6] Government of the Netherlands, A Circular Economy in the Netherlands by 2050, 2016.
[7] Speech by the State Secretary for Infrastructure and Water Management Stientje van Veldhoven at the seminar 'Luxembourg and the Netherlands: Together on the way to a circular economy', 24 May 2018.
[8] Government of the Netherlands, Coalition Agreement 'Confidence in the Future', 10 October 2017, p. 50.
[9] TNO, Effecten van het Rijksbrede Programma Circulaire Economie en de Transitieagenda's op de emissie van broeikasgassen, pp. 22-24.
[10] ENDS Europe, Dutch agencies call for a circular economy monitoring, 22 January 2018.

report on "guidance, progress, environmental and socio-economic effects in the Circular Economy" that will be published by the beginning of 2020.

All in all, the Netherlands can be considered a model of public-private partnership to achieve a more circular economy. Several projects have been financed and successfully implemented in recent years.

The Pension Fund for Civil Servants (ABP), the largest Dutch pension fund, adopted a new policy for sustainable investment in 2015 and has continued its environment-friendly approach. In 2017 alone, the ABP cut the level of CO_2 emissions in its equity portfolio by 7 million tonnes (the annual emissions of 2.8 million cars), while its investment in renewable energy rose by 25 %[11].

Nitrates and the circular economy[12] [13]

Current manure policy costs about EUR 350 million, but increases welfare by around EUR 2 billion when the benefits for nature and health are included in the calculations[14]. Because the amount of manure that is produced is more than can applied on the land, farmers, unless they give in to fraud, are forced to dispose the surplus manure either via direct exports or processing. Both are costly, implying that intensive livestock farmers have to pay to get rid of manure: the marginal value of manure as a fertiliser in the Netherlands is therefore negative.

Newly developed manure-processing technologies, such as one developed by the EU-funded project **BioEcoSIM**, may reduce the cost of the manure policy with benefits for the circular economy. A study has estimated that with the current policy and economic circumstances, if all Dutch pig manure went through a process like BioEcoSIM's and cost estimates are correct, this would increase GDP by EUR 15 million and reduce the environmental costs of greenhouse gas emissions and particulate matter formation by about EUR 75 million[15].

The LIFE-granted project *REBUS* aims to secure more resource-efficient business models. After a trial phase in the United Kingdom and the Netherlands, more than 62 000 tonnes of materials have been saved. Scaling up the benefits could result in 184 million tonnes of direct material savings and 172 million tonnes of materials diverted (e.g. to reuse and recycling) in the EU[16].

The Dutch system of collection of domestic medicines is another good example of how circularity can be applied to almost every economic sector. The Royal Dutch Pharmacists Organisation (KNMP) states that more than 140 tonnes of waste medicine ends up in surface waters. KNMP is reducing the amount of leftover medication ending up in the environment through initiatives such as medicine use monitoring and incentives for a new waste collection system in pharmacies. The number of municipalities making pharmacies pay for waste medicine fell from 45 % in 2016 to 10 % in 2018[17].

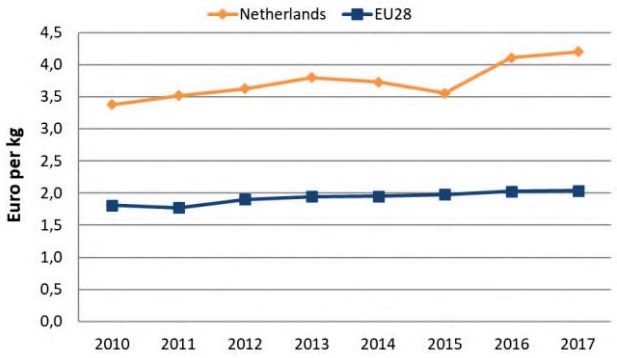
The Netherlands, Belgium, France and the United Kingdom participate in the Nereus project, funded by the EU through its European Regional Development Fund (ERDF) programme Interreg 2 Seas. The aim is to boost the development of the green economy and the transformation of wastewater into a valuable source of water, resources (e.g. cellulose and nutrients) and energy. In June 2018, the first pilot location officially opened in Rotterdam to create as much value as possible from domestic waste water after it is collected and processed[18].

The 'green deals' continue to be one of the most innovative ways of overcoming obstacles to green developments. On 7 June 2018, a new green deal on circular procurement was signed by 50 public and private organisations and companies, adding up to EUR 100 million in purchasing power[19]. The initiative is open to all organisations keen on circular purchasing.

Besides these examples, the Netherlands is the best performer in the EU in terms of resource productivity (how efficiently the economy uses material resources to produce wealth)[20], at EUR 4.2/kg in 2017 (EU: EUR 2.04/kg). Figure 1 shows a gradual increase since 2008, with a temporary decline between 2013 and 2015, and a significant increase in 2016. The main reasons for this good performance are the slowdown of fossil fuel consumption and falling demand for non-metallic minerals due to increasing reuse and recycling rates[21].

[11] Pensioenfonds voor overheid en onderwijs, ABP on course with sustainable investments.
[12] Woltjer, G. & Smits, M., 2018. Phosphorus Recycling from Manure, CIRCULAR IMPACTS project.
[13] PBL, 2017. Evaluatie Meststoffenwet 2016: Syntheserapport.
[14] Van Grinsven, H.J.M., Tiktak, A. & Rougoor, C.W., 2016. Evaluation of the Dutch implementation of the nitrates directive, the water framework directive and the national emission ceilings directive. NJAS — Wageningen Journal of Life Sciences, 78, pp.69-84.
[15] Van Grinsven, H.J.M., Tiktak, A. & Rougoor, C.W., 2016. Evaluation of the Dutch implementation of the nitrates directive, the water framework directive and the national emission ceilings directive. NJAS — Wageningen Journal of Life Sciences, 78, pp.69-84.
[16] Wrap UK and Dutch Ministry of Infrastructure and the Environment, the REBus Project, December 2017, p. 6.
[17] EIR Dialogues, Summary Country Dialogue Netherlands 12 April 2018.
[18] Nereus Project, First Nereus demo case officially opened in Rotterdam.
[19] Green Deal, Circulair inkopen 2.0.
[20] Resource productivity is defined as the ratio between gross domestic product and domestic material consumption.
[21] European Environment Agency, More from less — material resource efficiency in Europe (Dutch report), 2017; and Government of the Netherlands, A Circular Economy in the Netherlands by 2050, 2016.

Figure 1: Resource productivity 2010-2017[22]



Furthermore, the Netherlands employed 132 008 workers in the environmental goods and services sector in 2015, slightly up from 2012[23].

The Netherlands' performance should be seen as an example for other countries of the effect of policies to improve resource productivity, although its high level of dependence on imported raw materials remains a concern.

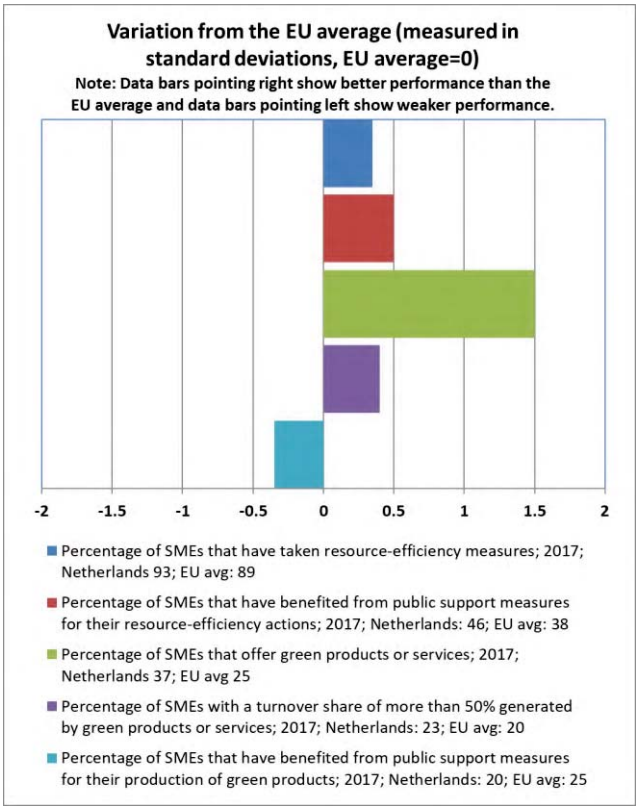
The many positive developments and achievements leave, however, scope for stepping up circular economy activities. The value added of the environmental goods and services sector is increasing, but more slowly than might be expected from a strong service-based economy like the Netherlands (to 2.45 % of GDP in 2015, from 2.44 % in 2014)[24].

There are still a number of barriers to promoting innovation in the circular economy. These require greater recognition that transitioning to a circular economy needs different forms of innovation: technological, financial (business cases), organisational (working methods) and social (focused on cooperation and teamwork)[25].

SMEs and resource efficiency

The Commission's annual SME performance review for 2018 showed the general situation of small businesses in the Netherlands with regard to environmental performance (see Figure 2). These companies were above the European average in green turnover (green products or services accounted for more than 50 % of turnover in 23 % of Dutch SMEs) and in public funding for resource efficiency actions. On the other hand, they were below the EU average only in public sector support for production of green products.

Figure 2: Environmental performance of SMEs[26]



In 2018, the latest Eurobarometer on 'SMEs, resource efficiency and green markets'[27] showed new developments on some of the main indicators. 37 % of Dutch SMEs are currently offering green products and services (up from 27 % in 2015). 20 % of the companies surveyed (EU average of 14 %) said that green products or services accounted for more than 75 % of their annual turnover for the latest available fiscal year. Although only 35 % of Dutch SMEs have employees working in green jobs (25 % in 2015, EU-28 average: 40 %), the average number of green employees within these companies is 6.2, much higher than the EU average of 4.7. Finally, public sector support for SMEs seems to be acknowledged, as 87 % of 'green' SMEs are satisfied with the assistance provided by the public sector (EU-28: 58 %).

Nonetheless, SMEs reduced investment in resource efficiency actions in the period 2015-2017 (51 % said they had invested up to 5 % of their annual turnover in 2017, against 62 % in 2015), although the figure is still just above the EU average of 50 %. That slight fall might adversely affect the Netherlands' performance, as the country relies heavily on voluntary agreements and initiatives to improve resource efficiency. National policies and other support measures are not enough,

[22] Eurostat, Resource productivity.
[23] Eurostat, Employment in the environmental goods and services sector.
[24] CBS, Green Growth 2018 .
[25] European Commission, European Semester Country Report for the Netherlands, 2018, p. 51.
[26] European Commission, 2018 SBA fact sheet - Netherlands, p.15
[27] Eurostat, Flash Eurobarometer 456: SMEs, resource efficiency and green markets, 2018.

particularly for improving financing, supporting extended producer responsibility, encouraging external audits and improving company accounting and reporting practices[28].

In any case, in recent years there has been an increasing number of public-funded projects to increase resource efficiency. The *MIA* (an environmental investment rebate) and *VAMIL* (discretionary depreciation of environmental investments) are public schemes to grant tax advantages for environment-friendly products and entrepreneurs and to bring innovative products to market more rapidly[29].

The 2017 Coalition Agreement also included proposals to improve national resource efficiency[30]. The new Environment and Planning Act and the implementation of the circular economy programme and the transition agendas set out in the Raw Materials Agreement are good examples.

EU funding can also contribute to companies' resource efficiency. Most of the European funds and programmes connect competitiveness, innovation, the environment and climate in one way or another. In addition, specific instruments for resource efficiency, such as the Private Finance for Energy Efficiency (PF4EE) instrument and the European Energy Efficiency Fund, have been launched by the Commission, the European Investment Bank (EIB) and national investment banks[31].

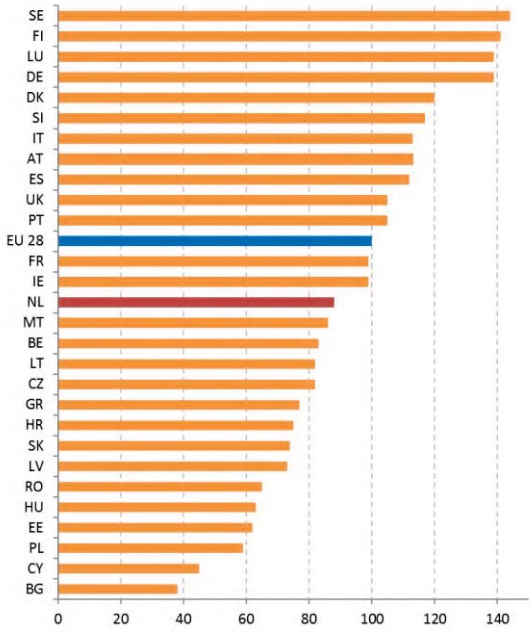
These measures are crucially important because the Dutch economy depends on rare or critical materials and resources[32]. According to the Eurobarometer, resource efficiency actions already undertaken have helped cut production costs in 30 % of the Netherlands' SMEs (EU-28 average 41 %). So small businesses have yet to harness the full potential of resource efficiency.

The EIR 2017 suggested action to "explore the full potential of resource efficiency measures for and by SME" remains as priority action 2019, as there is scope to give more support to financing, Extended Producer Responsibility (EPR) and accounting and reporting practices.

Eco-innovation

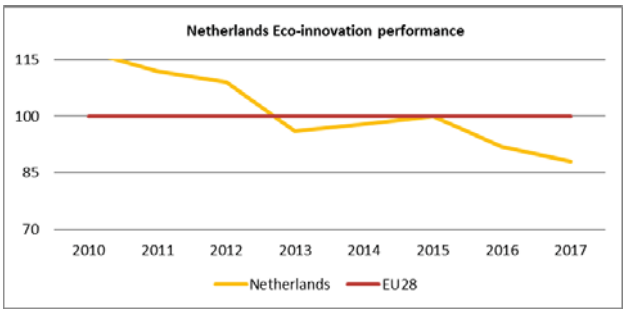
The Netherlands has been a leader in EU innovation since at least the 1970s. The country ranked fourth on the overall European Innovation Scoreboard 2018, and was the second fastest growing innovator (with a 15.9 % increase since 2010)[33]. However, it ranked only 14th on the eco-innovation scoreboard for 2017 as shown in Figure 3.

Figure 3: 2017 Eco-innovation index (EU=100)[34]



Since 2011, the Netherlands has seen its eco-innovation performance decline, from 112 points to a low of 88 in 2017 (see Figure 4), mainly due to poor performance in two areas: eco-innovation activities and socioeconomic outcomes[35].

Figure 4: Dutch eco-innovation performance[36]



The Netherlands' low score seems to contradict its ambitious sustainability objectives; eco-innovation at national level may need to be improved. At local and regional level, more progress has been made, particularly

[28] Ecologic Institute, IEEP, BIO by Deloitte, 2015. A framework for Member States to support business in improving its resource efficiency. Study for the European Commission.
[29] Netherlands Enterprise Agency, Environmental subsidies and programmes.
[30] Government of the Netherlands, Coalition Agreement 'Confidence in the Future', 10 October 2017.
[31] European Commission. Improving resource efficiency in SMEs, December 2017, pp. 21-31.
[32] CBS, Monitor Duurzaam Nederland 2017.
[33] European Commission, European innovation Scoreboard 2018.
[34] European Commission Eco-innovation Observatory, Eco-Innovation scoreboard 2017, 2018.
[35] European Commission Eco-Innovation Observatory, EU Eco-Innovation Index 2017 Brief, 2018.
[36] Authors based on the EU Eco-Innovation Index (see 27).

on sustainable energy, with many local initiatives and ambitious city projects.

Other barriers to eco-innovation are the low take-up of ecolabel licences (only 1 100 products registered out of 71 707 in the EU, compared to 30 384 in Spain)[37] and limited use of eco-management and audit schemes (only Latvia and Malta have fewer EMAS helpdesk organisations and sites)[38]. In September 2018, the Netherlands had 1 100 products and 83 licences registered with the EU Ecolabel scheme and only two organisations in EMAS. Nevertheless, some national schemes are in place, such as the *Milieukeur*, the environmental quality label for products and services[39].

On the other hand, the Netherlands has the potential to be a frontrunner and testing ground for the circular economy for several reasons: with big harbours and good infrastructure, the country is an important link in international material flows and can therefore also play a part in the flow of recycled and bio-based materials. Second, the Netherlands has a reputation for entrepreneurial spirit and knowledge, and a leading position in design and advanced waste management systems. Other important drivers of the circular economy are opportunities to innovate, attract new business, improve the environment and people's wellbeing, and reduce dependency on external resources[40].

The Netherlands continues to do well in waste management and green procurement, with the green deal programme helping to launch several pilot projects. The number of local sustainable energy corporations increased to 392 in 2017. Together, they started 100 new collective solar energy projects.

The 'Make it Work' project

An example of good practice is the 'Make it Work' project, bringing together experts to produce recommendations for keeping EU environmental legislation and implementation practice fit for purpose. Make it Work's current focus is on enabling eco-innovation for the circular economy under EU environmental legislation: specifically, turning waste into new secondary raw materials[41].

All in all, to overcome the eco-innovation gap, some of the main indicators in the index need to improve. For instance, only 2 677 organisations use the ISO 14001 standard[42] for effective environmental management systems, putting the Netherlands in 11th place in the EU[43]. Employment in eco-industries and the circular economy accounts for only 1.17 % of total employment, against 1.71 % for the EU-28[44].

2019 priority action

- Adopt circular economy principles that act as incentives for resource efficiency measures and increased recycling; eco-innovation performance; and investments in green products and services.

Waste management

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

This section focuses on management of municipal waste[45] for which EU law sets mandatory recycling targets[46].

Figure 5 shows that the amount of municipal waste generated fell slightly between 2014 and 2017, continuing the downward trend of previous years. However, it is still above the EU average (at 513 kg/y/inhabitant against 487 kg/y/inhabitant) and the decline has slowed (from 45 kg per capita between 2010 and 2013 to 13 kg per capita between 2013 and 2017).

On the very positive side, the recycling rate (including composting) for municipal waste, at 54 % in 2017, is higher than the EU average of 46 %, and recycling remains the main form of treatment of municipal waste, while landfilling, at 1 %, is well below the EU average of 24 %, as a result of landfill taxes and bans.

Figure 6 shows that since 2013 the Netherlands has complied with the EU 2020 municipal waste recycling target of 50 %, placing the country among the best performers in the EU.

[37] European Commission, Ecolabel Facts and Figures.
[38] European Commission, Eco-Management and Audit Scheme.
[39] Milieukeur, website.
[40] European Commission, Eco-Innovation Observatory, Country profile 2016-2017: The Netherlands.
[41] EIR Dialogues, Summary Country Dialogue Netherlands 12 April 2018.
[42] International Organisation for Standardisation, ISO 14001:2015.
[43] International Organisation for Standardisation, ISO Survey of Certifications, 2016.
[44] Eurostat, Circular Economy Monitoring Framework, 2018.
[45] 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.
[46] See Article 11.2 of Directive 2008/98/EC. This Directive was amended in 2018 by Directive (EU) 2018/851, and more ambitious recycling targets were introduced for the period up to 2035.

