Chapter 2. Environmental governance and management

Denmark has a well-functioning environmental governance and management system characterised by high levels of co-operation and consensus. However, there is scope to use existing strengths, such as expertise in socio-economic assessments and a comprehensive risk-based inspection system, to further strengthen policy making and gain a better understanding of non-compliance with environmental rules. This chapter provides an overview of developments in environmental governance and management in Denmark. It describes the institutional and legal framework, use of policy evaluation tools and mechanisms for compliance assurance. Finally, it examines efforts to promote environmental democracy through public participation, environmental information and access to justice.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

2.1. Introduction

Denmark has a well-functioning environmental governance and management system. It benefits from high levels of co-operation and consensus. Particular strengths include an informal system of cross-party political agreements, strong participation of civil society in policy making and high-quality independent advisory bodies. Inter-ministerial co-ordination on environment-related policies at the central level is well established. The country also has a comprehensive risk-based inspection system covering not only large installations, but also small and medium-sized enterprises.

Since a 2007 reform, Denmark's 98 municipalities have been responsible for most aspects of environmental management. To manage the transition, the country implemented a recommendation in the previous OECD Environmental Performance Review (2007) by setting up task forces to help municipalities carry out their new tasks. It also integrated monitoring of national environmental action plans in the National Monitoring and Assessment Programme for the Aquatic and Terrestrial Environment (NOVANA), in line with another recommendation. Finally, it used cost-benefit and cost-effectiveness analysis widely, e.g. based on updated guidelines on socio-economic assessment from 2017.

However, Denmark has not yet made it mandatory to apply the guidelines on socio-economic assessment when making government decisions touching on the environment or in regulatory impact assessment. While its risk-based inspection system is effective, the country does not yet make full use of inspection data to understand non-compliance among companies. Finally, there is a continued need for capacity building as well as guidance on implementation and the use of enforcement measures to help municipalities manage environmental challenges.

This chapter provides an overview of environmental governance and management in Denmark. It describes the institutional and legal framework, use of policy evaluation tools and mechanisms for compliance assurance. Finally, it examines efforts to promote environmental democracy through public participation, environmental information and access to justice.

2.2. Institutional framework

Denmark has a decentralised environmental governance system in which jurisdiction on the environment is shared among the national, local and, to a lesser extent, regional levels. The national level sets the legal framework and provides guidance on implementation. It also develops national plans, programmes and strategies. Local authorities are responsible for municipal and local planning; implementation of policies, plans and programmes; and issuance of most environmental permits and related inspection.

2.2.1. National institutions

The review period saw a number of changes in the distribution of environmental responsibilities at the national level. In 2007, a Ministry of Climate and Energy was established. Previously, climate change had been part of the Ministry of Environment. The rationale for a separate climate ministry was mainly the need to prepare for the 15th Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, held in Copenhagen in December 2009. The merging of the climate and energy portfolios facilitated reform of energy policy to support climate objectives, as evidenced by the ambitious Energy Agreements of 2012 and 2018. In 2015, economic regulation of

waste and water utilities was added to the portfolio, creating the Ministry of Climate, Energy and Utilities (MCEU).

In 2015, the Ministry of Environment and Ministry of Food and Agriculture were merged into the Ministry of Environment and Food (MEF), similar to the UK Department for Environment, Food and Rural Affairs. The rationale was to help balance the sometimes competing interests of the environment and agricultural policy. At the same time, the Ministry of Industry, Business and Financial Affairs (MIBFA) took on responsibility for the Danish Planning Act and national guidelines for spatial planning.

MEF and MCEU share jurisdiction on the waste and water sectors. MEF is responsible for environmental standards related to these sectors, while MCEU oversees their economic regulation, including the setting of rules on charges for the use of water services and waste collection services. The division of responsibilities took effect in 2015 to unite all utility sectors in one ministry and thereby facilitate a focus on improving their efficiency across the economy. In addition, a utility regulator under MCEU was established in July 2018. It oversees the electricity, natural gas and district heating sectors with a view to ensuring efficiency, the lowest possible prices for consumers, stable and secure energy supply, cost-effective technological development and green transition. The Utilities Secretariat in the Competition and Consumer Authority under MIBFA sets price caps and efficiency gain requirements for the water and wastewater sectors.

The Ministry of Transport, Building and Housing is responsible for policies in its portfolio areas. The Ministry of Taxation is responsible for legislation related to taxation and for collecting taxes, while the Ministry of Finance builds Denmark's public sector budget through the yearly Finance Act. It also provides cross-government policy co-ordination, e.g. as the secretariat of the government Economic Committee and as chair of ad hoc inter-ministerial policy committees.