Figure 5: Municipal waste by treatment in the Netherlands 2010-2017[47]

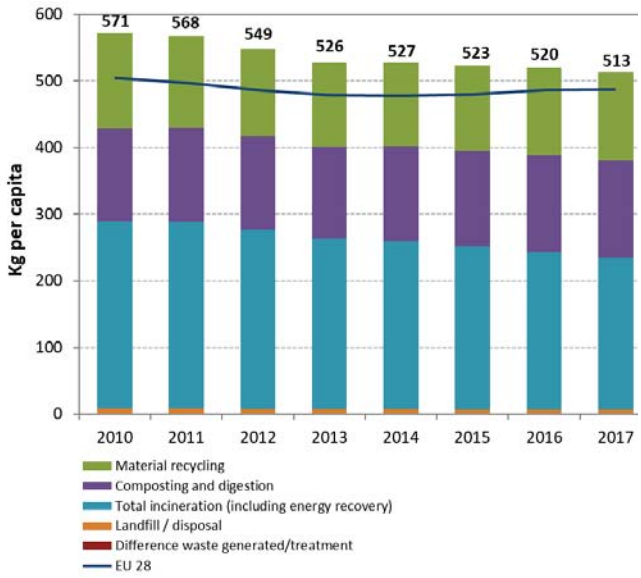
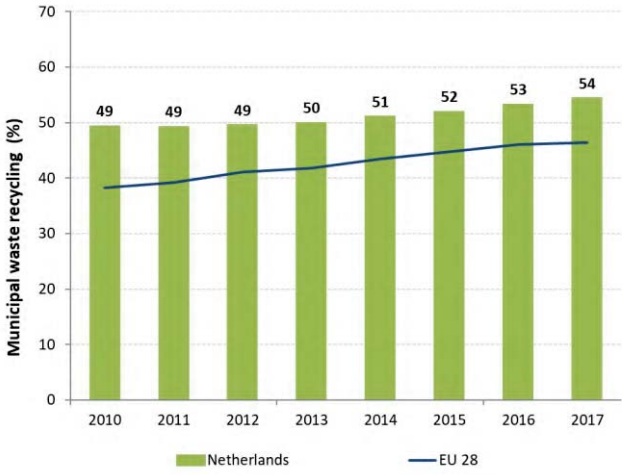


Figure 6: Recycling rate of municipal waste 2010-2017[48]



However, more effort will be needed to comply with recycling targets for the post-2020 period[49]. This will in particular require action to reduce the incineration of municipal waste (44 % in 2017).

To boost waste prevention and further increase recycling rates, the 2016 programme for a circular economy (A circular economy in the Netherlands by 2050)[50] aims in part to ensure that by 2025 the annual volume of residual household waste is no more than 30 kg per capita (100 kg in 2020). By 2022, the volume of residual waste from companies, organisations, and governments comparable to residual household waste must be halved (compared to 2012. In line with these operational goals, the government also aims to reduce the amount of residual waste incinerated/landfilled from 10 million tonnes in 2012 to 5 million tonnes in 2022.

Local and regional authorities are creating new networks on waste-related issues, mainly to support plastic recovery and recycling. Some 260 municipalities within the *Statiegeld Alliantie* are calling for a deposit system for plastic bottles[51]. On 10 March 2018, the State Secretary for Infrastructure and Water Management announced that a deposit on small plastic bottles would be introduced in 2021, unless the packaging industry managed to achieve 90 % recycling of throw-away bottles by the autumn of 2020. She also urged the packaging sector to reduce street litter by 70 to 90 %[52].

2019 priority actions

- Introduce new policies, including economic instruments, to promote waste prevention, make reuse and recycling more economically attractive.
- Shift reusable and recyclable waste away from incineration.

Climate change

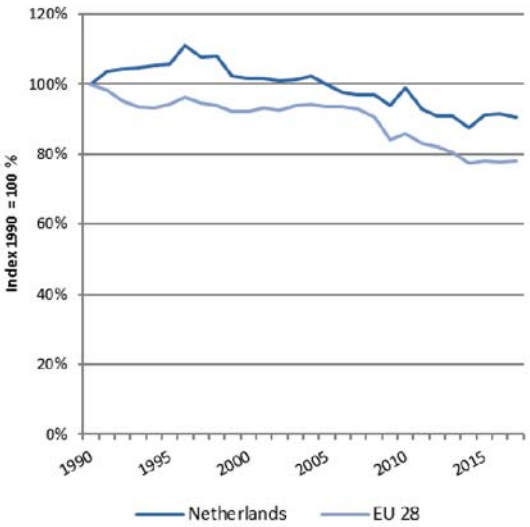
The EU has committed to undertaking ambitious climate action internationally as well as in the EU, having ratified the Paris Climate Agreement on 5 October 2016. The EU targets are to reduce greenhouse gas (GHG) emissions by 20 % by 2020 and by at least 40 % by 2030, compared to 1990. As a long-term target, the EU aims to reduce its emissions by 80-95 % by 2050, as part of the efforts required by developed countries as a group. Adapting to the adverse effects of climate change is vital to alleviate its already visible effects and improve preparedness for and resilience to future impacts.

The EU emissions trading system (EU ETS) covers all large greenhouse gas emitters in the industry, power and aviation sectors in the EU. The EU ETS applies in all Member States and has a very high compliance rate. Each year, installations cover around 99 % of their emissions with the required number of allowances.

[47] Eurostat, Municipal waste by waste operations.
[48] Eurostat, Recycling rate of municipal waste.
[49] 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. These targets will be taken into consideration to assess progress in future Environmental Implementation Reports.
[50] Government of the Netherlands, A Circular Economy in the Netherlands by 2050. The programme aims at developing a circular economy in the Netherlands by 2050. It sets an (interim) objective of a 50 % reduction in the use of primary raw materials (from minerals, fossil fuels and metals) by 2030.
[51] Statiegeld Alliantie, Demand for deposit schemes continues to grow.
[52] Government of the Netherlands, Breakthrough in combating plastic soup (press release).

For emissions not covered by the EU ETS, Member States have binding national targets under 'effort sharing' legislation[53]. The Netherlands had lower emissions than its annual targets in each of the years 2013-2017. For 2020, the Netherlands' national target under the Effort Sharing Decision is to reduce emissions by 16 % compared to 2005. For 2030, the target will be to reduce emissions by 36 % compared to 2005 (see Figure 8).

Figure 7: Change in total GHG emissions 1990-2017 (1990=100 %)[54].

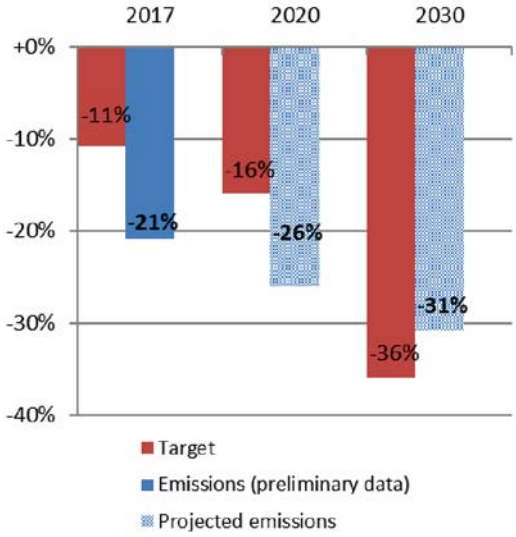


The national energy and climate plan will be partly based on the Energy Agenda[55]. The Energy Agenda was adopted at the end of 2016 and focuses on GHG emission reductions needed to achieve the climate goals agreed in Paris in 2015.

The low-carbon development strategy explores the concept of a climate-neutral economy. The new government has committed to a more ambitious climate policy, which will be laid down in a new Climate Law and a national Climate Agreement next to the existing Energy Agreement[56]. The National Climate Agreement, the Dutch contribution to "Paris", has one central goal, which is to reduce GHG emissions in the Netherlands by at least 49 % in 2030 compared to 1990. Additionally, the Dutch government's efforts in a European context could result in an even more ambitious target towards 55 %.

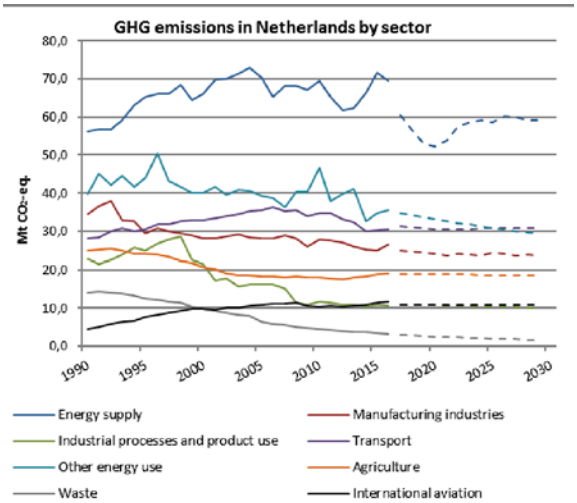
To come to a Climate Agreement with organisations and companies, conversations are taking place on five sector platforms: built environment, industry, agriculture and land use, mobility, and electricity. Each platform was asked to map out the measures required for a 55 % emission reduction.

Figure 8: Targets and emissions under the Effort Sharing Decision and Effort Sharing Regulation[57]



Focus is also necessary on transport, as this represents almost a quarter of the EU's GHG emissions and is the main cause of air pollution in cities. Transport emissions fell by 8 % from 2012 to 2015in the Netherlands.

Figure 9: Greenhouse gas emissions by sector (Mt CO_2-eq.). Historical data 1990-2016. Projections 2017-2030[58]



According to EU Law, and to control emissions from fluorinated GHGs (F-gases), Member States must

[53] See Regulation (EU) 2018/842.
[54] European Environmental Agency, Annual European Union greenhouse gas inventory 1990–2016. Proxy GHG emission estimates for 2017, Member States national projections.
[55] Government of the Netherlands, Energy Agenda: Towards a low-carbon energy supply.
[56] Sociaal-Economische Raad, Agreement on Energy for Sustainable Growth, 2013.
[57] European Environmental Agency, Annual European Union greenhouse gas inventory 1990–2016. Proxy GHG emission estimates for 2017, Member States national projections.
[58] European Environmental Agency, Annual European Union greenhouse gas inventory 1990–2016. Proxy GHG emission estimates for 2017, Member States national projections.

introduce training and certification programmes and rules for penalties, and must notify the Commission these measures by 2017. The Netherlands has notified the Commission both measures.

The accounting of GHG emissions and removals from forests and agriculture is governed by the Kyoto Protocol. A preliminary accounting exercise for the period 2013-2016 shows that the Netherlands had net debits of, on average, 0.7 Mt CO_2-eq, which corresponds to a negative contribution of -0.6% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. The Netherlands is one of six EU Member States which showed net debits in this preliminary accounting exercise.

The EU Strategy on adaptation to climate change, adopted in 2013, aims to make Europe more climate-resilient, by promoting action by Member States, better-informed decision making, and promoting adaptation in key vulnerable sectors. By adopting a coherent approach and providing for improved coordination, it seeks to enhance the preparedness and capacity of all governance levels to respond to the impacts of climate change.

The Netherlands adopted its first national adaptation strategy in 2007. Adaptation policy has two components: the 2016 national climate adaptation strategy 'Adapting with ambition' [59] (December 2016, following an initial adaptation strategy from 2007) and the 2010 Delta programme. The adaptation strategy complements the Delta programme[60]. It describes how climate change will affect life in the Netherlands, drawing particular attention to those effects which are likely to have significant impact in the years ahead, such as water management, health, agriculture and forestry, recreation, infrastructure and energy.

Through its role complementing the national climate adaptation strategy, the Delta programme involves many adaptation measures. The aim is to ensure that flood risk management, freshwater supply and spatial planning will be climate-proof and water-resilient by 2050, in the face of increasing weather extremes. A *Delta plan on spatial adaptation* has been published[61]. In line with the 2014 Delta decision on spatial adaptation, it specifically adopts a territorial approach. The action programme on adaptation was launched in March 2018 and the monitoring and evaluation framework is being set up.

Total revenue from auctioning emission allowances under the EU ETS for 2013-2017 was EUR 786 million. The Netherlands does not earmark auctioning revenue for specific uses. An amount equalling 100 % of the auctioning revenues has been reported as spent on climate and energy purposes.

2019 priority action

In this report, no priority actions have been included on climate action, as the Commission will first need to assess the draft national energy and climate plans which the Member States needed to send by end of 2018. These plans should increase the consistency between energy and climate policies and could therefore become a good example of how to link sector-specific policies on other interlinked themes such as agriculture-nature-water and transport-air-health.

[59] Government of the Netherlands, National Climate Adaptation Strategy, 2016.
[60] Government of the Netherlands, Delta Programme.
[61] Government of the Netherlands, Delta Plan on Spatial Adaptation 2018.

2. Protecting, conserving and enhancing natural capital

Nature and biodiversity

The EU biodiversity strategy aims to halt the loss of biodiversity in the EU by 2020. It requires full implementation of the Birds and Habitats Directives to achieve favourable conservation status of protected species and habitats. It also requires that the agricultural and forest sectors help to maintain and improve biodiversity.

Biodiversity strategy

Various Dutch policy plans[62] together serve as a revised national biodiversity strategy and action plan. Based on the recommendations of the Taskforce on Biodiversity and Natural Resources, the document '*Natural capital agenda: conservation and sustainable use of biodiversity*'[63] sets the biodiversity implementation agenda to 2020 for the Netherlands and the Dutch Caribbean[64].

The '*government vision 2014*'[65] advocates a shift in thinking about nature policy, from protecting nature *from* society towards strengthening nature *with* society. Biodiversity targets should be reached by using all opportunities for synergy between the value of nature and social and economic activities.

Setting up a coherent network of Natura 2000 sites

By early 2018, 13.3 % of the national land area of the Netherlands was covered by Natura 2000 (EU average 18.1 %). Special areas of protection (SPAs), under the Birds Directive, covered 11.5 % (EU average 12.3 %) and Sites of community importance (SCIs), under the Habitats Directive, covered 8 % (EU average 13.8 %)[66].

Designating Natura 2000 sites and setting conservation objectives and measures

The latest assessment of the Natura 2000 network shows that the Netherlands has largely completed its Natura 2000 network on land and on sea. There are a few minor gaps, mainly concerning species that have only recently been observed in the country and still need to be addressed, plus some potential gaps in the SPA network[67].

Farmland bird populations continue to experience significant population declines despite protection measures. For example, populations of the oystercatcher (*Haematopus ostralegus*), the black-tailed godwit (*Limosa limosa*) and the skylark (*Alauda arvensis*) have declined by more than 60 % between 1990 and 2015.

Dutch overseas countries and territories benefited from calls under the BEST 2.0 Programme[68].

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

Member States report only every 6 years on progress made under the two directives, so no new information is available on the state of natural habitats and species, or on progress made in improving the conservation status of species and habitats, since the 2017 EIR. However, it is clear that there are still certain situations of non-compliance in relation with the insufficiency of the network (SPAs and SCIs) and qualitative aspects of some management plans in place.

2019 priority actions

- Further optimise the contribution of Natura 2000 and national nature protection networks to achieving good conservation status, in particular by ensuring sufficient resources for full implementation of the Natura 2000 management plans in order to maintain/restore species and habitats of community interest to a favourable conservation status across their natural range.
- Reduce habitat fragmentation, atmospheric nitrogen deposition, desiccation and acidification.
- Take the necessary measures to halt the decline of meadow and farmland birds and to re-establish a sufficient area and diversity of habitats for them.

[62] Ministry of Economic Affairs, *The Natural Way Forward: Government Vision 2014*, 2014.
[63] Ministry of Economic Affairs, Natural Capital Agenda, 2014.
[64] Ministry of Economic Affairs, Nature Policy Plan for the Caribbean Netherlands, 2014.
[65] Ministry of Economic Affairs, *The Natural Way Forward: Government Vision 2014*, 2014.
[66] The figures do not add up because some sites are designated as both SCIs and SPAs. Special Areas of Conservation (SACs) are SCIs designated as such by the Member States.
[67] For each Member State, the Commission assesses whether the species and habitat types listed in Annexes I and II of the Habitats Directive are sufficiently represented by the sites designated to date. This is expressed as a percentage of species and habitats for which further areas need to be designated in order to complete the network in that country. The current data, which were assessed in 2014-2015, reflect the situation to December 2013.
[68] BEST, Voluntary Scheme for Biodiversity and Ecosystem Services in Territories of European Overseas.

Maintaining and restoring ecosystems and their services

The EU biodiversity strategy aims to maintain and restore ecosystems and their services by including green infrastructure in spatial planning and restoring at least 15 % of degraded ecosystems by 2020. The EU green infrastructure strategy promotes the incorporation of green infrastructure (GI) into related plans and programmes.

The EU has provided guidance on the further deployment of green and blue infrastructure in the Netherlands[69] and a country page on the Biodiversity Information System for Europe (BISE)[70]. This information will also contribute to the final evaluation of the EU Biodiversity Strategy to 2020.

The Netherlands has several policies and strategies including relevant green infrastructure measures. The National Ecological Network (NEN) [71] includes existing protected areas and areas that need to be restored, and is intended to be connected to other European countries, but the extent of progress is unclear.

The NEN is complemented by the policy documents '*The Natural Way Forward: Government Vision 2014*'[72], which promotes 'nature combinations' (combining nature with agriculture, private estates, recreation, water extraction, cities, business areas, waterways, etc.) and '*Nature ambition for large waters*'[73]. The latter envisages optimising ecosystem services in the major national waters.

GI has been included in water management. New water management measures focus on natural processes rather than specific habitats or species, and opportunities for increasing the value of nature are considered.

Since 2016, groups of farmers have been allowed to apply for subsidies in areas with high potential to increase natural value. These subsidies aim to complement the NEN. The NEN is protected by spatial planning schemes in provincial regulations and listed as a national priority in the national policy strategy for infrastructure and planning (*Structuurvisie Infrastructuur en Ruimte*)[74]. In that strategy, ´building with nature´ is mentioned as a way to create nature value within other tasks. National and local authorities, businesses and non-governmental organisations (NGOs) are working together to incorporate nature into infrastructure (highways, railways, waterways) through green deals. These forms of infrastructure, and ecological barriers formed by highly intensive agricultural areas, are the main challenges for GI.

Water-related projects and nature restoration

The Netherlands excels at water-related projects and nature restoration (on former agricultural lands). Examples include projects such as the *Sand Motor and the Marker Wadden*[75] and the transformation of 80 000 hectares of agricultural lands, which have been included in the NEN. Another interesting approach is that of the project *Temporary Nature*, which enables flora and fauna to emerge on wasteland areas. To prevent developers from having to compensate for habitats that have emerged, when the building project is carried out, a green deal with the national government allows developers to be exempted from the Flora and Fauna Law — so there is no incentive to try to keep out protected species from temporary waste ground. This way, a temporary habitat can be created or naturally emerge on waste land.

The National Green Fund (*Nationaal Groenfonds*)[76] finances projects that improve the quality of the natural environment. Green deals are another way to promote and sometimes finance sustainable projects. Several projects also receive co-finance from the EU.

The Netherlands has developed a dynamic strategic framework for setting priorities for ecosystem restoration at sub-national and national level. The framework has four layers; (1) its prioritised action framework for Natura 2000, (2) its national ecological network, (3) its policy strategy for large waters, and (4) smaller national projects. It will be regularly updated.

[69] The recommendations of the green infrastructure strategy review report and the EU Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure.
[70] Biodiversity Information System for Europe.
[71] Government of the Netherlands, National Ecological Network (NEN).
[72] Ministry of Economic Affairs, The Natural Way Forward, 2014.
[73] Ministry of Economic Affairs, Natuurambitie Grote Wateren 2050 en verder, 2014.
[74] Government of the Netherlands, Summary of the national policy strategy for infrastructure and spatial planning.
[75] University of Delft, Marker Wadden: Building wetlands with soft mud.
[76] Government of the Netherlands, Green Deals.

Estimating natural capital

The EU biodiversity strategy calls on Member States to map and assess the state of ecosystems and their services[77] in their national territories by 2014, assess the economic value of such services and integrate these values into accounting and reporting systems at EU and national level by 2020.

The Netherlands has implemented the Mapping and Assessment of Ecosystems and their Services (MAES) via its Atlas of Natural Capital[78] and the development of a system of National Natural Capital Accounts[79], leading efforts on ecosystem accounting.

To enhance the applicability of the data, CBS developed a natural capital model based on the national land cover and ecosystems unit maps. The model consists of a set of input maps, a simulation tool and output maps which set out the relationship between the ecosystems and the services they provide and that is consistent with the United Nations System of Environmental Economic Accounting (SEEA). The applicability of the maps is now being tested in various pilot studies.

The TEEB project[80] has delivered a tool which calculates the monetary value of green areas in cities. Over 20 municipalities, several research institutes and other relevant parties agreed to cooperate on improving and integrating the existing tools for better decision-making on natural capital.

Wageningen Environmental Research, in cooperation with the PBL, the RIVM and the Belgian INBO and VITO, has started a project to create a tool for devising scenarios for natural capital. This instrument should enable authorities, assessment agencies, companies and other stakeholders to estimate the effects of strategies or policies on natural capital and ecosystem services. The project also aims to provide a range of practical approaches to natural capital for various actors.

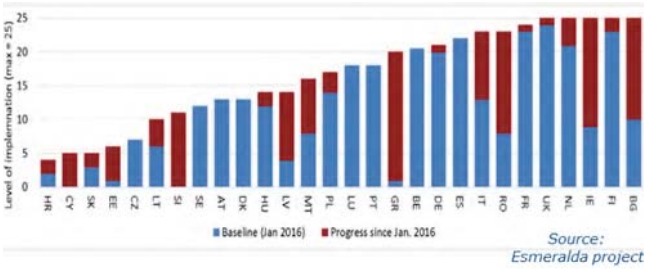
Business, nature organisations and governments have set up an online platform, 'Naturalcapital.community'[81] to scale up the application of natural capital principles in daily business practice.

The Natural Capital Community[82] is part of the Dutch societal programme for natural capital, a national programme in which the employers' organisation VNO-NCW, CSR Netherlands, IUCN Netherlands and the professional body for accountants NBA[83] have joined forces with the government to scale up natural capital. It offers business-to-business solutions, insights, events and — most importantly — a relevant business network working on natural capital in the Netherlands. The Leaders for Nature network[84] brings together 20 multinationals and major Dutch enterprises aiming to make ecosystem thinking central to business decision-making.

In November 2016 and 2017, the Netherlands co-hosted the first and second WAVES policy forums[85]. WAVES (Wealth Accounting and the Valuation of Ecosystem Services) is a World Bank-led global partnership to promote sustainable development by ensuring that natural resources (including ecosystems and ecosystem services) are mainstreamed in development planning and national economic accounts. The Netherlands supports this programme with expertise from CBS and PBL.

At the final Esmeralda workshop and MAES Working Group meeting in Brussels in September 2018, the Netherlands was shown to be one of the leading countries when it comes to the implementation of MAES (Figure 10). This assessment was produced by the Esmeralda project based on 27 questions about implementation and is updated every 6 months.

Figure 10: Implementation of MAES (September 2018)[86]



The Commission encourages the Netherlands to continue sharing its experience with other Member States.

Business and biodiversity platforms, networks and communities of practice are key tools for promoting and facilitating natural capital assessments (NCA) among business and financial service providers, for instance via the Natural Capital Protocol designed by the Natural Capital Coalition[87]. NCAs help private business to better understand and put a value not only on their impacts, but

[77] Ecosystem services are benefits provided by nature such as food, clean water and pollination on which human society depends.
[78] Atlas of Natural Capital, website.
[79] The system will be completed in 2019, and the regular monitoring implemented in 2020.
[80] TEEB, The Economics of Ecosystems and Biodiversity.
[81] MVO Nederland, Naturalcapital.community.
[82] MVO Nederland, Naturalcapital.community.
[83] Koninklijke Nederlandse Beroepsorganisatie van Accountants, website.
[84] International Union for Conservation of Nature (IUCN) National Committee of the Netherlands, Leaders for Nature.
[85] WAVES Partnership, WAVES Hosts the First Policy Forum with the Netherlands Government.
[86] Esmeralda project, website.
[87] Natural Capital Protocol, Natural Capital Coalition.

also on their dependence on nature, and so contribute to EU biodiversity strategy. Business and diversity groups have been established at EU level[88] and in some, but not all, Member States.

Invasive alien species

Under the EU biodiversity strategy, the following are to be achieved by 2020:
(i) invasive alien species identified;
(ii) priority species controlled or eradicated; and
(iii) pathways managed to prevent new invasive species from disrupting European biodiversity.
This is supported by the Invasive Alien Species (IAS) Regulation, which entered into force on 1 January 2015.

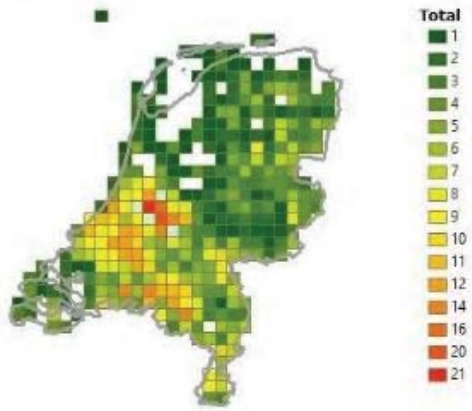
The report on the baseline distribution (Figure 11), for which the Netherlands could only review its country data (reviewing grid-level data required more time), shows that of the 37 species on the first EU list, 25 have already been observed, of which 20 are established and 15 are aquatic species.

The number of established populations is the fourth highest in the EU, after that of Germany, France and Italy. The high registered number of IAS of EU concern, particularly given the Netherlands' smaller surface area, is related not only to its key location as a river delta at the end of important European river systems and intensive economic and transport activities, but also to its considerable surveillance efforts. The country is facing great invasion pressure from the raccoon (*Procyon lotor*), moving from Germany.

Between the entry into force of the EU list and 18 May 2018, the Netherlands submitted two early detection notifications, as required under Article 16(2) of the IAS Regulation: one for the Asian hornet (*Vespa velutina*) and one for the raccoon (*Procyon lotor*). The Asian hornet has been eradicated and eradication measures for raccoon are ongoing. Also, the Pallas' squirrel (*Callosciurus erythraeus*) and the Indian house crow (*Corvus splendens*) have been eradicated.

As, according to the data, the Muntjac deer (*Muntiacus reevesi*) is still in the early invasion stage, and the Netherlands is one of the few Member States with a local population of these species, it is advised to attempt to eradicate them.

Figure 11: Number of IAS of EU concern, based on available georeferenced information[89]



The Netherlands has notified the Commission of its competent authorities responsible for implementing the IAS Regulation, as required by Article 24(2) of the IAS Regulation.

It has informed the Commission of the national provisions on penalties for infringements, as required by Article 30(4) of the IAS Regulation, and has therefore met its notification obligations.

Soil protection

The EU soil thematic strategy underlines the need to ensure a sustainable use of soils. This entails preventing further soil degradation and preserving its functions, as well as restoring degraded soils. The 2011 Roadmap to a resource efficient Europe states that by 2020, EU policies must take into account their direct and indirect impact on land use.

Soil is a finite and extremely fragile resource and it is increasingly degrading in the EU.

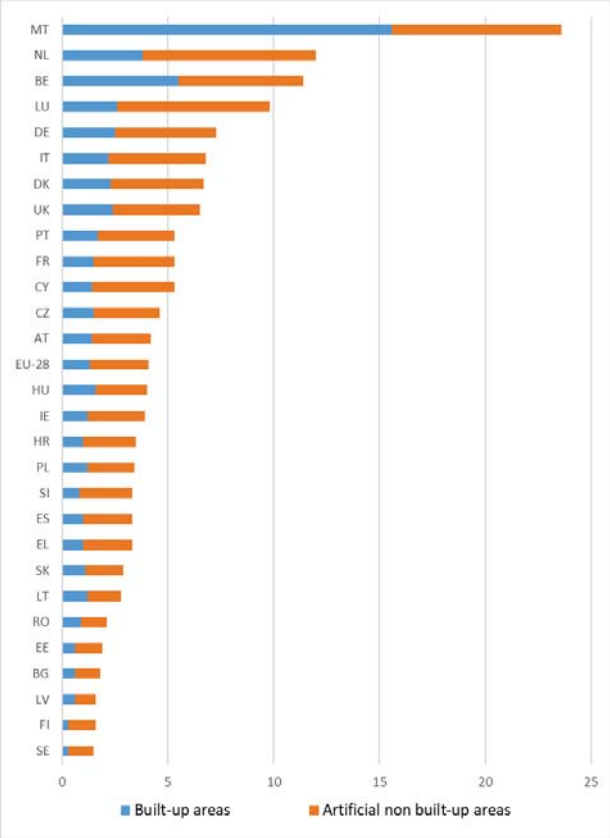
The percentage of artificial land[90] in a country (Figure 12) can be seen as a measure of the relative pressure on

[88] The European Business and Biodiversity Campaign aims to promote the business case for biodiversity in the EU Member States through workshops, seminars and a cross-media communication strategy.

[89] Tsiamis K; Gervasini E; Deriu I; D`amico F; Nunes A; Addamo A; De Jesus Cardoso A. Baseline Distribution of Invasive Alien Species of Union Concern, Ispra (Italy), Publications Office of the European Union, 2017, EUR 28596 EN, doi:10.2760/772692.

nature and biodiversity, as well as the environmental pressure on people living in urbanised areas. A similar measure is population density.

Figure 12: Proportion of artificial land cover, 2015[91].



The Netherlands ranked 2nd highest in the EU according to 2015 Eurostat data, with 12.1 % of artificial land. The population density in the country was 498/km2 (Eurostat 2016), which is the 2nd highest in the EU and more than four times the EU average of 118[92]. This correlates with challenges on air quality in urban areas, for example.

Contamination can severely reduce soil quality and threaten human health or the environment. A recent report of the Joint Research Centre (JRC)[93] estimated that potentially polluting activities have taken or are still taking place in approximately 2.8 million sites in the EU. 650 000 of these sites have been registered in national or regional inventories and 65 500 contaminated sites have already been remediated. The Netherlands has registered 1 455 sites where potentially polluting activities have taken or are taking place, and has already remediated or applied aftercare measures on 176 sites.

Soil organic matter also plays an important role in the carbon cycle and in climate change. Soils are the second largest carbon sink in the world after the oceans.

Soil erosion by water is a natural process, which can be aggravated by climate change and human activities such as inappropriate agricultural practices, deforestation, forest fires or construction works. High levels of soil erosion can reduce productivity in agriculture and can have negative and transboundary impacts on biodiversity and ecosystem service, and on rivers and lakes (increased volume of sediments, transport of contaminants). According to the RUSLE2015 model[94], the Netherlands has an average soil loss rate by water of 0.27 tonnes per hectare per year (t ha^{-a} yr^{-y}) compared to a European mean average of 2.46 t ha^{-a} yr^{-y}, which indicates soil erosion is low on average. It is important to note that these figures are the output of a model run at EU level and therefore should not be considered as values measured in-situ field. The actual soil loss rate can vary strongly within the Member State depending on local conditions.

All in all, the Netherlands faces pressures as a consequence of its high population density, although the situation is improving thanks to soil remediation activities and low average levels of erosion.

Marine protection

EU coastal and marine policy and legislation require that by 2020 the impact of pressures on marine waters be reduced to achieve or maintain good environmental status (GES) and ensure that coastal zones are managed sustainably.

The Marine Strategy Framework Directive (MSFD)[95] aims to achieve good environmental status of the EU's marine waters by 2020. To that end, Member States must develop a marine strategy for their marine waters, and cooperate with the EU countries that share the same marine (sub) region.

The Convention for the protection of the marine environment of the north-east Atlantic (the 'OSPAR Convention') is important for the Netherlands in achieving the goals of the Directive. Its marine strategies

[90] 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).
[91] Eurostat, Land cover and land use.
[92] Eurostat, Population density by NUTS 3 region.
[93] Ana Paya Pérez, Natalia Rodríguez Eugenio, Status of local soil contamination in Europe: Revision of the indicator "Progress in the management Contaminated Sites in Europe", 2018.
[94] Panagos, P., Borrelli, P., Poesen, J., Ballabio, C., Lugato, E., Meusburger, K., Montanarella, L., Alewell, C., The new assessment of soil loss by water erosion in Europe, Environmental Science and Policy, 54, 2015, pp. 438-447.
[95] Directive 2008/56/EC.

comprise different steps to be taken over six-year cycles. Each Member State had to set up and report on its programme of measures to the Commission by 31 March 2016. The Commission assessed whether the Dutch measures were appropriate to reach good environmental status (GES)[96].

Member States have now started implementing the second cycle of the Marine Strategy Framework Directive. As of November 2018, only the Netherlands and Belgium have submitted their reports, but more Member States might have done it by the publication date of this report. The Netherlands submitted updated assessments, determinations of GES and targets on 15 October 2018.

The Dutch programme of measures addresses most relevant pressures and targets for most aspects of the marine environment. For example, for fish, the measures address mortality and age/size distribution and are closely linked to the implementation of the common fisheries policy. The Netherlands is also acting to reduce discards and aiding recovery of depleted sensitive fish species stocks (i.e. sharks, rays and skate). This is in line with the Netherlands' pressures, targets and GES definitions.

Another example is the Dutch measures aiming to address key pressures for the introduction of non-indigenous species (NIS): aquaculture and shipping (including ballast water and hull fouling). The measures aim to prevent an increase in the relative abundance of NIS through improved management of high risk pathways and vectors by shipping and aquaculture.

In several cases, the Netherlands is uncertain whether GES will be achieved by 2020. In some cases, it states that GES will be 'within reach' but does not clearly say if it will be achieved. In other cases, it reports that it does not know when GES will be achieved. Overall, the Dutch programme of measures is partially appropriate for meeting the requirements of the MSFD.

2019 priority actions

- Set targets for GES where these do not exist.
- Determine the timelines for achieving GES, if these have not been reported.
- Provide more information about marine protection measures and establish more measures that have a direct impact on the relevant pressures and quantify the level of pressure reduction expected as a result of these measures.

[96] COM(2014) 97.

3. Ensuring citizens' health and quality of life

Air quality

EU clean air policy and legislation require the significant improvement of air quality in the EU, moving the EU closer to the quality recommended by the World Health Organisation. Air pollution and its impacts on human health, 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 air quality legislation and defining strategic targets and actions beyond 2020.

The EU has developed a comprehensive body of air quality legislation[97], which establishes health-based standards and objectives for a number of air pollutants. However, according to the European Court of Auditors (ECA)[98] EU action to protect human health from air pollution has not delivered its expected impact.

Emissions of several air pollutants have fallen significantly[99]. The emission reductions between 1990-2014 mentioned in the previous EIR, continued between 2014-2016 with emissions of nitrogen oxides (NO_x) decreasing by 5.72 %, emissions of volatile organic compounds (NMVOCs) by 7.37 %, emissions of fine particulate matter ($PM_{2.5}$) by 7.67 % and of sulphur oxides (SO_x) by 6.53 % (see also Figure 13 on the total $PM_{2.5}$ and NO_x emissions per sector). Meanwhile, emissions of ammonia (NH_3) from agricultural practices have increased by 1.87 %.

Despite these emission reductions, additional efforts are needed to meet the commitments (compared with 2005 emission levels) laid down in the new National Emissions Ceilings Directive[100] for 2020 to 2029 and for any year from 2030.

At the same time, air quality in the Netherlands continues to give a cause for concern. For 2015, the European Environment Agency (EEA) estimated that about 9 800 premature deaths were attributable to fine particulate matter concentrations[101], with an additional 290 to ozone concentration[102] and over 1 900 to nitrogen dioxide[103] [104].

Figure 13: $PM_{2.5}$ and NO_x emissions by sector in the Netherlands[105]

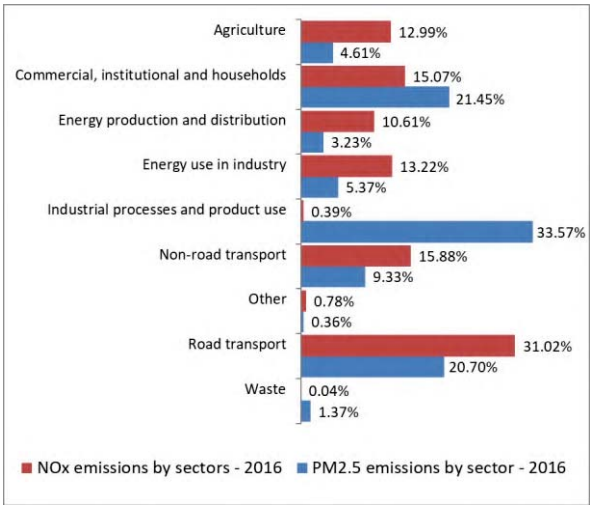
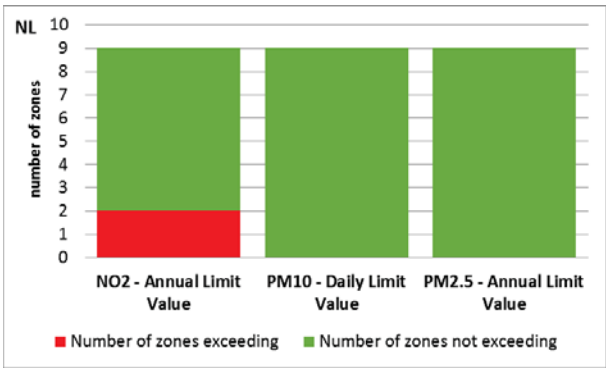


Figure 14: Air quality zones exceeding EU air quality standards in 2017[106]



For 2017[107], EU air quality standards for nitrogen dioxide were exceeded in two air quality zones: Amsterdam and Rotterdam. There were not exceedances for $PM_{2.5}$ and PM_{10} in the country. See Figure 14 on the number of air quality zones exceeding ceilings for NO_2, $PM_{2.5}$, and PM_{10}.