Denmark stands out for its strong performance on inter-ministerial co-ordination. The government Finance Committee must approve all policies with major implications for public finances or the economy, including much environmental policy. The finance minister heads the committee, which is convened weekly. A Co-ordination Committee, headed by the prime minister, discusses environmental initiatives that are considered high priority, have significant foreign policy implications or affect Greenland and the Faroe Islands. It also meets weekly. In both committees, ministers with responsibilities in the environmental domain are invited to join the deliberations when files touch upon their responsibilities. Environmental impact assessments are included in the files when relevant, and revised if committee decisions differ from those proposed in the files so that the government is aware of the impact of its decisions on the environment. However, there is no requirement to follow specific guidelines on conducting environmental assessments.

In 2015, the government set up an EU Implementation Committee. It discusses business-related EU legislation. The aim is to ensure that implementation of EU rules does not put more burdens on Danish companies than EU law requires unless important considerations such as consumer protection justify it. An EU Implementation Council, consisting of experts and representatives from business, labour unions and consumer protection groups, advises the committee.

The Danish Environmental Protection Agency (EPA) is a technical agency in charge of environmental policy implementation, monitoring, permitting and inspections. It includes the Chemical Inspectorate and decentralised units in Slagelse and Aarhus inspecting the most complex and potentially most environmentally harmful companies. The Danish

Nature Agency manages MEF's approximately 200 000 ha of forests and natural areas. Within the agency, the Danish Coastal Authority is responsible for the protection of 7 300 km of coastline. The Danish Maritime Authority supervises and inspects ships sailing under the Danish flag and provides port state control over health, safety and environmental protection.

2.2.2. Subnational institutions

The Constitution guarantees municipalities the right to decide their own affairs under state supervision. The notion of municipal autonomy has continued to shape the role of municipalities. For example, more than 75% of municipal revenue comes from local taxation. While the national level provides a budgetary transfer in the form of a block grant, municipalities decide how it is spent. Equalisation between richer and poorer municipalities partly offsets differences in income levels, contributing to capacity in less affluent municipalities. Municipal budgets are determined in yearly agreements between the government and Local Government Denmark, which represents municipalities. If the government imposes new responsibilities on municipalities, it must compensate them for the cost through a transfer called a DUT payment. Public-private partnerships are not widely used by municipalities, e.g. in providing water and sanitation services.

In 2007, Denmark introduced a reform of its local administrative structure. The number of municipalities was reduced from 271 to 98, and 14 counties were replaced by 5 regions. In the process, most county environmental responsibilities were transferred to either the enlarged municipalities or the national level. Regions inherited limited environmental responsibilities, such as handling raw material extraction and contaminated soils (Box 2.1). In March 2019, the government decided that these responsibilities would be transferred to the national level.

Box 2.1. The 2007 municipal reform and the environment

In 2007, Denmark introduced a wide-ranging reform of the structure of its local authorities. The aim was to form larger, highly competent and financially sustainable municipalities of at least 30 000 inhabitants. The number of municipalities was reduced from 271 to 98, and 14 counties were replaced by 5 regions. The municipal reform saw a transfer of most county environmental responsibilities to the municipal or national level.

New municipal responsibilities after 2007

- Most public administration functions under Danish environmental legislation and citizen-related duties
- Preparation of action plans under the Environmental Objectives Act (protected areas), wastewater management plans, water supply plans and municipal waste management plans
- Maintenance of watercourses to allow free passage of water
- Municipal and local spatial planning

New responsibilities at national level after 2007

- Duties related to Denmark's international obligations, duties of major national

interest or technically complicated tasks

- Preparation of nature plans and River Basin Management Plans (RBMPs)
- Monitoring related to nature and the environment
- National guidelines for spatial planning and planning for the capital region
- Certain administrative functions, e.g. permits and inspections of the largest and potentially most environmentally harmful businesses and facilities, and protection of the coastline

Responsibilities for the new regions after 2007

- Regional development plans
- Mapping, planning and permitting for raw material extraction
- Management of contaminated soil
- Certain duties under the Environmental Objectives Act

Source: (MEAI, 2015[1]).

The 2007 Environmental Performance Review of Denmark recommended setting up capacity-building mechanisms to help municipalities carry out new environmental management tasks. The national level has done this by establishing task forces that provide free assistance to municipalities in environmental planning. They have covered areas such as installation of wind turbines and biogas plants, municipal climate adaptation plans, groundwater protection and permitting of livestock farms. The EPA also issues guidance to municipalities on how to implement environmental legislation. Further such guidance could be strengthened by learning from international best practice, e.g. Switzerland's enforcement aids to cantons.

In March 2013, an evaluation concluded that the municipal reform had succeeded in creating a framework for a more robust public sector. It found that technical expertise and financial sustainability had generally been improved and that political decision making in municipalities had become more strategic. At the same time, the evaluation pointed out that the potential benefits in efficiency gains and quality had not yet been fully reaped (MEAI, 2013[2]).