[97] European Commission, 2016. Air Quality Standards
[98] European Court of Auditors, Special report no 23/2018, Air pollution: Our health still insufficiently protected, p.41.
[99] See EIONET Central Data Repository and Air pollutant emissions data viewer (NEC Directive).
[100] Directive 2016/2284/EU.
[101] Particulate matter (PM) is a mixture of aerosol particles (solid and liquid) of a wide range of sizes and chemical composition. PM_{10} (or $PM_{2.5}$) refers to particles with a diameter of 10 (or 2.5) micrometres or less. PM is emitted from many human sources, including combustion.
[102] Low-level ozone is produced by photochemical action on pollution.
[103] NO_x is emitted during fuel combustion e.g. from industrial facilities and the road transport sector. NO_x is a group of gases comprising nitrogen monoxide (NO) and nitrogen dioxide (NO_2).
[104] EEA, Air Quality in Europe – 2018 Report, p. 64. Please see details in this report as regards the underpinning methodology.
[105] 2016 NECD data submitted by Member State to the EEA.
[106] EEA, EIONET Central Data Repository. Data reflects the reporting situation as of 26 November 2018.
[107] European Environment Agency, Information on the attainment of environmental objectives for the Netherlands, 20 September 2017.

During the EIR dialogue in The Hague, the National Institute for Public Health and the Environment presented the main air quality trends. Exceedance of binding limit values of both PM_{10} and NO_2 has fallen in recent years but they are still a cause for concern. Traffic and agricultural emissions are the most important national sources.

The coalition government has decided to work towards meeting the WHO targets for air pollution (which are considerably more difficult to meet than the EU binding limit values). The National Health Council (NHC) has also recommended reducing certain emissions, including those coming from wood burning and other local sources. In its document "Health profit by clean air"[108], the NHC stated that further action is needed in the international context, especially focused on the emissions from industry and power plants. International policies are important for reduction of the emissions of particulate matter and especially ammonia from agriculture. Among the initiatives being taken in the Netherlands, the 'smart and healthy cities programme' (2015-2018) is trying to is trying to induce local policies to reduce air pollution below legal limit values.

The national strategy on air quality is expected to help tackle these challenges. The national air quality cooperation programme (NSL) included EUR 1.5 billion and involved local and regional authorities. However, following a decision by a Dutch district court of 7 September 2017, the NSL had to be amended so that it could act as an air quality plan, as required by Article 23(1) of Directive 2008/50/EC. New measures include actions on low-emission zones, electric vehicles, mobile machinery and livestock farming. The amended plan was updated and supplemented by the Government on 28 September 2018 and sent to the Parliament. Its effectiveness will be monitored and assessed in the future to determine whether additional measures are necessary.

All in all, although emissions of certain pollutants have decreased, additional efforts are needed to meet the commitments for 2020 to 2029. Emissions of ammonia have increased between 2014 and 2016.

2019 priority actions

- Take, in the context of the National Air Pollution Control Programme (NAPCP), actions towards reducing the main emission sources.
- Accelerate reductions in nitrogen oxide (NO_x) emissions and nitrogen dioxide (NO_2) concentrations inter alia by further reducing transport emissions — in particular in urban areas, proportionate and targeted restrictions on vehicle access may be required; or using fiscal incentives.

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; and
(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[109] (IED).

The overview of industrial activities regulated by the IED below is based on the project on Industrial Emissions policy country profiles[110].

In the Netherlands, around 3 500 industrial installations are required to have a permit based on the IED[111]. The sectors with the most installations in 2015 for activities listed in the IED are intensive rearing of poultry or pigs (62 %) and hazardous (13 %) and non-hazardous waste management (7 %).

The sectors accounting for the greatest burden on the environment in the form of emissions to air are shown in Figure 16.

'Other activities', metal production, chemicals, power/refining and waste management accounted for significant environmental burdens in the form of emissions to water. 'Other activities' and waste management contributed significantly to non-hazardous waste generation, while waste management, chemicals and metal production contributed significantly to

[108] National Health Council, Document 2018/01 'Gezondheidswinst door schonere lucht'.

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

[110] Ricardo Energy and Environment, Industrial emissions country profile: the Netherlands, 2018.

[111] This overview of industrial activities regulated by IED is based on the project on Industrial Emissions policy Country profiles: Industrial emissions policy country profiles.

hazardous waste generation.

Figure 15: Number of IED installations by sector, the Netherlands (2015)[112]

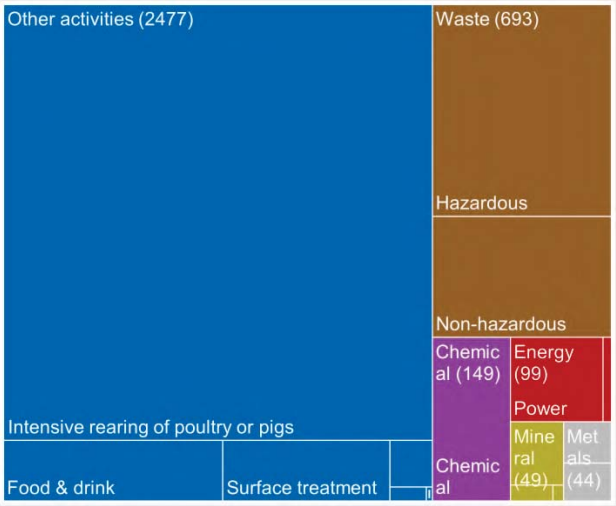
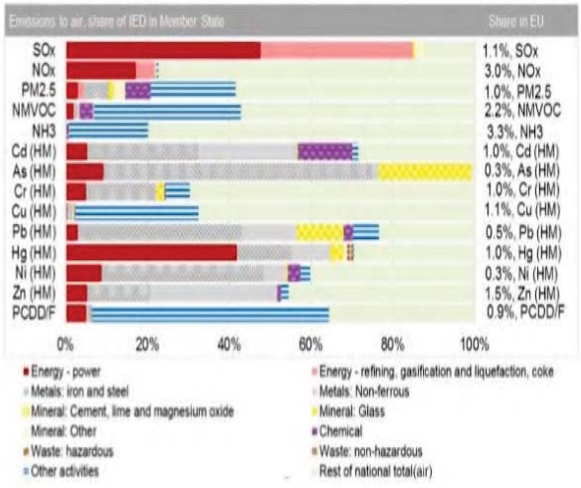


Figure 16: Emissions to air from IED sectors and all other national air emissions, the Netherlands (2015)



The EU approach taken to enforcement under the IED creates strong rights for citizens to have access to relevant information and to participate in the permitting process. This empowers citizens, and NGOs, to ensure that permits are appropriately granted and their conditions respected.

The development of Best Available Techniques (BAT) Reference Documents (BREFs) and BAT Conclusions through the exchange of information involving Member States, Industrial associations, NGOs and the Commission ensures a good collaboration with stakeholders and enables a better implementation of IED.

The Commission relies on and welcomes the efforts of national competent authorities to implement the legally binding BAT conclusions and associated BAT emission levels in environmental permits, resulting in considerable and continuous reduction of pollution.

By way of example, the implementation of the recently adopted BAT associated emission levels for Large Combustion Plants will -on average and depending on the situation of individual plants- reduce emissions of sulphur dioxide with 25% to 81%, nitrogen oxide with 8%to 56%, dust with 31% to 78% and mercury with 19% to 71% at EU level.

A specific feature of Dutch policy is the close connection between chemicals legislation and industrial emissions, which is embedded in national legislation. Relatively strict rules for emissions apply for chemicals that comply with the criteria for Substances of Very High Concern (SVHC), such as the need to minimise emissions and to investigate reduction options. There is a national list of SHVC (*zeer zorgwekkende stiffen*) with approximately 1 500 substances that fulfil the SVHC criteria. Recently a list of 'potential SVHC' has been added to aid in the permitting process.

The competent authority in the Netherlands identified the main challenge for the IED sectors as pollution from intensive rearing of poultry and pigs.

2019 priority actions

- Review of permits to comply with new adopted BAT conclusions.
- Strengthen control and enforcement to ensure compliance with BAT conclusions.
- Addressing pollution (e.g. dust) from certain activities and take actions to improve IED and EPRTR[113] reporting, specifically for intensive rearing of poultry or pigs activities.

Noise

The Environmental Noise Directive[114] provides for a common approach to avoiding, preventing and reducing the harmful effects of exposure to environmental noise.

Excessive noise from aircraft, railways and roads is one of the main causes of environmental health-related issues in the EU[115].

[112] Ricardo Energy and Environment, Industrial emissions country profile: the Netherlands, 2018.

[113] The European Pollutant Release and Transfer Register (EPRTR) is the Europe-wide register that provides key environmental data from industrial installations in Europe

[114] Directive 2002/49/EC.

[115] WHO/JRC, 2011, Burden of disease from environmental noise, Fritschi, L., Brown, A.L., Kim, R., Schwela, D., Kephalopoulos, S. (eds),

Based on a limited set of data[116], environmental noise causes at least around 200 premature deaths and 1 400 hospital admissions per year in the Netherlands, and some 390 000 people experience disturbed sleep. Noise mapping for the previous reporting round, for the reference year 2011, is complete. The action plans for the reference year 2013 are complete. These instruments, adopted after a public consultation has been carried out, should include the measures to keep noise low or reduce it.

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 (WFD) 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.

The existing EU water legislation[117] puts in place a protective framework to ensure high standards for all water bodies in the EU and addresses specific pollution sources (for example, from agriculture, urban areas and industrial activities). It also requires that the projected impacts of climate change are integrated into the corresponding planning instruments, e.g. flood risk management plans and river basin management plans, including programme of measures which include the actions that Member States plan to take in order to achieve the environmental objectives.

Water Framework Directive

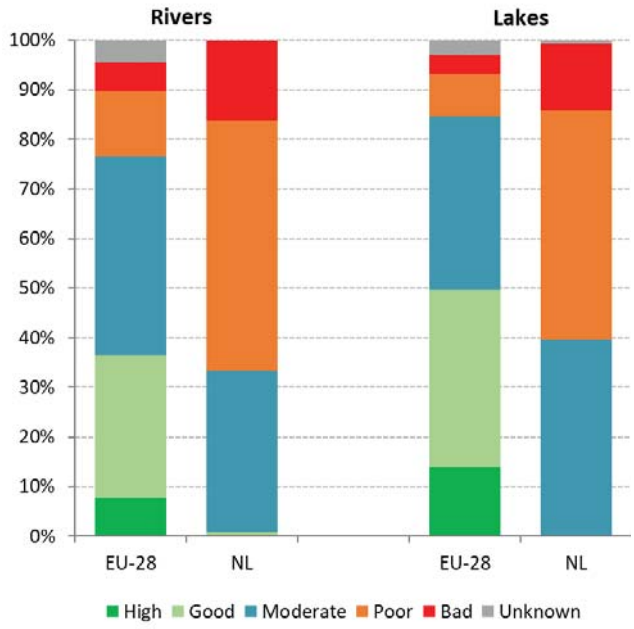
The Netherlands has adopted and timely reported its second generation of **River Basin Management Plans** (RBMPs) under the WFD. The European Commission has assessed the status of Dutch waters and the main developments since the adoption of the first RBMPs, including the progress on the 2017 EIR suggested actions.

The most significant pressures on Dutch surface affecting water bodies come from diffuse agricultural sources (78 % of surface water bodies affected), followed by pressures from dams, barriers and locks (61 %). For groundwater bodies the most significant pressure comes from point sources (57 % affected), followed by diffuse pollution from agriculture (52 %).

Nutrient pollution was the most significant impact on surface water categories (65 % of surface water bodies affected), followed by altered habitats due to morphological changes (75 %), altered habitats due to hydrological changes (68 %), chemical pollution (50%) and organic pollution (48 %). For groundwater bodies the most significant impacts were nutrient and organic pollution, each with 61 % of groundwater bodies affected.

Overall, there has been a slight increase in the number of sites used for operational and/or surveillance monitoring of ecological status in surface water bodies in the country. However, there were significant decreases in the number of sites used for the surveillance monitoring of all four water categories between the two RBMPs in the Netherlands.

Figure 17: Ecological status or potential of surface water bodies in the Netherlands[118]



There are only two water bodies in good or better ecological status/potential despite the first RBMPs objective to achieve good ecological status/potential by 2015 for 9-13 % of artificial and heavily modified water bodies and for 28 % of the natural water bodies. The achievement of the good status objective has now been postponed to 2027 or later for most of the water bodies. The ecological status/potential is illustrated in figure 17.

World Health Organisation, Regional Office for Europe, Copenhagen, Denmark.

[116] European Environment Agency, Noise Fact Sheets 2017.

[117] This includes the Bathing Waters Directive (2006/7/EC), the Urban Waste Water Treatment Directive (91/271/EEC) (on discharges of municipal and some industrial wastewaters), the Drinking Water Directive (98/83/EC) (on potable water quality), the Water Framework Directive (2000/60/EC) (on water resources management), the Nitrates Directive (91/676/EEC) and the Floods Directive (2007/60/EC).

[118] EEA, WISE dashboard.

This shows that the Netherlands has a long way to go in order to achieve the good status/potential objectives set down in the WFD.

The majority of surface water bodies are failing to achieve good chemical status (52 %) with 39 % at good status and 9 % in unknown status. All groundwater bodies (100 %) are in good quantitative status and 87 % are in good chemical status.

The aforementioned most significant pressures have to be addressed using key types of measures. The first Programme of Measures has already been implemented and significant progress seems to have been made in linking the measures to pressures, as well as identifying analysis gaps and, at least, qualitative information of the measures to address them; and financial commitments for the implementation of the Programme. However, it is not clear whether the Programme of Measures is sufficient in order to reach the objectives of the WFD, since it has been anticipated that for a large number of surface water bodies significant pressures will not have been fully addressed by 2027.

Drinking Water Directive

As regards **drinking water**, there are no new data available since the last EIR[119]. However, it is clear that the Netherlands continues to have very high compliance rates for drinking water quality and urban waste water treatment, so there are no particular implementation issues. Overall, 100 % of the waste water is collected and undergoes stringent treatment. Investment is expected to be stable[120].

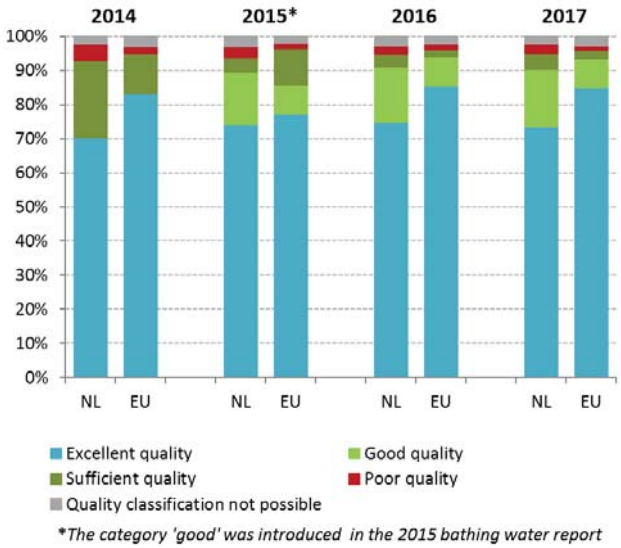
Bathing Water Directive

Figure 18 shows that in 2017, out of the 719 Dutch **bathing waters**, 73.4 % were of excellent quality, 17 % of good quality and 4.6 % of sufficient quality (74.8 %, 16.2 % and 3.8 % respectively in 2016). In 2017, 20 bathing waters were of poor quality[121]. Detailed information on Dutch bathing waters is available from a national portal [122] and via an interactive map produced by the EEA[123].

Urban Waste Water Treatment Directive

The Netherlands demonstrates excellent levels of compliance with the **Urban Waste Water Treatment** Directive. Overall in the Netherlands, 100 % of the waste water is collected and undergoes more stringent treatment. Investments are expected to be stable. Investment needs are related to infrastructure renewal and/or maintenance and these seem to have been catered for by the Netherlands.

Figure 18: Bathing water quality 2014-2017[124]



Nitrates Directive

Water quality remains of great concern due to pollution by nitrates (resulting from effluents of intensive livestock-rearing and dairy farming[125]). Moreover, eutrophication is widespread. The Netherlands has an action programme for the **Nitrates Directive** covering the whole territory. It has been granted a derogation for nitrogen originating from livestock manure in connection with the action programme, on the basis of scientific evidence and on a number of conditions, including phosphate production not exceeding the 2002 level (172.9 million kg), and better enforcement to ensure that the manure policy is correctly implemented.

The significant intensification of livestock farming activities due to the end of the milk quota system has resulted in a sharp increase in the cattle sector, representing an additional challenge to the management of nutrients in the country. This has pushed phosphate levels beyond the above limits between 2015 and end of 2017, thus posing additional concerns about the water quality objectives and prompting the Commission to open an investigation.

The Commission is closely following how the implementation of both the Nitrates and the Water Framework Directives will contribute to ensuring that the Netherlands meets EU water quality objectives.

[119] Compliance with the microbiological and chemical parameters of the Drinking Water Directive as last reported was very high.
[120] COM (2017) 749 and SWD (2017) 445.
[121] European Environment Agency, European bathing water quality in 2017, 2018, p. 17.
[122] Dutch national portal for bathing waters, website.
[123] EEA, State of bathing waters.
[124] European Environment Agency, European bathing water quality in 2017, p. 21, 2018.
[125] The Netherlands is the biggest manure producer, measured by land area, in the EU.

Floods Directive

Flood risks have been part and parcel of Dutch society for many centuries. With more than 60 % of the territory vulnerable to flooding and 75 % of population potentially living in those areas, the Netherlands has introduced new standards to respond to the new challenges linked to climate change, urban development and economic growth[126].

The Delta programme and other public initiatives have contributed to ensuring flood protection in the country but climate change is expected to increase risks. In the absence of measures, the potential damage is estimated at between EUR 400 billion and EUR 800 billion by 2040 and EUR 3 700 billion by 2100, with a sea level rise of 24 to 60 cm in 2040 and 150 cm in 2100[127].

The Floods Directive[128] establishes a framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences associated with significant floods. The Netherlands has timely reported its first Flood Risk Management Plans (FRMPs) under the Directive and the European Commission conducted its assessment.

The Commission's assessment found that good efforts and positive results have been achieved in setting objectives and devising measures focusing on prevention, protection and preparedness. The assessment also showed that, as it was the case for other Member States, the Netherlands' FRMPs include measures that require clearer prioritisation and linking to the objectives set and an as complete as possible estimation of the cost of measures. There is also scope for reinforcing the aspect of public participation and the active involvement of stakeholders in relation to the FRMPs.

The EIB is supporting flood defence works, specifically for the rehabilitation and modernisation of the *Afsluitdijk* dam. By 2022, more than EUR 330 million will have been allocated to this project from the European Fund for Strategic Investments (EFSI)[129].

International cooperation between the Netherlands, Belgium, France and Germany is important to ensure proper flood protection for international river basins such as the Scheldt. The Hedwige-Prosperpolder project is a good example of cooperation between Belgium and the Netherlands to leave the area to nature and avoid floods[130]. This and other initiatives are welcome and can help with the transboundary aspect of certain issues.

2019 priority actions[131]

- Ensure that steps are taken in order to complete the assessment of the effectiveness of the existing agricultural measures and identify which additional measures are needed to achieve the objectives of the Water Framework Directive and Nitrates Directive.
- Ensure that, for chemical pollution from non-agricultural sources, the Programmes of Measures is based on reliable assessment of the pressures.
- Take steps to reinforce the aspect of public participation and the active involvement of stakeholders in relation to the Flood Risk Management Plan.

Chemicals

The EU seeks to ensure that by 2020 chemicals are produced and used in ways that minimise any significant adverse effects on human health and the environment. An EU strategy for a non-toxic environment that is conducive to innovation and to developing sustainable substitutes, including non-chemical options, is being prepared.

The EU's chemicals legislation[132] provides baseline protection for human health and the environment. It also ensures stability and predictability for businesses operating within the internal market.

The 2016 European Chemicals Agency (ECHA) report on the operation of REACH and CLP[133] showed that enforcement activities are still evolving. In the Forum for Exchange of Information on Enforcement, coordinated projects[134] have shown that the effectiveness of the enforcement activities can still be improved, in particular regarding registration obligations and safety data sheets where a relatively high level of non-compliance has been found.

Whilst improving, there is also room for further improvement of national enforcement activities as

[126] OECD, Financing needs in the water sector, Country fiche for the Netherlands (not yet published).
[127] RPA, *Study on economic and social benefits of environmental protection and resource efficiency related to the European Semester*. Study for the European Commission, Annex 1: Country fiches, 2014.
[128] Directive 2007/60/EC.
[129] European Commission, EUR 330 million EIB support under Juncker Plan for Afsluitdijk flood defence works in the Netherlands.
[130] European Environment Agency, Green Infrastructure and Flood Management, 2017, p. 36.
[131] The full set of recommendations in relation to the Water Framework Directive are here.
[132] Principally for chemicals: REACH (OJ L 396, 30.12.2006, p.1.); for Classification, Labelling and Packaging, the CLP Regulation (: OJ L 252, 31.12.2006, p.1.), together with legislation on biocidal products and plant protection products.
[133] European Chemicals Agency, Report on the Operation of REACH and CLP 2016.
[134] On the basis of the projects REF-1, REF-2 and REF-3, available at ECHA website.

regards harmonisation throughout the Union, including controls on imported goods. It is also clear that enforcement is still weak in some Member States in particular with respect to control of imports and supply chain obligations. The architecture of enforcement capabilities continues to be complex in most EU countries. The enforcement projects also revealed some differences among Member States (e.g. some tend to systematically report higher compliance than the EU average and others lower).

A 2015 Commission study highlighted already the importance of harmonisation in the implementation of REACH at Member State level, in terms of market surveillance and enforcement, as a critical success factor in the operation of a harmonised single market[135].

In March 2018, the Commission published an evaluation of REACH[136]. The evaluation concluded that REACH is delivering on its objectives, but that the progress made is slower than anticipated. In addition, the registration dossiers are often incomplete. The evaluation underlines the need to enhance enforcement by all actors, including registrants, downstream users and importers; to ensure a level playing field, meet the objectives of REACH and ensure consistency with the actions envisaged to improve environmental compliance and governance. Consistent reporting of Member State enforcement activities was considered important in that respect.

The Netherlands hosts more than 400 top chemical companies across the supply chain, with 19 out of the 25 top chemical companies in the world maintaining significant operations there[137]. According to the Netherlands Foreign Investment Agency, chemicals exports account for 17 % of total Dutch exports, ranking fifth in the world in absolute terms.

The enforcement of REACH, CLP and Biocides Regulations in the Netherlands is based on the cooperation of several Inspectorates[138]. These are the Inspectorate SZW (former Labour Inspectorate), The Health Care Inspectorate (IGZ), the Human Environment and Transport Inspectorate (ILT) and the Netherlands Food and Consumer Product Safety Authority (NVWA). The ILT, NVWA and SZW staff a REACH and CLP Enforcement Coordination Point which is responsible for the supervision of compliance with REACH and CLP. The Coordination point consists of a REACH and CLP Enforcement Steering Group and a REACH and CLP Enforcement Alliance.

A system of penalties is in place for infringement of both REACH and CLP, as are regular checks and routine inspections of CLP. There is a national helpdesk to provide fast and effective answers to REACH-related inquiries.

The Netherlands plays an active role in REACH/CLP by participating in the Substances of Very High Concern (SVHC) roadmap. This work includes the submission of substance-specific dossiers for different types of regulatory action (restriction, SVHC, substance evaluation, harmonised classification etc.) and commenting of such dossiers of other Member States.

The country is trying to enforce REACH substitution of some SVHC through bio-based alternatives. After shortlisting bio-based alternatives for SVHCs that could be produced at a short-term, Wageningen University & Research Centre has started to develop alternatives for polar aprotic solvents[139]. Following this approach, the government is trying to see new opportunities in REACH, inspiring substitution initiatives.

On 28 March 2018, the Ministry of Infrastructure and Water Management hosted a workshop on the national safe chemicals innovation agenda (SCIA), an initiative to promote safe materials and products that can replace hazardous chemicals. This research agenda aims to serve as guidance for R&D policies at EU and Member State level[140]. The SCIA focuses on three interlinking items: first, the essential functionalities of widely used chemicals; second, hazardous chemicals considered difficult to substitute; and third, the potential for new market niches and/or longer-term competitive advantage for European businesses[141].

The circular economy plan[142] also recognises the opportunities for new investment and employment provided by advanced biofuels, bio-based chemicals and materials.

The ECHA has taken the initiative of holding EU-wide dialogues with all parties in the production and supply chain[143]. On 5 October 2018, the Netherlands in cooperation with ECHA, hosted in Rotterdam a dialogue with the supply chain on the topic of anti-fouling products to discuss how to stimulate innovative alternatives to conventional paints that contain heavy metals. Discussions dealt with the health and environmental implications and trade-offs of alternative

[135] European Commission, Monitoring the Impacts of REACH on Innovation, Competitiveness and SMEs, 2015.
[136] COM(2018) 116.
[137] Government of the Netherlands, Invest Holland — Chemicals.
[138] ECHA, National inspectorates – Netherlands.
[139] Ministry of Infrastructure and the Environment, Sustainable innovation of substances, materials and products, 2017.
[140] Government of the Netherlands, Workshop Towards a Safe Chemicals Innovation Agenda From Substitution to Safe-by-design.
[141] Government of the Netherlands, Safe Chemicals Innovation Agenda, June 2018, p. 4.
[142] Government of the Netherlands, A Circular Economy in the Netherlands by 2050, 14 September 2016.
[143] Government of the Netherlands, Speech by State Secretary for Infrastructure and Water Management Stientje van Veldhoven on the Safe Chemicals Innovation Agenda, 29 March 2018.

anti-fouling/biocidal applications, as well as the current marketplace challenges, needs, opportunities and next steps.

The Netherlands is involved in REACH-related committees and different EU chemical networks such as HBM4EU (Human Biomonitory for the EU) and R4R (European chemical regions for resource efficiency), which brings together research institutes, industry and regions in five countries[144].

Making cities more sustainable

EU policy on the urban environment encourages cities to put policies in place for sustainable urban planning and design. These should include innovative approaches to urban public transport and mobility, sustainable buildings, energy efficiency and urban biodiversity conservation.

Europe can be seen as a union of cities and towns. Around 75 % of the EU population live in urban areas[145] and the figure is projected to rise to just over 80% by 2050[146]. Urban areas pose particular challenges for the environment and human health, but they also provide opportunities for using resources more efficiently. The EU encourages municipalities to become greener through initiatives such as the Green Capital Award[147], the Green Leaf Award[148] and the Green City Tool[149].

Financing greener cities

The Netherlands has assigned EUR 45 million, or 9 % of its allocation under the European Regional Development Fund (ERDF), and EUR 25 million, or 5 % of its allocation under the European Social Fund (ESF), to sustainable urban development[150].

The Netherlands participates in the European Urban Development Network (UDN)[151], which includes more than 500 cities across the EU responsible for implementing integrated actions based on sustainable urban development strategies financed by ERDF in the 2014-2020 period.

Within the UDN initiatives, the ERDF is supporting urban innovative actions (UIA) as a way of testing new and unproven solutions to address urban challenges. UIA has a total ERDF budget of EUR 372 million for 2014-2020. The Netherlands obtained funding in the first two calls for projects in Rotterdam and Utrecht[152].

Participation in EU urban initiatives and networks

Dutch municipalities are generally involved in EU initiatives on environment protection and climate change.

Nijmegen became the first Dutch city to win the European Green Capital Award in 2018, thanks to its cycling infrastructure, traffic management, clean public transport and excellent approach to waste management[153]. In addition, Horst aan de Maas has won the 2019 European Green Leaf Award[154]. The city was commended for its enthusiasm and well-planned inclusive urban strategy[155].

A total of 10 Dutch municipalities are involved in the URBACT initiative to support sustainable urban development, through 24 different thematic networks[156]. Six of these networks are currently led by Dutch cities: Eindhoven coordinates *CHANGE*! for the social design of public services; Delft manages *EUniverCities* for the exchange of good practice among knowledge cities; Rotterdam, with *My Generation* and *My Generation at Work,* is working towards greater employability and employment of young people, and with *ResilientEurope* is trying to foster urban sustainability; and Utrecht is leading *CityLogo* to develop new styles of local governance.

Several Horizon 2020 network projects have also contributed to the sustainability of Dutch cities. *CIVITAS* includes seven municipalities representing the Netherlands in a common effort to achieve cleaner and better transport in cities[157]. Amsterdam is part of the

[144] European Commission. Improving resource efficiency in SMEs, December 2017, p. 43.
[145] European Commission, Urban Europe, 2016.
[146] European Commission, Eurostat, Urban Europe, 2016, p.9.
[147] European Commission, European Green Capital.
[148] European Commission, European Green Leaf Award.
[149] European Commission, European Green City Tool.
[150] Government of the Netherlands, Partnership Agreement 2014-2020, 2014, p. 79.
[151] European Commission, The Urban Development Network .
[152] European Commission, Urban Innovative Actions .
[153] European Commission and City of Nijmegen, European green capital 2018, 2017, p. 15.
[154] European Commission, Finalists for the 2020 European Green Capital and 2019 European Green Leaf Award.
[155] European Commission, Winners European Green Leaf 2019.
[156] URBACT, Associated Networks by country.
[157] European Commission, Horizon 2020 Civitas Project.

ClairCity project, a citizen-led initiative to reduce air pollution in cities[158]. FosterReg, intended to boost public capacity to plan, finance and manage integrated urban regeneration for sustainable energy uptake, also has Dutch cities as participants[159].

Over 70 % of Dutch municipalities have climate policies and action plans[160]. 24 are involved with the EU Covenant of Mayors with coordination from Rijkswaterstaat. As of May 2018, Delft, Midden-Delfland and Nijmegen had already implemented their action plans and their results were being monitored. Another 16 cities have at least presented their climate action plan and commitments to be met by 2020 or 2030[161].

These urban initiatives and networks should be welcomed and encouraged, as they contribute to a better urban environment. In 2017, 15.2 % of city residents considered their residential area to be affected by pollution or other environmental problems, down from 16.5 % in 2016 and 17.5 % in 2015. These figures are lower than the EU 28 levels (20 % in 2017, 18.9 % in 2016 and 19.2 % in 2015), but much better than those of the neighbouring countries (22.7 % for Belgium and 35 % for Germany in 2017)[162].

Nature and cities

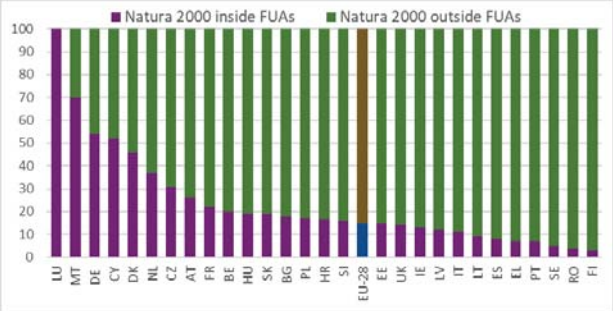
More than 35 % of the Natura 2000 network in the Netherlands is to be found within functional urban areas (FUAs)[163], which is well above the EU average of 15 % (see Figure 19).

The national ecological network is the main instrument for maintaining Natura 2000 areas. Provincial authorities are responsible for this network, but budget and resource cuts at national level have limited the network's operations.

Currently, the Netherlands is reviewing laws on the environment and planning to simplify them and combine them in a single Environment and Planning Act[164]. The Act will replace 15 laws, including the Water Act, the Crisis & Recovery Act and the Spatial Planning Act. One main consequence is that municipalities will not have to draft several land-use plans: instead, there will be one environmental plan for the whole municipality.

Although having one environmental plan will improve the current situation (over 100 municipalities already had plans in place), the government should take care that simplifying them does not limit them, to ensure that Natura 2000 areas are correctly preserved. The new Environment and Planning Act specifies the duty to implement management plans for Natura 2000 sites by provincial governments.

Figure 19: Proportion of Natura 2000 network in Functional Urban Areas (FUA)[165]



Several 'nature-city' projects are currently in progress. The *Amsterdam Dune project* seeks to restore and improve the Kennemerland Zuid Natura 2000 area[166]. Other projects involve multiple areas, like the action plan to reduce nitrogen levels in Natura 2000 areas generally[167]. In the 'green deal for temporary nature', parties teamed up to promote temporary nature areas. Private parties such as port and excavation companies, the central government and nature conservation organisations worked together to remove obstacles in legislation, allowing protected bird and plant species to stay in semi-urban areas[168].

Urban sprawl

The Netherlands had the highest weighted urban proliferation rate, at 6.61 UPU/m^2 [169] in 2009 compared to a European average (EU-28+4) of 1.64 UPU/m^2, having increased by 3.31 % from 2006 to 2009[170].

Traffic congestion and urban mobility

Many subjects addressed in this report are to some extent related to traffic volumes and congestion, especially air quality and noise.

The total number of road vehicles has increased, to 11.2 million in 2018[171]. More than 2 million of these are

[158] European Commission, Horizon 2020 Claircity Project.
[159] European Commission, Horizon 2020 FosterReg Project.
[160] Covenant of Mayors for Climate and Energy, Netherlands country coordinators.
[161] Covenant of Mayors for Climate and Energy, Signatories.
[162] European Commission, Pollution, grime or other environmental problems by degree of urbanisation, 2018.
[163] European Commission, Definition of Functional Urban Areas.
[164] Government of the Netherlands, Revision of environment planning laws .
[165] European Commission, The 7th Report on Economic, Social and Territorial Cohesion, 2017, p. 121.
[166] European Commission, LIFE Project Amsterdam Dune.
[167] Government of the Netherlands, Programma Aanpak Stikstof (PAS).
[168] Government of the Netherlands, Green Deal Temporary Nature, 2015.
[169] Urban Permeation Units measure the size of the built-up area as well as its degree of dispersion throughout the region.
[170] EEA, Urban Sprawl in Europe, Annex I, 2014, pp.4-5.
[171] Statistics Netherlands (CBS), Motor Vehicles.

commercial vehicles[172]; the number of vehicles per 1 000 habitants rose from 636.1 in 2014 to 656.4 in 2018.

This increase has resulted in more hours spent annually in road congestion, up from 30.3 in 2014 to 31.5 in 2016. The Netherlands has the ninth highest figures in the EU[173].

Traffic intensity and congestion varies greatly between regions and infrastructure types. The highest traffic intensity is found in the Utrecht region, mainly because of the national trunk roads there such as the A1, A2, A12, A27 and A28[174]; and on the A13 between Rotterdam and The Hague. Traffic intensity is rising, with an increase of 8 % in 2012-2017[175].

By contrast, Dutch cities generally have low levels of traffic congestion. Haarlem is the only Dutch city with congestion levels between 25 % and 50 %, while 14 other cities have levels of between 15 % and 25 %[176]. In comparison with other EU cities, Haarlem is the 82nd most congested city (out of 215 cities on the list), while The Hague is the 121st, Amsterdam the 138th and Rotterdam the 178th.

Regarding urban mobility, around 50 % of Dutch employees commute to work from other areas[177]. In certain municipalities, such as Nieuwegein and Haarlemmermeer, more than 70 % of employees commute from other areas[178]. Use of public transport, especially buses and trams, fell between 2000 and 2005 due to the arrival of new carriers as a result of tendering in urban and regional transport[179]. Nonetheless, recent years have seen a gradual increase in the use of public transport, and alternative means of transport: from 2005 to 2016, bicycles gained ground on cars and public transport in terms of their share of commuting trips in metropolitan areas (bicycle use has grown by nearly 12 % since 2005). All in all, cars remain dominant for longer-distance trips to and from major cities, while trains attract a high proportion of commuters[180].

In 2016, cars accounted for 46 % of trips, while bicycles (including e-bikes) had risen to 28 %, and public transport (bus, metro, tram and train) accounted for 4 %. Pedestrian trips accounted for 18 % of the total[181]. The modal split for inland passenger transport[182] was 88 % for cars (EU-28 83.4 %) 2 % for buses and trolley buses (EU-28 9.1 %) and 10 % for trains (EU-28 7.6 %)[183]. So cars are still the favoured mode of transport for longer distances, with the Netherlands having the third highest proportion of passenger transport by car in the EU, after Portugal and Lithuania.

Among the main challenges observed in this report (water, air, nature and biodiversity), it is especially air quality — to an extent related to traffic congestion — that requires priority at local level. Innovative traffic management solutions are being developed and tested in a number of cities. For instance, the Amsterdam Institute for Advanced Metropolitan Solutions is developing a fleet of autonomous boats that could be used to remove floating waste from the canals[184]. In Rotterdam, many local measures have been taken in recent years to help reduce the use of older diesel cars and the concentrations of pollutants such as soot and NO_2[185]. *DiTTlab*, a research lab founded by the Technical University of Delft and business consultants CGI Nederland, is developing an urban mobility lab to analyse multi-modal traffic flows and an integrated mobility management architecture programme to implement congestion avoidance[186].

The 2017 EIR stated that consistency between national and municipal policies should be improved, and excessive bureaucracy reduced. The situation is improving with the gradual implementation of sustainable urban mobility plans and the new Environment Act, which is foreseen to enter into force on 1 January 2021[187, 188].

[172] Vehicle exclusively or primarily designed for the commercial transport of goods and passengers, for special purposes or to haul semi-trailers. This includes vans, lorries, road tractors, special purpose vehicles, buses, trailers and semi-trailers.
[173] European Commission, Hours spent in road congestion annually.
[174] Statistics Netherlands (CBS), Trends in the Netherlands 2017.
[175] Statistics Netherlands (CBS), Traffic Intensity 2017, 21 February 2018.
[176] TOMTOM, TOMTOM Traffic Index.
[177] Statistics Netherlands (CBS), More than half of employees commute to work, 10 June 2013.
[178] The number of incoming commuters in Haarlemmermeer is high largely because it hosts Amsterdam Schiphol Airport .
[179] European Metropolitan Transport Authorities and Government of the Netherlands, Public Transport in the Netherlands, 2010, p. 15.
[180] Government of the Netherlands, Mobility report 2017, 23 October 2017, p. 16.
[181] Statistics Netherlands (CBS), Transport and Mobility 2016 .
[182] The relation between mode of transport and kilometres travelled (excluding bicycles and other alternative methods).
[183] Eurostat, Passenger transport Statistics by modal split.
[184] Amsterdam Institute for Advanced Metropolitan Solutions, Roboat Project.
[185] EIR Dialogues, Summary Country Dialogue Netherlands 12 April 2018.
[186] Dutch Mobility Innovations, DiTTlab.
[187] ELTIS Urban Mobility Observatory, Netherlands country page.
[188] Government of the Netherlands, De Omgevingswet.