Concerning the environment, the evaluation recommended more inter-municipal co-operation on nature and water management. It also noted that the reform had divided responsibility for permitting and inspecting the most environmentally complex companies (those covered by the EU Integrated Pollution Prevention and Control [IPPC] Directive) between the municipalities and EPA. However, maintaining the expertise to handle the companies at municipal level was challenging, since half the municipalities had fewer than four such companies in their jurisdiction. Therefore, the evaluation recommended that the government should consider transferring permitting of all companies under the directive, excluding livestock farms, to the national level. Alternatively, as landfills accounted for a substantial share of the companies, it recommended uniting landfill permitting (a municipal responsibility) and inspection (an EPA task) at either the national or municipal level, to avoid inconsistency. Similarly, the evaluation recommended unifying planning and permitting of raw material extraction at either the regional or municipal level.

In June 2013, all parties in the Danish Parliament reached a political agreement on adjustments to the structural reform. These included decisions to transfer landfill permitting from the municipal to the national level and permitting of raw material extraction from the municipal to the regional level, the aim being to improve technical capacity and efficiency. However, they decided not to transfer to the national level permitting and inspection of all non-livestock companies covered by the Industrial Emissions Directive, which had since replaced the IPCC directive. Municipalities continue to be responsible for some types of these companies, e.g. in the area of waste management, under Statutory Order No 1517 of 07/12/2016 on environmental permits.

To address the recommendation on more inter-municipal co-operation in water and nature management, a joint working group between the national level and Local Government Denmark was formed to support municipalities in this area. The introduction of river basin management has since improved cross-municipal co-operation on water management. In addition, a major initiative on wetlands launched by MEF in 2010 led to grouping of municipalities at the catchment level to ensure cohesion in decision making. Denmark should expand the use of task forces to build municipal capacity in environmental management areas where it faces challenges, such as waste prevention (Chapter 4).

2.3. Legal framework

Denmark is a parliamentary democracy characterised by proportional representation, minority governments and a high level of cross-party co-operation. To enhance political stability and policy continuity, governments often seek to form political agreements with parties outside government on key policies (Box 2.2).

Box 2.2. Cross-party political agreements

Since the early 20th century, political parties in the Danish Parliament have used written political agreements as a legally non-binding tool outside the normal legislative process. Parties that enter into a political agreement commit themselves to support the legislation necessary to implement it. This is a way for minority governments to be sure that a parliamentary majority supports its legislative proposals before it presents them to Parliament. More importantly, parties use political agreements to "bind" each other to decisions that may prove unpopular (e.g. structural reform) or for which long-term continuity is key (e.g. incentives for companies to invest in renewables).

Governments often publish plans, strategies or proposals as a starting point for negotiations on political agreements. For example, the government's energy proposal of April 2018, "Energy for a Green Denmark", was followed by negotiations leading in June 2018 to a political agreement by all parties in Parliament. Political agreements in the environmental area also cover areas including the Danish climate law, spatial planning, nature policy, circular economy, regulation of the waste management sector, chemical management, pesticide management, targeted nitrogen regulation, and phosphorous regulation of livestock farms.

Source: (Christiansen, 2008[3]).

Denmark led the 2012 OECD Environmental Policy Stringency Index, which measured the policy-induced cost of pollution by firms across a range of sectors and policy instruments

(OECD, 2016[4]). Perceived policy stringency has been shown to be a key factor in bringing about improved environmental performance in companies (OECD, 2007[5]).

The Environmental Protection Act, last amended in 2017, is the central piece of legislation on prevention and management of pollution in Denmark. It sets general quality requirements for air, water, waste, soil (above and below ground) and noise. The act sets out fundamental environmental protection objectives and the means by which they are to be met. It is a framework act, supplemented by guidelines and statutory orders issued by MEF.

The Environmental Objectives Act, last amended in 2016, governs protected areas, including the management of Natura 2000 areas. Under the act, the environment minister designates internationally protected areas and prepares a plan for each Natura 2000 area. Municipalities are charged with preparing action plans for each area to implement the national plans locally.

The Soil Contamination Act, last amended in 2016, charges the regions with mapping and managing contaminated soil. It partly transposes the EU directives on environmental liability and industrial emissions. The Environmental Damage Act, last amended in 2017, is the main legislation transposing the Environmental Liability Directive. It applies the polluter-pays principle by establishing that the responsible party must bear the costs associated with preventing or remedying ecological damage.

Denmark has a good record on the speed and quality of transposition of EU environmental legislation. There have been few complaints and infringement cases (Table 2.1). Denmark is also highly active at the EU level on many environmental files. One example is the updating of EU legislation on the registration, evaluation, authorisation and restriction of chemicals (REACH), which entered into force in 2007 (Chapter 5).

Table 2.1. Infringements of EU legislation

Directive	Concern	Decision type	Decision data
Environmental Liability Directive 2004/35/CE	Transposition in Danish legislation	Formal notice	2016
Ambient Air Quality Directive 2008/50/EC	Breach of compliance with NO_2 limit values	Formal notice	2016

Source: European Commission (infringement decisions against Denmark as of December 2018).

The review period has seen important changes to Danish environmental legislation. The 2014 Climate Act, for example, established an independent Climate Council to advise the government on matters such as how to achieve climate targets cost-effectively. The government must respond to the council's recommendations in a yearly climate report to Parliament. The law requires the government to set national greenhouse gas (GHG) reduction targets at least every five years with a ten-year time frame.

In 2013, Parliament adopted a revised Water Planning Act, transposing the EU Water Framework Directive (WFD) and establishing the legal framework for river basin management. It provides for active involvement of civil society in the drafting of RBMPs through municipally managed water councils comprising representatives from environment and agriculture groups. To facilitate their work, the government informs them of the cost-effectiveness of measures that could be implemented in the watershed.

In 2015, Parliament adopted the Food and Agriculture Package. Consequently, changes have been made to the Fertiliser Act and Animal Husbandry Act to boost food production

while respecting environmental legislation by applying a more targeted approach to nutrient pollution mitigation efforts.

2.3.1. Direct environmental regulation

Over the years, Denmark has made extensive use of pricing instruments, such as taxes and charges, and financial support instruments to manage environmental issues (Chapter 3). Nevertheless, direct environmental regulation is still the main approach used for environmental policy instruments.

While the ultimate goal of such regulation is to improve environmental quality (e.g. urban air quality), it may not be practical to ascribe such a result to a single policy intervention. In such cases, direct regulation can be defined in terms of outcome (e.g. vehicle emission standards) or design (e.g. use of a particular technology, such as particle filters). Its effectiveness can thus be measured in terms of result, outcome or design.

Introducing flexibility in direct environmental regulation can help reduce compliance costs, particularly regarding how to reduce emissions, for example when a design-based standard requiring the use of a specific abatement technology is replaced by an outcome-based standard that sets pollutant emission limits (OECD, 2018[6]). This allows companies to abate or reduce emissions at the source and by whatever means is convenient; they can select a process in their plant for abatement and also compensate emissions with reductions at other sources.

Denmark increasingly favours outcome-based over design-based direct regulation to give producers more flexibility on how to comply. Regulation of excess nutrients from farms is a good example. In 2015, Denmark decided to replace a requirement to establish buffer zones without fertilisers, crops or pesticides along certain streams and lakes with a more targeted regulation giving farmers flexibility on the choice of abatement measures (Box 2.3). Similarly, environmental permits for livestock farms require the use of best available techniques, expressed as an outcome level of emissions from farms to the environment. Farmers are free to choose among available techniques or technologies.

Box 2.3. Targeting nitrogen regulation improves cost-effectiveness

Excess nitrogen from agriculture is a main source of pressure on water quality in Denmark's coastal waters and fjords. Uniform regulation, such as farm-level nitrogen quotas, has helped reduce the excess. However, since water pollution risk varies widely across the country, this has been suboptimal from both an environmental and a cost-effectiveness perspective. To improve water quality in a more targeted (i.e. risk-based) way, Denmark is implementing a new policy. For each of its 90 river sub-basins, it has estimated how much excess agricultural nitrogen must decrease for coastal waters to attain good status under the WFD. In parallel, it has estimated the amount of nitrogen retained in soil on the way from farms to coastal waters, based on 3 000 units.

By combining the required reduction in each sub-basin with retention rates in soil, Denmark determines the effort that must be made in each of the 3 000 units. Efforts to reduce excess agricultural nitrogen are thus differentiated according to the risk of water pollution (the extent to which each coastal water needs protection) and cost-effectiveness (where abatement measures are most effective). Public financial support is available on request. It is combined with an uncompensated direct regulation backstop mechanism if

voluntary participation is insufficient to achieve the required reduction. To ensure cost-effectiveness at farm level, farmers can freely choose among abatement measures whose effect has been documented by Danish universities.

An international expert panel found that Denmark had achieved the highest possible standard of WFD implementation with respect to methodology and determination of required actions (MEF, 2017[7]).

2.3.2. Land-use planning

The Spatial Planning Act, last amended in 2018, provides a national framework for spatial planning that seeks to balance the need for environmental protection with economic development and growth. Municipalities are responsible for translating national guidelines into concrete spatial planning (Figure 2.1). To this end, they issue municipal plans every four years with a 12-year time frame. Local plans are the most detailed level of spatial planning. They establish rules on how land can be used and developed (OECD, 2017[8]). MIBFA can reject municipal plans that do not adequately take national guidelines into account. Municipal plans must address climate adaptation needs and reflect the Green Map of Denmark (Box 2.4). A 2017 reform of the act gave municipalities more flexibility to promote growth and development with continued respect for nature and environment. One example is more flexible building opportunities in rural and coastal areas.