Part II: Enabling framework: implementation tools

4. Green taxation, green public procurement, environmental funding and investments

Green taxation and environmentally harmful subsidies

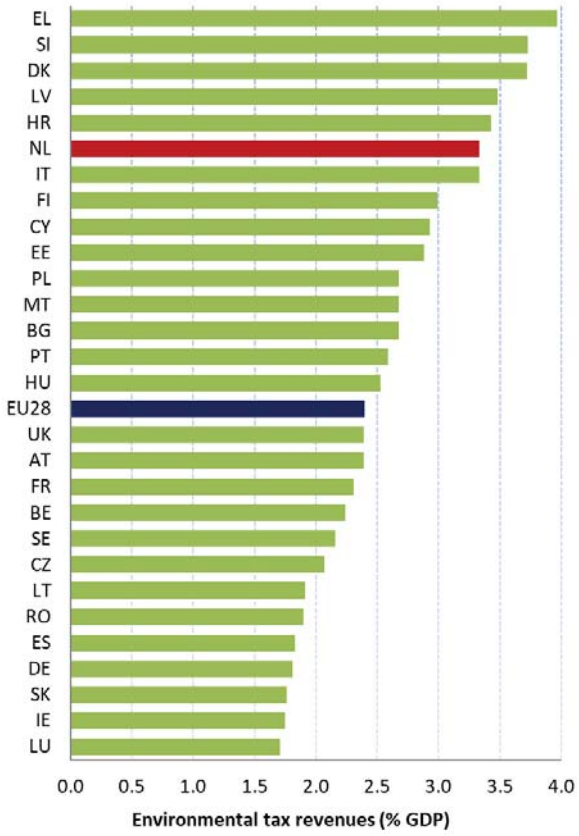
Financial incentives, taxation and other economic instruments are effective and efficient ways to meet environmental policy objectives. The circular economy action plan encourages their use. Environmentally harmful subsidies are monitored in the context of the European Semester and the energy union governance process.

The Netherlands' environmental tax revenues remain higher than the EU average, accounting for 3.33 % of GDP in 2017 (the EU-28 average was 2.4 % of GDP) as shown in Figure 20, and energy taxes accounted for 1.86 % of GDP (EU average of 1.84 %)[189]. In the same year, environmental tax revenues were 8.49 % of total revenues from taxes and social-security contributions (considerably higher than the EU28 average of 5.97 %).

The structure of taxation shows the proportion of revenues from labour tax in total tax revenues was higher than the EU average, with 52 % in 2016, while the implicit tax burden[190] on labour was 32.9 %[191]. Consumption taxes remained relatively low (29.7 % of total tax revenue, 20th in EU-28), pointing at a potential for shifting taxes from labour to consumption and in particular to taxation of environmental pollution and to use of natural resources.

The Commission has repeatedly highlighted in the European Semester (the Commission's annual assessment of Member States) the potential to modify the taxation system in the Netherlands. In the European Semester country report for 2018, it was mentioned that there are ongoing initiatives aiming to offset reductions in income tax by increasing taxes in the fields of energy, environment and consumption. The government also aims to introduce a minimum price for CO_2 generated from electricity —a carbon price floor— starting at EUR 18 in 2020 and rising to EUR 43 by 2030 to supplement the price signal from the EU ETS. Companies in the sector would be charged an additional levy based on the price difference between the EU allowances and the price floor. In order to better reflect CO_2 emissions, a rebalancing of the energy tax for consumers will see gas costs increase by EUR 0.03 per cubic metre, while tax on electricity will decrease by EUR 0.0072 per kilowatt hour[192].

Figure 20: Environmental tax revenues as % of GDP (2017)[193]



There are other cases showing sound fiscal measures being implemented in the area of environment. A good example is the free plastic waste disposal in the ports of Rotterdam and Amsterdam[194]. Also, taxes and fees paid

[189] Eurostat, Environmental tax revenues, 2019.
[190] Understood as the cost of an activity that is not collected by the government but may be the result of government policies on labour.
[191] European Commission, Taxation Trends Report, 2018.
[192] European Commission, European Semester Country Report 2018, p. 52.
[193] Eurostat, Environmental tax revenues, 2019.
[194] Institute for European Environmental Policy, Case Studies on Environmental Fiscal Reform, Plastic waste free disposal in the Netherlands.

to regional water authorities have contributed to innovation in the wastewater treatment sector[195].

Fossil fuel subsidies decreased from 2008-2018 and currently only an indirect subsidy to fossil fuels remains active (ETS compensation to improve energy efficiency, which incentivises the use of electricity and, as 81 % of electricity comes from fossil fuels, benefits fossil fuels). Some tax exemptions are still in place for the use of fossil fuels in horticulture and by non-profit and religious institutions. These exemptions added up to EUR 144 million in 2016, and the budgetary transfers and subsidies amounted to over EUR 51 million. However, most of the subsidies and exemptions for using petroleum and natural gas have been taken away[196].

Some progress has been made on reducing the 'diesel differential' (difference in the price of diesel versus petrol) since 2005. In 2016 there was still a 59 % gap between petrol and diesel tax rates, while in 2005 it was 75 %[197]. Excise tax rates levied on petrol and diesel in 2016 slightly increased in comparison with those in 2015 (EUR 0.77 per litre for petrol and EUR 0.48 for diesel)[198].

Tax treatment for company cars is not a cause for concern in the Netherlands[199]. These vehicles are taxed based on CO_2 emissions (if private use exceeds 500 km per year). No relevant fiscal measures have been introduced regarding this type of car in 2018[200].

CO_2-based motor vehicle taxes are in place in the country. The registration tax (*Belasting Personenauto's Motorrijwielen* or BPM) is calculated based on emissions. A diesel surcharge is applied to vehicles with CO_2 emissions of more than 63 g/km. The rates of road tax (ACT) also take into account CO_2 emissions[201].

Incentives to encourage the purchase of cars with lower CO_2 emissions were common in 2016, linked to annual circulation taxes, road tolls and congestion or low-emission zone charges; but they are also linked to the acquisition of cleaner vehicles. In addition, there are incentives connected to the preferential use of public infrastructure[202]. New vehicles purchased in the Netherlands are among the most environmentally friendly in the EU, with average CO_2 emissions of 105.9 grams per kilometre, below the EU average of 118 grams in 2016[203].

The use of alternative fuels in new passenger cars sold in the Netherlands has considerably increased over recent years. In 2016 the proportion of new passenger cars using alternative fuels was approximately five times higher than in 2012[204]. Most of these vehicles are electric. The Netherlands is among the Member States incentivising the use of electric vehicles to improve local air quality by applying lower excise duties for electricity supplied to charging stations[205].

Green public procurement

The EU green public procurement policies encourage Member States to take further steps to apply green procurement criteria to at least 50 % of public tenders. The European Commission is helping to increase the use of public procurement as a strategic tool to support environmental protection.

The purchasing power of public procurement amounts to around EUR 1.8 trillion in the EU (approximately 14% of GDP). A substantial proportion of this money goes to sectors with a high environmental impact such as construction or transport. Therefore, green public procurement (GPP) can help to significantly lower the negative impact of public spending on the environment and can help support sustainable innovative businesses. The Commission has proposed EU GPP criteria[206].

The Netherlands is one of the front-runners in the EU with regard to GPP. It was already a priority before the EU Directives on GPP were implemented.

The country has in place several circular procurement practices in policies for developing the circular economy[207], and the Dutch green deal programme has initiated a number of pilots and provided guidance for functional specifications.

The Netherlands has set an ambitious government level target on GPP and it applies it not only to the central

[195] Institute for European Environmental Policy, Case Studies on Environmental Fiscal Reform, Fees and taxes of regional water bodies in the Netherlands.
[196] OECD, Inventory of Support Measures for Fossil Fuels, 2018.
[197] European Environment Agency 2017, Environmental taxation and EU environmental policies, p. 26.
[198] European Commission, Taxes in Europe Database, 2018.
[199] European Commission, Taxation of commercial cars in Belgium, 2017, p. 3.
[200] FleetEurope, Major changes to company car taxation in Europe.
[201] ACEA, CO_2 based motor vehicle taxes in Europe.
[202] European Environmental Agency, Appropriate taxes and incentives do affect purchases of new cars, 18 May 2018 .
[203] European Environment Agency, Average CO_2 emissions from new passenger cars sold in EU-28 Member States plus Norway, Iceland and Switzerland in 2016.
[204] European Commission, Transport in the European Union Current Trends and Issues, 2018, p. 100.
[205] European Commission, European Semester Country Report 2018, p. 52.
[206] In the Communication 'Public procurement for a better environment' (COM (2008) 400) the Commission recommended the creation of a process for setting common GPP criteria. The basic concept of GPP relies on having clear, verifiable, justifiable and ambitious environmental criteria for products and services, based on a life-cycle approach and scientific evidence base.
[207] European Parliament, Study on Green Public Procurement and the EU Action Plan for the Circular Economy, 2017, p. 50.

government, but also at regional and local levels; this target aims at reducing over one million tonne of CO_2 emissions per year by 2021.

In the Netherlands there are qualitative but no national quantitative targets in its five-year action plan. GPP is seen as an instrument that contributes to realising policy objectives with sustainability as an integral part of the procurement process.

The country currently offers a 'Circular Procurement Academy'[208]. Public procurers can only participate if they are tendering for an innovative solution and if they are willing to meet regularly with other participants. During these meetings, problems, questions and experiences are discussed. The Netherlands also supports learning networks and pilot projects, and is working on establishing monitoring systems to make the effects of GPP visible.

A new green deal on circular procurement was signed by 50 public and private organisations and companies, adding up to EUR 100 million in purchasing power[209]. As mentioned within the circular economy section, the initiative is open to all organisations that want to purchase in an environmentally friendly way, supporting the circular economy. Circular procurement is also part of the green deal "sustainable health for a sustainable future", signed by 132 parties aiming, among other objectives, at reducing of GHG emissions and resource use.

Local initiatives are also ongoing on this field. Almost 160 municipalities, provinces and water boards have signed the national sustainable public procurement manifesto. This has helped to increase awareness and understanding of, and commitment to GPP. A good example is the municipality of Goeree Overflakkee, which created a sustainability programme presented during the last EIR Dialogue with the Netherlands[210]. Another example is the city of Haarlem, which coordinates the partnership of the EU Urban Agenda on procurement, in which the circular economy is an important theme.

The Commission would welcome a continuation of the sharing of good practice on circular procurement by the Netherlands with other countries.

[208] Dutch Public Procurement Expertise Centre, Supporting Circular Procurement: experiences from the Netherlands, 2016.
[209] Green Deals Netherlands, Circulair inkopen 2.0.
[210] EIR Dialogues, Summary Country Dialogue Netherlands 12 April 2018.

Environmental funding and investments

European Structural and Investment Fund (ESIF) rules oblige Member States to promote environment and climate in their funding strategies and programmes for economic, social and territorial cohesion, rural development and maritime policy.

Achieving sustainability involves mobilising public and private financing sources[211]. Use of the ESIFs[212] is essential if countries are to achieve their environmental goals and integrate these into other policy areas. Other instruments such as Horizon 2020, the LIFE programme[213] and the European Fund for Strategic Investments (EFSI)[214] may also support the implementation and spread of good practices.

European Structural and Investment Funds 2014-2020

Through seven national and regional programmes, the Netherlands has been allocated EUR 1.95 billion from the ESIF over the period 2014-2020. With a minimum national contribution of EUR 1.85 billion, a total budget of EUR 3.57 billion is to be invested in the country over this period[215]. From this, around EUR 667 million has been allocated from EU sources to environmental protection and resource efficiency, the low-carbon economy and other environment-related programmes; and EUR 361 million has been allocated from national sources through co-financing[216].

The Netherlands Enterprise Agency (Rijksdienst voor Ondernemende Nederland (RVO)) publishes information about available funds for environmental investment at its website. For 2018, it had reserved in total EUR 139 million to be divided over 9 themes, including: agriculture, biobased economy, biodiversity, circular economy, sustainable building, sustainable transport, Green Deals and mobile installations.

Cohesion policy

The Netherlands receives over EUR 1 400 million in total cohesion policy funding for the 2014-2020 period, including EUR 389 million for European territorial cooperation and EUR 510 million from the ESF[217]. There

[211] See, for example, Action plan on financing sustainable growth (COM(2018) 97).
[212] i.e. the European Regional Development Fund (ERDF), the Cohesion Fund (CF), the European Social Fund (ESF), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). The ERDF, the CF and the ESF are referred to as the 'cohesion policy funds'.
[213] European Commission, LIFE programme.
[214] European Investment Bank, European Fund for Strategic Investments
[215] European Commission, European Structural and Investment Funds (Country factsheet the Netherlands), 2017.
[216] Commission services, using DG Regio data.
[217] European Commission, Cohesion Policy and the Netherlands, 2014.

are four ERDF operational programmes (OPs) and one ESF OP[218]. There are no direct allocations for investments in environmental infrastructure in the Netherlands[219, 220].

Nevertheless, the European funds present a strong foundation for achieving sustainability[221]. One of the European Commission's investment priorities over the 2014-2020 period is 'the promotion of a low-carbon resource-efficient economy enhancing energy efficiency and the increased use of renewable energy sources'[222]. Boosting these investments will contribute to transitioning towards a low-carbon economy.

On estimating environmental expenditure, innovation and low-carbon economy play a clear role. The ERDF allocation from EU sources for indirect environmental investments is EUR 148 million[223]. In addition, around 9 % of the ERDF budget is being used for sustainable urban development, concentrated in one of the OPs (West).

The last years, the ERDF supported projects such as a Bioprocess Pilot Facility, to experiment and learn how sustainable production processes can be scaled up; and the *Amsterdam Smart City Project*, to help create a more sustainable, energy-efficient city, reducing energy consumption by 20 %.

Current data suggest that the EU funds allocated for the Netherlands in the 2007-2013 period were fully spent[224].

Rural development

The Netherlands faces some environmental pressures in rural areas, mainly on water quality and Natura 2000 conservation status.

The Dutch Development Programme (RDP) outlines the country's priorities when it comes to using EUR 1 630 million in funds available for the seven-year period 2014-2020. This funding includes EUR 765 million from the EAFRD, EUR 449 million of national co-funding and EUR 413 million of additional national funding top-ups[225, 226].

The RDP has a solid environmental approach, aiming to have 6 % of agricultural land under contract to stimulate biodiversity and improve water and soil management. In fact, 56.4 % of the RDP's funds will be used to attain these objectives and for other environmental priorities included under the ecosystems management section of the RPD[227].

In total, EUR 443 million from EU sources has been allocated for the environment within the EAFRD, including EUR 248 million for agri-environment-climate, Natura 2000, Water Framework Directive and forest services and conservation. The remaining EUR 195 million has been allocated for indirect environmental investments, including organic farming and investments in forest area development and maintenance, among others[228].

The comprised agri-environment measures can potentially play a very strong role in reversing the biodiversity decline in the country in some targeted areas. However, as stated in the 2017 EIR, the positive effects are limited due to the absence of an ambitious baseline and ambitious greening.

One of the EAFRD-RDP projects supports traditional biomass heating for cut-flower production[229]. This is part of a strategy to ensure the economic survival and environmental sustainability of flower plantations, replacing the use of natural gas.

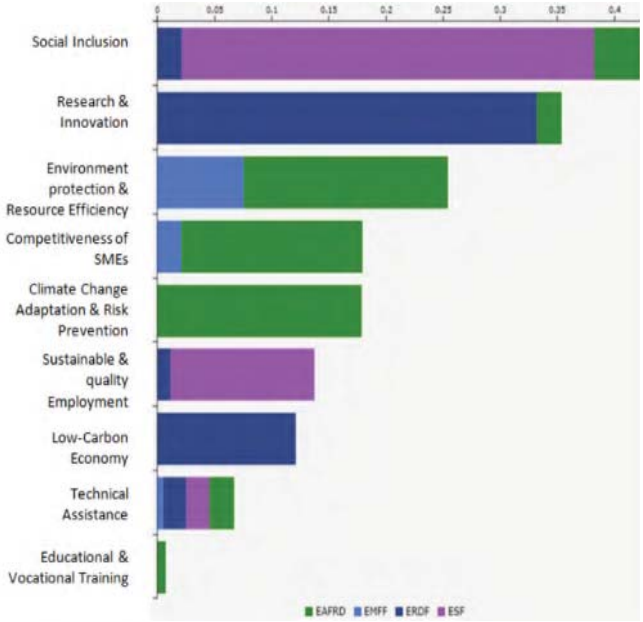
If the Netherlands is to achieve its environmental goals, it is essential that it improves the environmental sustainability of the agricultural sector. Primary agriculture and horticulture account for 15 % of GHG emissions (EU-28 12 %), while the population of birds in farming areas has fallen over the past 30 years by 70 %[230].

On integrating environmental concerns into the common agricultural policy (CAP), the two key areas are: (i) using the EAFRD to pay for environmental land management and other environmental measures; and (ii) ensuring the first pillar of the CAP is implemented effectively with regard to cross-compliance and first pillar 'greening'. The Netherlands has a ceiling for Direct Payments of EUR 3.62 billion for the period 2015-2020, 30 % of which is being allocated to greening practices that benefit the

[218] European Commission, OP North, OP West, OP East, OP South.
[219] Direct environmental investments under CF and ERDF include investments in waste, water, air, biodiversity, land rehabilitation, climate mitigation and adaptation and risk prevention.
[220] COWI-MILIEU, Study on the integration of environmental concerns in the Cohesion Policy funds (ERDF, ESF, CF), 2017, p. 35.
[221] 'The objectives of the ESI Funds shall be pursued in line with the principle of sustainable development and with the Union's promotion of the aim of preserving, protecting and improving the quality of the environment, as set out in Article 11 and Article 191(1) TFEU, taking into account the polluter pays principle' Article 8, Regulation (EU) No 1303/2013.
[222] European Commission, Summary of the Partnership agreement for the Netherlands, 2014, p. 2.
[223] Commission services, using DG Regio data.
[224] European Commission, Cohesion Policy — Supporting Growth and jobs in the Netherlands (2007-2013), 2015; and European Commission, SF 2007-2013 Funds Absorption Rate, 2018.
[225] European Commission, Factsheet on 2014-2020 Rural Development Programme for the Netherlands, 2017, p. 1.
[226] The European Network for Rural Development, 2014-2020 Rural Development Programme: Key facts & figures (The Netherlands), 2016.
[227] European Commission, Factsheet on 2014-2020 Rural Development Programme for the Netherlands, 2017, p. 3.
[228] Commission services, using DG Regio data.
[229] European Commission, European Structural and Investment Funds (Country factsheet the Netherlands), 2017.
[230] SWD(2017) 406.

environment[231].

Figure 21: ESIF 2014-2020 – EU allocation by theme, the Netherlands (EUR billion)[232]



In 2018, the Netherlands transferred EUR 60 million from the first pillar of the CAP, allocated to agri-environmental commitments, non-productive investments and cooperation in the form of pilot projects.