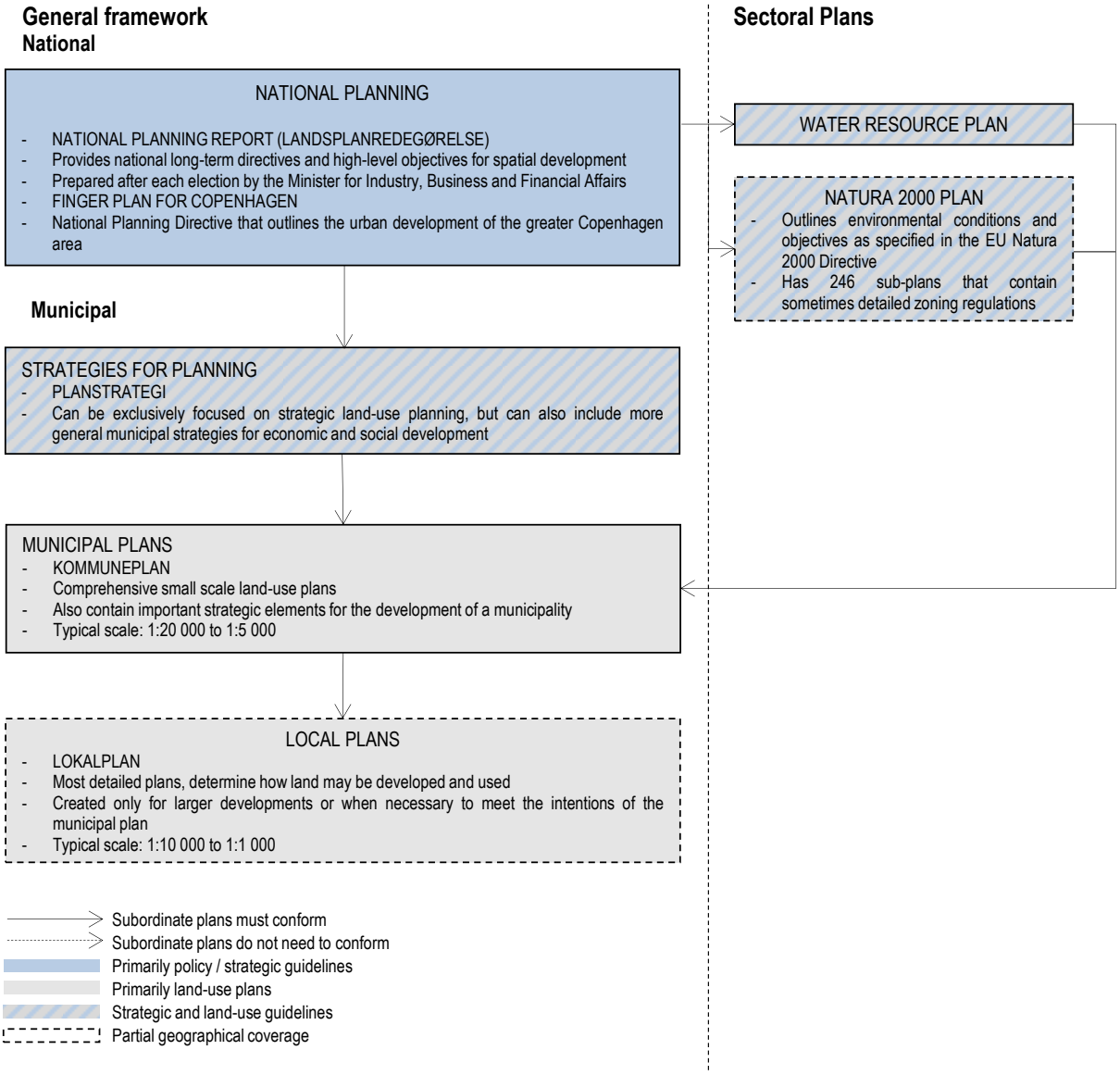
Box 2.4. Green Map of Denmark

Amendments to the Spatial Planning Act in 2015 and 2017 introduced requirements for municipalities to plan and designate existing and potential natural areas and wildlife corridors, including existing Natura 2000 sites, on the Green Map of Denmark. The aim of the map is to improve biodiversity by reinforcing efforts to establish larger and more interconnected natural areas and ensure coherence between designations in neighbouring municipalities. The map shows not only existing nature but also where there is a potential to create larger natural areas, such as forests and heaths. The map is continuously developed and expanded as municipalities review their municipal plans every four years.

The Nature Map, a planning tool developed by the EPA and MEF, is available to municipalities to support their work on designating nature areas for the Green Map. It includes an overview of where endangered species are found and where efforts can be targeted, and provides information on important high nature value habitats and potential forest habitats.

Source: (MEF, 2014[9]).

Figure 2.1. Land-use planning framework



Source: Adapted from (OECD, 2017[8]).

Farmland takes up more than 60% of the country's surface area. Farming puts pressure on the environment, especially on peatland (drained peatland is a net source of GHGs) or close to sensitive natural areas and water bodies. Since 1990, land consolidation and land banking have proved essential to improve both agricultural productivity (through structural adjustment) and nature conservation (by offsetting nature conservation land with agricultural land) (Hartvigsen, 2014[10]). However, public funding for land redistribution has been significantly reduced since the discontinuation of the structural adjustment policy in 2006. In 2018, a Multifunctional Land Redistribution Fund (MLRF) was established with a budget of EUR 33 million. In February 2019, Denmark's two main environmental and agricultural interest groups jointly recommended raising it by at least EUR 130 million (Danish Society for Nature Conservation and Danish Agriculture & Food Council, 2019[11]). The aim is to be able to seize opportunities to buy land where farming has a

significant environmental impact, such as peatland and soil close to ammonia-sensitive nature areas or drinking water boreholes, and resell it for conversion to natural areas or grassland as well as to support rural development and access to landscapes and nature.

Conversion of peatland could reduce agricultural GHG emissions by some 15% through carbon sequestration (Dubgaard and Ståhl, 2018[12]). However, EU policies limit the potential. Farmers lose income support under the Common Agricultural Policy when agricultural peatland is converted to nature areas. In addition, the EU 2030 climate and energy framework caps how much member states can use carbon sequestration to meet reduction targets for sectors not included in the EU Emissions Trading System. Scaling up conversion of peatland would support Denmark's ambition to become carbon neutral by 2050. It would also deliver co-benefits for biodiversity, water and air quality, and climate adaptation. However, the merit of scaling up public funding of the MLRF with respect to expected environmental policy benefits requires cost-effectiveness analysis.

In addition to budgetary resources, private funds could be mobilised to finance the MLRF. Denmark has shown leadership in this area through the Climate Investment Fund. Recent OECD work illustrates the range of interventions public actors can use to attract institutional investment in low-carbon infrastructure, which could include the land purchase envisaged by the MLRF (Röttgers, Tandon and Kaminker, 2018[13]).

2.4. Policy evaluation framework

The EU Strategic Environmental Assessment (SEA) Directive was transposed into Danish law in 2004. The resulting Environmental Assessment Act, last amended in 2016, requires ministries to conduct SEAs of plans and programmes that may significantly affect the environment. Examples of SEAs conducted in the review period include a SEA of changes to the regulation of fertiliser use by farmers in the Food and Agriculture Package and a SEA of the choice of location of marine wind turbines following the 2012 Energy Agreement. The system of political agreements means a SEA is sometimes performed after a political decision is made, in which case implementation can be conditional on the SEA showing compatibility with legal constraints, e.g. EU environmental law.

Important government plans and programmes typically rely on extensive prior assessment of the costs and benefits of targets or the cost-effectiveness of measures. Since many environmental targets in Denmark are set at EU level rather than nationally, cost-effectiveness assessments are more widely used than cost-benefit analysis. Nevertheless, MEF and other ministries have increased their efforts on cost-benefit analysis. In 2017, the Ministry of Finance published a revised set of guidelines on socio-economic assessment of the costs and benefits of major initiatives (MF, 2017[14]). The value of statistical life was increased from DKK 18 million (EUR 2.4 million) to DKK 31 million (EUR 4.2 million), making the benefits of air pollution measures, for instance, more likely to outweigh the costs. A recent example of a cost-benefit analysis is the government proposal to tighten restrictions on vehicles in green zones in the largest cities, which was included in the 2018 Climate and Air Pollution Proposal and approved later that year.

In 2014, MEF tasked academics with preparing an *ex ante* cost-effectiveness analysis of possible measures in RBMPs for 2015-21 (DCA, 2014[15]). An inter-ministerial working group produced a similar analysis of possible GHG mitigation measures in 2013 (MEUC, 2013[16]), and potential GHG mitigation measures in the agricultural sector underwent analysis in 2018. Cost-effectiveness analysis was also performed in preparation of the 2013

national waste plan and in 2013 and 2014 on implementation of the EU National Emission Ceilings Directive.

In addition to effects within its borders, when conducting cost-benefit analysis of environmental policies Denmark should consider separately quantifying effects elsewhere, e.g. health benefits in neighbouring countries resulting from Danish air pollution measures. Quantifying effects in and outside Denmark separately would give politicians the information needed to evaluate policy options on a national or international basis, as they choose (OECD, 2018[17]). More generally, making use of the guidelines on socio-economic assessment mandatory for government decisions with a significant environmental impact could further strengthen policy making. However, the consequences for government decision-making processes should be assessed before such a change is implemented.