The latest financial data available (on the 2007-2013 period) show that the absorption rate of rural development funds in the Netherlands was 99.7 %, similar to the EU average (97.3 %)[233].

European Maritime and Fisheries Fund (EMFF)

The Netherlands receives around EUR 128 million in co-financing for fisheries and the maritime sector, with an EU contribution of EUR 101 million[234]. Several projects benefiting the environment have been financed under priorities one (sustainable fisheries) and two (sustainable aquaculture) of the OP[235]. The environmental funds allocated from EU sources represent more than EUR 75 million for the period 2014-2020[236].

Examples of success stories that show the green side of the EMFF are: the *Master Plan for Sustainable Fisheries*, aiming to replace old fishing gear with more sustainable alternatives; and the *Pulsed fish-stunning at sea* project, to improve animal welfare through the development of onboard fish-stunning devices.

The Connecting Europe Facility (CEF)

The CEF is a key EU funding instrument developed specifically to direct investment towards European transport, energy and digital infrastructure to address identified missing links and bottlenecks and promote sustainability.

By the end of 2017, the Netherlands had signed agreements for EUR 357 million for projects under the CEF[237].

EUR 150 million to finance green shipping has been granted using the CEF and EFSI instruments with the support of the EIB[238]. The project is open for both the retrofitting of the existing fleet, and projects that envisage the construction of new vessels with a green innovation aspect.

Horizon 2020

The Netherlands has benefited from Horizon 2020 funding since the programme started in 2014. As of January 2019, 1 777 participants have been granted a maximum amount of EUR 681 million for projects from the Societal Challenges work programmes dealing with environmental issues[239] [240].

In addition to the abovementioned work programmes, climate and biodiversity expenditure is present across the entire Horizon 2020. In the Netherlands, projects accepted for funding in all Horizon 2020 working programmes until December 2018 included EUR 694 million destined to climate action (23 % of the total Horizon 2020 contribution to the country) and EUR 115 million for biodiversity-related actions (3.8 % of the Horizon 2020 contribution to the country)[241].

Several successful projects are taking place in the Netherlands. The *Alliance for Sustainable Cities*[242] is

[231] Regulation (EU) No 1307/2013, p. 656.
[232] European Commission, European Structural and Investment Funds Data By Country.
[233] COM (2017) 554 and European Parliament, Agriculture and the EU's Common Agricultural Policy in the Netherlands, 2016, p. 21.
[234] European Commission, European Maritime and Fisheries Fund in the Netherlands, 2015.
[235] Ministry of Economic Affairs and Climate Policy of the Netherlands, Operationeel Programma EFMZV van Nederland 2014-2020, 2014, p. 95.
[236] European Commission, European Maritime and Fisheries Fund in the Netherlands, 2015, p. 2.
[237] European Commission, European Semester Country Report for the Netherlands, 2018, p. 13.
[238] European Investment Bank, Investment Plan for Europe: EUR 150 million to finance green shipping.
[239] European Commission own calculations based on CORDA (COmmon Research DAta Warehouse). A maximum grant amount is the maximum grant amount decided by the Commission. It normally corresponds to the requested grant, but it may be lower.
[240] i.e. (ii) Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy; (iii) Secure, clean and efficient energy; (iv) Smart, green and integrated transport; and (v) Climate action, environment, resource efficiency and raw materials.
[241] European Commission own calculations based on CORDA (COmmon Research DAta Warehouse).
[242] European Commission, Together for sustainable cities: an international research alliance.

trying to develop comprehensive approaches for the management of food, water and energy, which are usually considered in isolation. Another international project (*TRANSRISK*) is aiming to help guide the global transition from high-carbon economies to low-carbon economies by providing policymakers with the tools and information they need to implement effective, evidence-based climate strategies[243].

LIFE programme

Since 1992, when the LIFE programme was launched, a total of 198 projects have been co-financed in the Netherlands[244]. Altogether, they represent a total investment of EUR 585 million, of which EUR 167 million has been provided by the EU[245]. For the period 2014-2017, EUR 37 million were allocated to Dutch projects by the EU[246].

Two Dutch projects were included in the Best LIFE Projects 2016-2017[247]. The first was *QUARTERBACK for LIFE Project*[248], included in LIFE Nature and Biodiversity, which aimed to reduce the environmental impact of the production of crude glycerine. It demonstrated the technical and economic feasibility of turning oleochemical-based glycerine into biogas to be used on-site to replace natural gas, generating approximately 10 % of the energy required and saving a substantial amount of water and energy. The second was the *Healthy Heath Project*[249], included under LIFE Environment and Resource Efficiency. It restored the natural water balance in over 285 ha in the Dwingelderveld National Park, transforming former agricultural enclaves in Noordenveld back into heathland habitats.

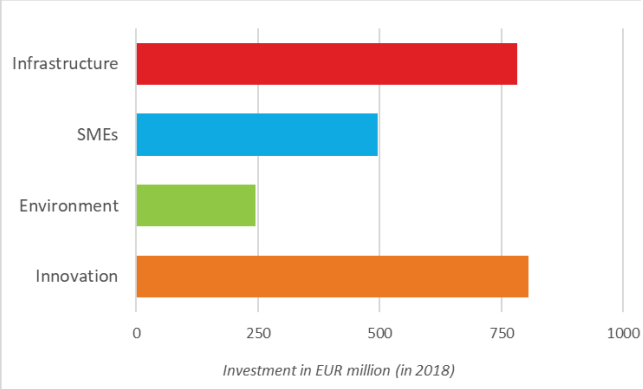
European Investment Bank

Over the period 2013-2017, EIB loans to the Netherlands amounted to nearly EUR 10.4 billion[250]. The EIB Group[251] loaned Dutch businesses and public institutions more than EUR 2.32 billion in 2018, as shown in Figure 21, from which around EUR 245 million (10.5 %) were directly invested in environment-related projects.

Nevertheless, other projects are indirectly connected to environmental protection. This is the case, for example, with signed loans to support dairy farmers' investments in biogas installations, or signed loans to acquire new equipment to ensure that all the electric trains in the Netherlands continue running on green electricity supplied by sustainable power generation[252].

The EIB has also provided loans to projects that fight climate change in the Netherlands. An example is the financing agreement with the Ons Middelbaar Onderwijs association to carry out the sustainable refurbishment or new construction of a number of schools in the province of North Brabant, improving their energy efficiency[253].

Figure 22: EIB loans to the Netherlands in 2018[254]



European Fund for Strategic Investments

The European Fund for Strategic Investments (EFSI) is an initiative to help overcome the current investment gap in the EU. As of January 2019, the EFSI had mobilised more than EUR 2.2 billion in the Netherlands, and the secondary investment triggered by those funds is expected to be more than EUR 10 billion[255, 256].

Notably, EFSI investments in the environmental sector have been used to boost actions on the circular economy, renewable energy and energy efficiency. EUR 165 million has been granted for projects that focus on energy efficiency, transport, the environment and resource efficiency in the Netherlands[257].

An example of an ongoing project is the *Green Metropole Fund*. Its goal is to accelerate the transition towards a circular and low-carbon economy in the metropolitan area of Amsterdam. EIB funds of EUR 40 million will try to leverage the investment capacity towards SMEs and

[243] European Commission, Guiding the low-carbon transition with evidence-based policy tools.
[244] European Commission, LIFE in The Netherlands, 2017.
[245] European Commission, LIFE by country: The Netherlands.
[246] Commission services based on data provided by EASME.
[247] European Commission, Best LIFE-Environment Projects 2016-2017.
[248] European Commission, QUARTERBACK for LIFE — Crude glycerine water used on-site as a feedstock in an anaerobic digestion reactor to produce the renewable fuel biogas.
[249] European Commission, 'Healthy Heath' — Propagation and development of dry, moist and wet heath in the Dwingelderveld SPA and SCI.
[250] European Investment Bank, Delivering impact in finance in the Netherlands, 2017.
[251] The EIB Group includes EIB and EFSI investments and loans.
[252] European Investment Bank, Projects to be financed, 2018.
[253] European Investment Bank, EIB finances OMO association's sustainable buildings.
[254] European Investment Bank, The European Investment Bank in the Netherlands, 2017.
[255] European Investment Bank, The EIB in the Netherlands, what we do.
[256] European Investment Bank, EFSI project map.
[257] As of June 2018. Commission services, using DG Regio data.

small projects. Another good example is the *Limburgs Energie Fonds*, that aim to improve SMEs' energy efficiency and develop new waste treatment facilities and sustainable transport in the province of Limburg (EIB participation amounts up to EUR 30 million).

Other projects are still being prepared or have been recently approved. A six-year project to secure the sustainable management of water supply and distribution in South Holland was approved in December 2017. Compliance with the EU Water Framework and Drinking Water Directives[258] will be verified during the appraisal.

National environmental financing

The Netherlands spent EUR 9.57 billion on environmental protection in 2016, a decrease of 8 % from 2015[259]. Some 36 % of these payments was allocated to waste management activities (the average in the EU is 49.7 %). EUR 3.34 billion was allocated to wastewater management (35 % of total) and EUR 1.82 billion to reducing pollution (19 % of total). Some 7.3 % of environmental expenditure was allocated to the protection of biodiversity and landscape (EUR 705 million). Between 2012 and 2016, the general government funding for environmental protection added up to EUR 50 billion, the fifth highest total in absolute terms in the EU[260].

Since 1985, several programmes have been developed to finance projects connected to environmental protection. Possibly the most significant is the Green Funds Scheme, a tax incentive scheme launched in 1995 to encourage individual investors to put money into projects that benefit nature and the environment. By December 2016, 185 deals had been concluded, with 1 225 participants[261].

The Dutch National Fund for Green Investments is another instrument that provides services in the fields of financing, public support, advice and financial management to make the Netherlands greener. The Fund's contribution to climate targets helped to prevent 136 131 tonnes of CO_2 from being released and helped to restore 345 hectares of natural environment[262].

Provinces also cooperate and finance some projects. Among other instruments, there are subsidies available for agricultural collectives for wildlife and landscape management[263].

Since 2013, when more than 40 organisations agreed upon a national agreement on energy, all major Dutch banks have been cooperating to remove obstacles to financing investments in renewable energy and energy efficiency[264]. This effort has been complemented by the Sustainable Finance Platform, a cooperative venture including several Dutch financial organisations[265] to promote and encourage discussion on sustainable finance in the financial sector[266].

One of the challenges for the Netherlands is to ensure that environmental financing remains at an adequate level to tackle some of the main challenges affecting the country. Existent financial gaps in nature and biodiversity protection are delaying the full implementation of EU environmental law and policies. Therefore, ensuring financial resources to reduce the implementation gap should be considered as a priority for the country.

2019 priority action

- Ensure that the rural development programme and greening measures boost biodiversity and contribute to achieving favourable conservation status for habitats and species.

[258] Directive 2000/60/EC and Directive 98/83/EC.
[259] Eurostat, General Government Expenditure by function, 2018.
[260] Eurostat, General Government Expenditure by function, 2018.
[261] Government of the Netherlands, Green Deals Overview, 2016.
[262] Nationaal Groendfonds, A green environment is worth investing in.
[263] Biodiversity Information System for Europe, Green Infrastructure in the Netherlands.
[264] United Nations Environment Programme and Sustainable Finance Lab, Design of a Sustainable Financial System (Netherlands Input to the UNEP Inquiry), 2016, p. 4.
[265] De Nederlandsche Bank, the Dutch Banking Association, the Dutch Association of Insurers, the Federation of the Dutch Pension Funds, the Dutch Fund and Asset Management Association, the Netherlands Authority for the Financial Markets, the Ministry of Finance, the Ministry of Infrastructure and the Environment, and the Sustainable Finance Lab.
[266] De Nederlandsche Bank, Sustainable Finance Platform.

5. Strengthening environmental governance

Participation, information 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; and
(iii) access to justice in environmental matters.

It is of crucial importance to public authorities, the public and business that environmental information is shared efficiently and effectively[267]. 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[268]. It includes the right to bring legal challenges ('legal standing')[269].

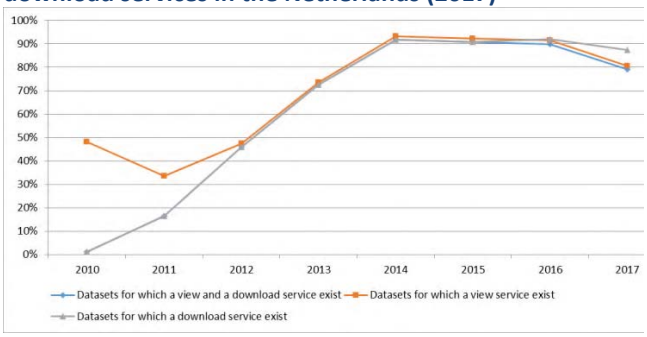
Environmental information

The Netherlands has a centralised approach for dissemination of environmental data. The main portal is the 'Compendium voor de Leefomgeving' (CLO)[270]. The portal presents indicators for about 30 environmental topics, covering the environmental information demand. On each indicator page, links provide access to further information and data downloads. However, the references to the EU environmental provisions are difficult to find. Reference to the INSPIRE Directive is missing for half of the domains. Most sectorial sites are entirely separate from the main environmental portal.

In addition, public authorities are making environmental information available to the public in the form of searchable maps through the Atlas Living Environment (Atlas Leefomgeving)[271] portal. This Atlas aims to translate complex information to the local level. New datasets are being added on a regular basis.

The Netherlands' performance on the implementation of the INSPIRE Directive is good. The performance has been reviewed based on the 2016 implementation report[272] and the most recent monitoring data from 2017[273]. However, additional efforts are needed to prioritise environmental datasets, in particular those identified as high-value spatial data sets for the implementation of environmental legislation[274].

Figure 23: Access to spatial data through view and download services in the Netherlands (2017)



Public participation

Participation is considered one of the pillars of Dutch environmental policy. Much effort is invested in interactive processes of policy development and multi-stakeholder approaches. The ministry of Infrastructure and Water Management has a division for participation (*Directie Participatie*)[275], which advises policy makers on participation processes. It published a code defining what societal participation entails and its minimum requirements (*Code Maatschappelijke Participatie*)[276]. In addition, the government publishes a central list of the proposals under consultation[277].

In the field of environment, the Environmental Management Act (*Wet Milieubeheer*)[278] provides rules for the participation in national, provincial and municipal planning procedures in its Chapter 4 (Plans and programs); and in EIA and SEA (Strategic Environmental Assessments) procedures in its Chapter 7. Some sectoral provisions also exist. In some cases, procedures are subject to a formal consultation of the public, which is regulated by Section 3.4 of the General Administrative Law Act (*Algemene Wet Bestuursrecht*)[279]. In addition,

[267] The Aarhus Convention, the Access to Environmental Information Directive, 2003/4/EC and the INSPIRE Directive, 2007/2 together create a legal foundation for the sharing of environmental information between public authorities and with the public. This EIR focuses on INSPIRE.
[268] The guarantees are explained in Commission Notice on access to justice in environmental matters, OJL 275, 18.8.2017 and a related Citizen's Guide.
[269] This EIR looks at how well Member States explain access to justice rights to the public, and at legal standing and other major barriers to bringing cases on nature and air pollution.
[270] Government of the Netherlands, Environmental Data Compendium.
[271] The portal is available in both Dutch and English.
[272] European Commission, INSPIRE Netherlands - country sheet for 2017.
[273] European Commission, INSPIRE monitoring dashboard.
[274] European Commission, List of high value spatial data sets.
[275] Overheid, Organisatie- en mandaatbesluit Infrastructuur en Waterstaat.
[276] Overheid, Code Maatschappelijke Participatie.
[277] Overheid, Internetconsultatie.
[278] Overheid, Environmental management Act.
[279] Overheid, Algemene wet bestuursrecht.

every Dutch ministry is obliged to organise an internet consultation for each legislative proposal since 2013.

The Eurobarometer figures from 2017 show that in the Netherlands, there is a very strong agreement (97% of respondents) that an individual can play a role in protecting the environment.

Access to justice

Significant progress is needed to inform the general public about possibilities to appeal decisions taken by the authorities; i.e., which effective remedies are available to individuals and environmental associations on access to justice in environmental matters under Dutch and EU law[280]. The official website of the Government does not provide easy access to information and statistics on environmental case law but refers in this respect to the European Case Law Identifier (ECLI) and general case law websites[281].

The main rule is that only those whose interests are directly affected by a decision are allowed to start a legal case (General Administrative Law Act, Article 1:2(1)). This standing requirement has been further developed through case law in the sense that an interested party must have an interest that is direct, own, personal, objective and actual[282]. A similar arrangement is applicable to environmental NGOs. In principle, they are only allowed to challenge issues that are expressly mentioned in their statutes as well as evidenced by their actual activities (General Administrative Law Act, Article 1:2(1)). Dutch law does not distinguish between national or foreign individuals or NGOs. The interpretation of these provisions, however, is ultimately in the hands of the court.

Furthermore, citizens and environmental NGOs can start legal procedures based on civil law. Two important developments need to be noted with respect to access to justice in practice. Firstly, actual access to justice may be diminished due to the fact that most installations and activities have been brought under a system of generic rules, instead of individual permits. This could reduce options for appeal against the granting of permits and permitting rules. However, under the generic rules claimants can still challenge that rules are not complied with and ask the authorities to intervene. Secondly, Dutch NGOs increasingly seem to opt for civil instead of administrative procedures.

The loser pays principle mainly applies in civil cases[283]. However, its application is at the discretion of the judge. Each party has to pay for its own legal assistance, experts and other costs. However, legal assistance by a solicitor or barrister (*advocaat*) is mandatory only when cases are lodged before a civil court including in case of appeal. Applicants before administrative courts do not need to be represented by a solicitor or barrister. The costs of legal assistance and expert advice in a civil lawsuit can be considerable. However, if the administrative court asks the Administrative Courts Advisory Foundation (*Stichting Advisering Bestuursrechtspraak* (STAB)) for advice, this expert witness will provide his or her opinion without charge.

2019 priority actions

- Improve access to spatial data and services by making stronger linkages between the country INSPIRE portals, identify and document all spatial datasets required to implement environmental law, and make the data and documentation at least accessible *'as is'* to other public authorities and the public through the digital services envisaged in the INSPIRE Directive.
- Better inform the public about their access to justice rights, notably in relation to air pollution and nature.

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[284]. It includes support measures provided by the authorities, such as:
(i) compliance promotion[285];
(ii) inspections and other checks that they carry out, i.e. compliance monitoring[286]; and
(iii) the steps that they take to stop breaches, impose sanctions and require damage to be remedied, i.e. enforcement[287].
Citizen science and complaints enable authorities to focus their efforts better. Environmental liability[288] ensures that the polluter pays to remedy any damage.