Primary legislation (laws) must contain a regulatory impact assessment (RIA) covering the environment. The RIA must also assess economic and administrative burdens for companies and public authorities, and administrative burdens for citizens (PMO, 1998[18]). RIAs included in draft primary laws are released for consultation by the public before the bills are debated in Parliament, in line with OECD best practice (OECD, 2017[19]). However, Danish RIAs usually do not include comparison with alternative policy options, unlike European Commission RIAs, for example. They are typically less comprehensive than a full cost-benefit or cost-effectiveness analysis. Hence they could also benefit from mandatory use of the guidelines on socio-economic assessment. Finally, Denmark has one of the OECD's largest gaps between the levels of impact assessment of primary legislation and of subordinate regulations (statutory orders). This may be because many statutory orders in Denmark are merely decrees of application of the primary law. In such cases, it may not be relevant to conduct an additional RIA (OECD, 2018[20]).

Denmark conducts *ex post* evaluation of important policies, plans, programmes and political agreements. For example, an evaluation of the pesticide tax and reduction target was made public in 2018 (EPA, 2018[21]). Energy taxes and support under the 2012 Energy Agreement were also subject to extensive *ex post* evaluation. The findings fed into preparation of the 2018 Energy Agreement and led, for example, to a commitment to lower the electricity tax. The 2007 Environmental Performance Review recommended prioritising monitoring of national environmental action plans. This is now included in NOVANA.

An independent body, Rigsrevisionen, audits public spending on behalf of the Danish Parliament. It audits government accounts and financial statements of publicly funded enterprises, and verifies the legality and efficient use of public funds. It also conducts in-depth studies of specific policy areas. Parliament may request a statement by the responsible minister on specific reports. The statement is then evaluated by Rigsrevisionen, which sends the evaluation to Parliament for review, thus ensuring follow-up and political accountability.

Following a 2014 Rigsrevisionen report, Parliament's Public Accounts Committee criticised the former Ministry of Environment for its management of the first RBMPs (2009-15). These were subject to delays and dissatisfaction concerning stakeholder involvement. Scrutinising the management of the second RBMPs (2015-21), Rigsrevisionen found that the ministry had followed its recommendations and proposed closing the case (Rigsrevisionen, 2018[22]).

Independent advisory bodies such as the Environmental Economic Council and the Climate Council are also mandated to evaluate public policies *ex post* and to make *ex ante*

recommendations with a strong focus on improving cost-effectiveness. The Environmental Economic Council was formed in 2007 to supplement the Economic Council. The two councils share the same four-person presidency of renowned economists, usually from the academic world. They prepare one report per year on policy issues at the interface of economics and the environment. The Environmental Economic Council, which consists of the presidency and a wide range of public sector and civil society representatives, meets to discuss and comment on the report.

The Climate Council established by the 2014 Climate Act is an expert group charged with evaluating compliance with climate targets, analysing pathways for Denmark to become a low emission country by 2050, issuing recommendations on climate policy and mitigation measures, and contributing to the public debate.

2.4.1. Environmental impact assessment and permitting

Under the Environmental Impact Assessment (EIA) Act, last amended in 2017, EIA must be carried out on building and construction projects before the contractor is granted permission to begin the project. EIA is integrated into the permitting process.

In 2015, the Environmental Protection Act and the Spatial Planning Act were amended to reduce processing times for environmental permits and ease the administrative burden for companies and authorities, while at the same time maintaining the stringency of environmental law. The amendments followed 2014 political agreements on a Growth Plan for Food and a Growth Package. The purpose of the latter was to reduce the time it takes the central government to process files for environmental approvals by 20% and municipal processing time by 33%. The government estimated that, from 2017, the time savings would represent an annual administrative gain of DKK 4.3 million (EUR 0.6 million) for industry and lead to an increase in turnover of DKK 61 million (EUR 8.2 million) per year due to enterprises starting new production more quickly.

The Order on Environmental Permitting, last amended in 2018, covers some 4 400 companies. They must apply for an environmental permit before starting production or significantly changing or expanding their activities. Livestock farms are covered by a separate Order on Livestock Environmental Permitting. It takes into account risks regarding excess nutrients to groundwater, lakes and coastal waters and the adverse impact of ammonia emissions on protected areas, among other matters.

2.5. Compliance assurance

2.5.1. Environmental inspections

Municipalities conduct most environmental inspections, using EPA guidelines. The EPA inspects the most complex companies with the most serious potential impact on the environment. These include energy plants, metal and mineral producers and processors, the chemical industry, shredder waste managers, landfills, hazardous waste managers, and incinerators (Statutory Order No. 1317 of 20/11/2018 on Environmental Permits). The EPA and municipalities jointly oversee imports of waste for treatment.