[280] It is to be noted that there is a legal obligation to mention the possibility for an appeal to decisions made by public authorities. However, this does not apply to general administrative acts. In particular for these acts, it is important that information is easily available and user- friendly.
[281] E.g. Rechtspraak and Raad van State.
[282] Backes C., *The implementation of Article 9.3 of the Aarhus Convention on access to justice in the Netherlands*, 2013; and Darpö, J. *Effective Justice. Synthesis report of the study on the Implementation of Articles 9.3 and 9.4 of the Aarhus Convention in the Member States of the European Union*, 2013, p. 11.
[283] In administrative procedures citizens are rarely asked to pay for the costs of the authorities linked to the appeal (Art. 875 AWB).
[284] The concept is explained in detail in COM(2018)10 and SWD(2018)10.
[285] This EIR focuses on the help given to farmers to comply with nature and nitrates legislation.
[286] This EIR focuses on inspections of major industrial installations.
[287] This EIR focuses on the availability of enforcement data and co-ordination between authorities to tackle environmental crime.

Compliance promotion and monitoring

The quality of online information to farmers on how to comply with obligations on nitrates and nature is an indicator of how actively authorities promote compliance in subject-areas with serious implementation gaps.

The Dutch government is increasingly developing specific approaches and tools to help economic operators understand how to deal with environmental rules and regulations. For example, with regard to nitrates, national and regional public authorities jointly developed a specific Programme Approach Nitrates (*Programma Aanpak Stikstof* (PAS)) in 2015. This approach is meant to give guidance to public authorities, entrepreneurs, and nature organisations how to reduce the nitrogen load as well as to create opportunities for (agricultural) businesses at the same time.

In respect to Natura 2000 sites, the ministry of Economic Affairs developed a detailed route planner for those who would like to develop an activity in a nature protection area[289]. The PAS is currently under legal scrutiny following preliminary rulings (C-293+294/17 of 7 November 2018) of the Court of Justice of the EU.

Major industrial installations present serious pollution risks. Public authorities are required to have plans to inspect them and to make individual inspection reports available to the public[290]. Publicly available information about such plans and reports seems to be missing in the Netherlands but it is available upon request. However, information is published about inspections of installations that fall under the Seveso Directive[291], including short summaries of inspection results.

The Human Environment and Transport Inspectorate (*Inspectie voor Leefomgeving en Transport* (ILT))[292] is increasingly using new technologies for inspection purposes. In 2017, it set up an ID Lab for experiments with new sources of data as well as analysis techniques. Examples of such projects are text mining in relation to Schiphol Airport and the use of Geographical information system to visualize data related to the European Waste Shipment Regulation in an interactive map.

Citizen science and complaint handling

Engagement of citizens, including through citizen science, can deepen knowledge about the environment and help the authorities in their work. The added value of citizen science is recognised in the Netherlands. For example, citizens are invited by the RIVM to measure air quality[293], Wageningen University is doing an appeal on citizens to collect data on nature[294], and the city of Amsterdam encourages citizens to use the app Improve your Neighbourhood (app *Verbeter de Buurt*) to inform the municipal services about local issues[295].

The availability of clear online information about how to make a complaint is an indicator of how responsive authorities are to complaints from the public. In the Netherlands, many institutions active in the environmental field have put in place complaints mechanisms, such as the Regional Environmental Services as well as the environmental departments of provinces and municipalities. In order to provide guidance, the Foundation Environmental Complaints (*Stichting Milieuklachten*)[296] operates a website which provides assistance in the identification of the proper public institution where a complaint should be submitted.

Enforcement

When monitoring identifies problems, a range of responses may be appropriate. The activity reports of the ILT[297], as well as of the ODNL[298], do not provide information about identified instances of non-compliance and follow-up measures taken but members of the public can request that this information is made available to them. The Regional Environmental Service DCMR publishes on its website enforcement sanctions[299]. CBS does not compile any separate statistics on environmental crimes[300]. In the general crime statistics, environmental crimes are included in the category 'other'. Information on responses to cross-compliance

[288] The Environmental Liability Directive, 2004/35, creates the framework.
[289] Dutch route planner in nature protection areas, website.
[290] Article 23, Directive 2010/75/EU.
[291] Directive 2012/18/EU.
[292] Dutch Human Environment and Transport Inspectorate, website.
[293] Ministry of Infrastructure and Water Manegement, Citizen Science.
[294] Breman, B., van Vliet, A., Vullings, W., Citizen science voor natuur in Nederland, Van onschatbare waarde en onderschat belang, report 2806, Wageningen University & Research, 2017.
[295] Improve your Neighbourhood app, website.
[296] Stichting Milieuklachten, website.
[297] Dutch Human Environment and Transport Inspectorate, website.
[298] Omgevingsdienst, website.
[299] See Overzicht opgelegde handhavingsbeschikkingen.
[300] CBS, Open data portal.

breaches on nitrates and nature does not seem to be publicly available.

Tackling waste, wildlife and other environmental crimes is especially challenging and requires close co-operation and co-ordination arrangements between inspectors, customs authorities, police and prosecutors. The lead authority for enforcement of the Waste Shipment Regulation is the ILT[301]. It cooperates with customs, police and the public prosecutor's office. Following previous concerns about the high number of criminal investigations that did not lead to court cases and convictions[302], in 2017 the Court of Audit produced an information note[303] about the follow-up given to its report, referring to improved cooperation between public authorities through the digital service Inspection View (*Inspectieview*)[304], evaluation of risk profiles, and more targeted control and enforcement.

The lead authority for enforcement of wildlife trade regulations is located at the Netherlands Food and Consumer Product Safety Authority (Nederlandse Voedsel- en Warenautoriteit (NVWA)) of the ministry of Agriculture, Food Quality and Nature[305]. Staff from the NVWA periodically gets together with officers from other enforcement agencies, such as customs, national police, and the public prosecutor's office. The frequency of meetings amounts to 6 times per year[306]. In recent years, several criminal investigations have led to court cases and convictions. A major case concerned a bird trader who received a sentence of 15 months in prison because of large-scale trading and membership in a criminal organization which was confirmed in appeal[307].

Environmental liability

The Environmental Liability Directive (ELD) establishes a framework based on the 'polluter pays' principle to prevent and remedy environmental damage. The 2017 EIR focused on better information on environmental damage, financial security and guidance. The Commission is still collecting evidence on the progress made.

2019 priority actions

- Better inform the public about compliance promotion, monitoring and enforcement by, at least, providing online information on inspection plans and reports on industrial and other inspections, publishing information on outcomes of enforcement action and of the follow-up to detected cross-compliance breaches on nitrates and nature.
- Ensure more information on how professionals dealing with environmental crime work together.
- Improve financial security for liabilities and ELD-guidance and publish information on environmental damage.

Effectiveness of environmental administrations

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

Administrative capacity and quality

As mentioned in the 2017 EIR, the Netherlands has an adequate administrative capacity to fulfil environmental obligations. There is a longstanding tradition to involve all relevant stakeholders in policy-making and implementation.

Although the quality of public administration in the Netherlands is generally considered as high, not more than 57 % of citizens expressed confidence or satisfaction in public institutions across public services in the Netherlands, according to a recent OECD study[308].

Coordination and integration

As mentioned in the 2017 EIR Report, the transposition of the revised EIA Directive[309] provides an opportunity to streamline the regulatory framework on environmental assessments. The Netherlands has completed the transposition of the EIA Directive by the deadline (May 2017).

The Commission encourages the streamlining of the environmental assessments in order to reduce duplication and avoid overlaps. Streamlining helps reducing unnecessary administrative burden and accelerates decision-making, without compromising the quality of the environmental assessment procedure[310]. The Netherlands has introduced streamlining of environmental assessments of the EIA and Habitats Directives. Where an assessment is required also under

[301] Dutch Human Environment and Transport Inspectorate, website.
[302] Algemene Rekenkamer, Handhaving Europese regels voor afvaltransport, The Hague, 2012, 54 p.
[303] Court of Auditors of the Netherlands, Opvolging aanbevelingen Handhaving Europese regels voor afvaltransport.
[304] Digital service inspection view, website.
[305] Nederlandse Voedsel- en Warenautoriteit, website.
[306] CITES, Netherlands Biennial Report 2013-2014, p. 14
[307] Rechtspraak, website. See reference ECLI:NL:GHARL: 2017: 336
[308] OECD, Government at a Glance 2017, Netherlands fact sheet, p. 4.
[309] Directive 2014/52/EU.
[310] The Commission issued a guidance document in 2016 regarding the setting up of coordinated and/or joint procedures that are simultaneously subject to assessments under the EIA Directive, Habitats Directive, Water Framework Directive, and the Industrial Emissions Directive, OJ C 273, 27.7.2016, p. 1.

the Water Framework Directive, the procedures are coordinated.

In the Netherlands, EIAs and SEAs are mandatory for plans and projects that are listed in a ministerial decree (*Besluit milieueffectrapportage*[311]). The EIA/SEA procedures are coordinated with other permitting and assessment requirements as outlined in Chapter 7 of the Environmental Management Act (*Wet Milieubeheer*)[312].

The EIA and SEA reports are usually written by consultancy bureaus at the request of private and public initiators of plans and projects[313]. According to Dutch law, the preparation of EIAs and SEAs should include a description of alternatives and their impacts, including a most environment-friendly alternative, public participation, and a mandatory quality review by an independent advisory commission. The role of the latter is fulfilled by the Netherlands Commission for Environmental Assessment (*Commissie voor de milieueffectrapportage* (NCEA))[314] which advises competent authorities on the quality of environmental information in EIAs and SEAs in order to stimulate its effective use in decision-making procedures.

In the case of both voluntary and mandatory advisory reports, the competent authority may request the NCEA to take into account submissions by the public in its advice. The non-binding advice by the NCEA includes considerations on whether the EIA is of sufficient quality to serve as a basis for decision-making, whether alternatives are adequately examined, and whether gaps in knowledge exist requiring supplementary research.

The Dutch government has developed an Integrated Impact Assessment Framework (*Integraal Afwegingskader Beleid en Regelgeving*) which is meant as a tool to be used by civil servants in formulating sound policy and legislation. The assessment framework requires the consideration of environmental consequences. The framework distinguishes the stages of problem analysis, intervention choices, and impact assessment. A booklet explaining its approach is available in both Dutch and English, and there is an available website providing information about regulatory impact assessments, but specifically addressed to professionals[315].

[311] Decree environmental impact assessment (Besluit milieueffectrapportage (Staatsblad 1994, 540, as amended).
[312] Portal Overheid.nl (providing full texts of laws and regulations), Environmental Management Act, Chapter 7.
[313] Hoevenaars, G., Assessing the assessment. A quality review of EIAs/SEAs: a Dutch perspective, Environmental Law Network International, 2013, 1/2 , 30-37,
[314] Netherlands Commission for Environmental Assessment, website.
[315] Government of the Netherlands, Integrated Impact Assessment Framework, information about regulatory impact assessment.

Adaptability, reform dynamics and innovation (eGovernment)

Dutch public authorities are increasingly adopting and using electronic services to interact with public or regulated entities online. For Digital Public Services, the Netherlands has a score of 0.77/1 based on Europe's Digital Progress Report 2017, this is higher than the EU28 average (0.55/1)[316]. In the DESI Report 2018, the Netherlands had a score of 71 out of 100 on digital public services, higher than the EU average of 58[317].

A major overhaul of the environmental legislation is currently being prepared. The envisaged Environment and Planning Act (*Omgevingswet*)[318] is meant to modernise, harmonise and simplify current rules in areas such as land use planning, environmental protection, nature conservation, construction of buildings, protection of cultural heritage, water management, urban and rural redevelopment, development of major public and private works and mining and earth removal. It will integrate these rules into one legal framework. The new act has been adopted by Parliament and officially published[319]. The ministry is currently elaborating associated implementation regulations. The new act and associated regulations are expected to enter into force in 2021.

With the new Environment and Planning Act and its associated regulations, the government aims to:

- Improve the transparency, predictability, and ease of use of environmental law;
- Achieve a coherent approach towards the physical environment in policy, decision-making and regulations;
- Achieve more administrative discretion by means of an active and flexible approach;
- Improve and speed up the decision-making with regard to projects in the physical environment.

The key instruments in the new act are: 1) An environmental strategy, 2) An environmental programme, 3) Central government regulations, 4) Regulations from decentralised authorities, including provinces, regional water authorities and municipalities, 5) An environmental permit, and 6) A project decision. The latter is designed as a generic arrangement for decision-making in relation to projects with a public interest according to the 'faster-and-better' approach.

[316] European Commission, *Europe's Digital Progress Report (EDPR) 2017 Country Profile Netherlands*, 2017, p. 9,
[317] European Commission, Digital Economy and Society Index Report 2018, Digital Public Services.
[318] Government of the Netherlands, Environment and Planning Act.
[319] Official publication of Environment and Planning Act in Staatsblad 2016, 26 april 2016.

However, relevant information about Dutch activities in the environmental field is scattered over many different websites. A central navigation system that helps to find your way in the 'jungle of information' does not exist. An attempt to improve this is the joint initiative of environmental authorities to making information on environment and health available through the portal Atlas Living Environment (*Atlas Leefomgeving*)[320] in the form of searchable maps.

The new Environment and Planning Act reflects the ambition to work towards a digital portal for citizens, businesses and NGO's that gives access to environmental data relevant to a specific geographical location as well as to the rules applicable to that location. The website *Infomil of Rijkswaterstaat* also offers a platform for environmental information related to the actions of the government[321].

Enabling financing and effective use of funds

The Dutch authorities have a long experience in the management of EU funding and no major problems arise in this respect.

International agreements

The EU Treaties require the EU environmental policy to promote measures at international level to deal with regional or worldwide environmental problems.

The EU is committed to strengthening environmental law and its implementation globally. It therefore continues to support the Global Pact for the Environment process, which was launched by the United Nations General Assembly in May 2018[322]. The EIR is one of the tools to ensure that the Member States set a good example by respecting European Union environmental policies and laws and international agreements.

The Netherlands is one of the best performers in the EU in signing and ratifying international environmental agreements.

Forests: EU Timber Regulation (EUTR)[323]/ Forest Law Enforcement, Governance and Trade (FLEGT) Regulation[324]

Under the EUTR, which prohibits the placing of illegally harvested timber on the EU market, the relevant authorities in EU Member States must conduct regular checks on operators and traders, and apply penalties for non-compliance.

Between March 2015 and February 2017, the Netherlands did not plan or carry out any checks on market operators dealing with domestic timber, highlighting the limited domestic production[325]. However, 74 out of 100 checks on operators importing timber planned for this same period were conducted. So far, about 30 % of checked operators were found in breach of their due diligence obligation and have been sent notices of remedial action. The Netherlands issued one administrative measure to prevent further placing on the market of products without proper due diligence. The measure was upheld in a court case.

On cooperation (Article 12 EUTR), the Netherlands reported collaborating with other government institutions in the country, and with competent EU authorities, mainly through FLEGT/EUTR Expert Group meetings, the Ad Hoc Expert Group on FLEGT, the TREE meetings and during bilateral visits.

Genetic resources: Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising (ABS)[326]

Under the EU ABS Regulation, which transposes the required compliance measures under the Nagoya Protocol into the EU legal order, the Netherlands has designated competent authorities and enacted sanctions for infringements of the Regulation. They have also put in place a risk-based plan for checks and have conducted checks (on-site visits and inspections). No due diligence declaration was submitted so far and no penalties have been applied. At the end of 2017, the Netherlands submitted their first report to the Commission on implementing the EU ABS Regulation.

International wildlife trade: the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[327]

Under the obligation laid down in the Regulation[328] to transpose the major obligations stemming from the CITES into EU law, the Netherlands has established relevant national authorities and is processing (requests for) import, (re-) export and intra-EU trade documents on a regular basis.

Reports on seizures of illegal shipments, in particular those reported every 6 months to the wildlife trade

[320] The portal is available in both Dutch and English.
[321] Ministry of Infrastructure and Water Management, Kenniscentrum InfoMil.
[322] UN General Assembly Resolution 72/277 and Organisational session of the ad hoc open-ended working group.
[323] Regulation (EU) No 995/2010.
[324] Regulation (EC) No 2173/2005.
[325] Based on customs' data, it is estimated that 100 Dutch operators placed domestic timber on the EU market for the first time and 4 900 imported timber.
[326] Regulation (EU) No 511/2014.
[327] European Commission, The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
[328] Council Regulation (EC) No 338/97.

monitoring network TRAFFIC[329] under its contract with DG Environment, and those exchanged through the EU-TWIX platform[330], testify to the activity of customs authorities.

To ensure the EU wildlife action plan (2016) is fully implemented, a national CITES Day is organised every year in the Netherlands. This day provides an opportunity for everyone involved in CITES and combating wildlife trafficking, including prosecutors, to gather, get to know each other and exchange best practices.

Sustainable development and the implementation of the UN SDGs

Sustainable development links environmental, social and economic policies in a coherent framework and therefore helps to implement environmental legislation and policies.

Although the Netherlands has been a frontrunner as regards strategic environmental planning, it has not yet adopted a comprehensive national sustainable development plan. A draft of such a plan was turned into an action plan, which was adopted in 2003. Following an international peer review, the government revised its policy in 2008 in a programme known as the 'cabinet-wide approach to sustainable development' (KADO).

There is no separate coordination mechanism for Sustainable Development between the national and sub-national levels. In sectoral policies, there is coordination between the political levels, e.g. in environmental policy, transport policy, spatial planning, water management or climate change. Coordination at the national level is addressed by the regular coordination mechanisms that support the Council of Ministers, such as the Council for Infrastructure and Environment.

At the policymaking level the Ministry of Foreign Affairs leads the Task Force on Sustainable Development (TFDO — *task force duurzame ontwikkeling*)[331]. In 2018, the Ministry of Foreign Affairs and the Ministry of Infrastructure and Water Management signed the "Blue Deal", which aims to give 20 million people around the world access to clean, sufficient and safe water[332].

A dedicated website brings together information on the implementation of the SDGs in the Netherlands[333]. This is a joint initiative involving the Ministry of Foreign Affairs, stakeholders from civil society and business, and the association of municipalities.

The CBS put in place a 'Monitor Sustainable Netherlands' (*Monitor Duurzaam Nederland*) in 2016[334] and the government reports annually on the progress made on the SDGs to Parliament. Since 2018, the SDG monitoring is integrated under the wider Quality of Life Monitor (*Monitor Brede Welvaart*)[335].

The economic, environmental and societal Planning Agencies annually publish an outlook on relevant topics related to the SDGs. The 2018 edition has been dedicated to the Circular Economy Consumer Behaviour and Policy Options[336]. Five major stakeholder groups –business, civil society, knowledge institutions, local governments and youth- are also involved in this report.

The Netherlands submitted a Voluntary National Review on the implementation of the SDGs to the UN in 2017[337].

Sustainability and media attention

NGO's involved in promoting sustainability are drawing a lot of media attention. Examples are Urgenda[338] promoting drastic climate action and the Plastic Soup Foundation[339] calling for action to combat plastics pollution. Every year, the newspaper Trouw compiles the Sustainable 100[340], a list of people who achieved most in terms of creating a more sustainable society. A more recent initiative is a top 100 of young people taking action for increased sustainability[341]. Furthermore, local energy cooperatives[342] set up by citizens are flourishing.

[329] TRAFFIC, website.
[330] EUTWIX, website.
[331] European Sustainable Development Network, Single Country Profile: Netherlands.
[332] Dutch Water Authorities, Blue Deal 2018-2030.
[333] Government of the Netherlands, SDGS.
[334] Government of the Netherlands, Monitor Duurzaam Nederland.
[335] Statistics Netherlands, Monitor Brede Welvaart.
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