The approximately 700 municipal inspectors in Denmark's 98 municipalities conducted around 17 000 environmental inspections in 2017. Municipal inspectors are not accredited, but employed on the basis of their educational background and professional experience and trained through Local Government Denmark. MEF supports municipalities in their inspection and licensing tasks through its Project Digital Business, and organises briefings

on EU reference documents on best available techniques. Some 50 EPA employees are responsible for permitting and inspection of 300 industrial sites covered by the Industrial Emissions Directive and about 30 sites covered by the Seveso Directive. They conduct 250 to 300 inspections per year.

In 2010, MEF launched its second enterprise committee, whose work resulted in recommendations regarding simplification and updating of the corporate environmental regulatory system. The recommendations led to reorganisation of environmental inspections. Denmark now takes a risk-based approach to environmental inspection, in line with the Industrial Emissions Directive.

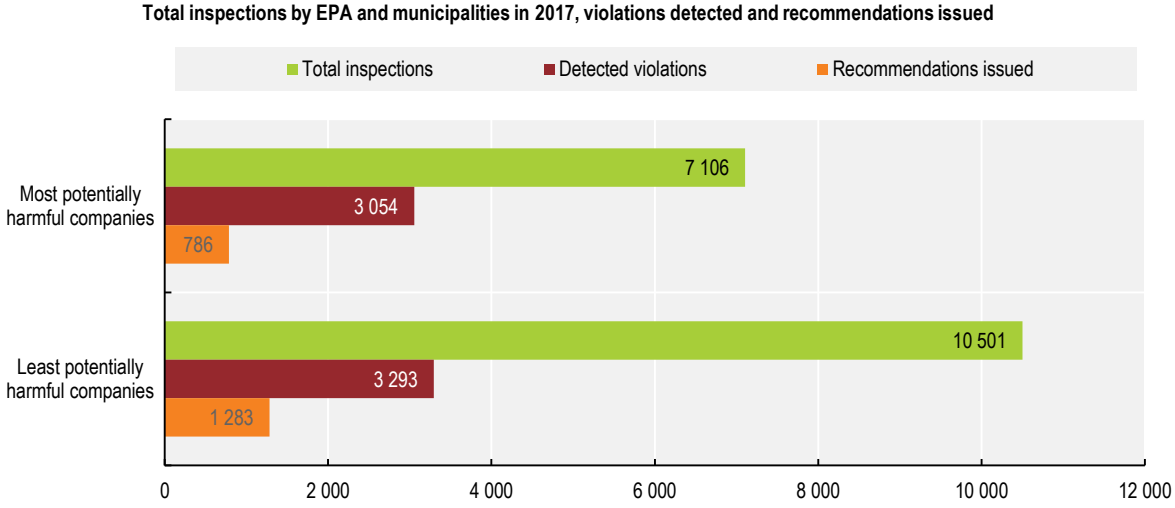
It assigns a risk score to companies based on five parameters with differing weights: use of environmental management systems (20%), previous rule compliance (30%), storage of chemicals or other hazardous substances (16.5%), emissions to air, soil or water (16.5%) and proximity to environmentally sensitive areas (17%). The potentially most environmentally harmful companies are inspected at least every three years, as the directive requires, while the least potentially harmful are inspected at least every six years. In both cases, the frequency of inspection is increased if the companies' risk score justifies it (Statutory Order No. 1476 of 12/12/2017 on Environmental Inspections). Applying a risk-based inspections system to even the least potentially harmful companies is good practice.

In 2018, an external evaluation concluded that the risk score was generally effective but that certain aspects could be improved. Among its recommendations were differentiating between minor and major violations of rules when assessing the rule compliance parameter (Ramboll, 2018[23]).

Until 2016, each municipality produced a yearly report on its environmental inspections, but these data were not systematically compiled at the national level. In 2016, Denmark introduced a central database collecting data from all inspections. This is a positive step, as it gives an overview of the total number of inspections and violations. In 2017, out of 7 106 inspections of the most potentially environmentally harmful companies, 3 054 violations were detected (Figure 2.2). Among 10 501 inspections of the least potentially harmful companies, 3 293 violations were detected. The share of companies violating environmental rules is not known, as several violations may be found in a single inspection.

The numbers suggest that the Danish inspection system is effective. The risk-based approach helps authorities identify companies likely to breach environmental rules. The results also show that the companies posing the biggest potential risk to the environment are subject to the most compliance promotion and enforcement measures. Denmark is starting to use the database more strategically to improve its inspections efforts. From 2020, it plans to target guidance to industries where inspection data point to a need for special efforts to bring down the number of violations. Making fuller use of the database should help Denmark gain a better understanding of non-compliance among companies and inform policy making.

Figure 2.2. The inspection system is effective in finding violations, but the share of companies violating environmental rules is unknown



Note: The Danish EPA has communicated that even minor infractions, such as failing to register a required environmental improvement even though it has in fact been implemented, is considered a violation under the current inspection system. The fact that a recommendation has been issued does not mean that the company has violated environmental rules. It is rather a preventive measure intended to avoid future violations and/or improve environmental management.
Source: Country submission.

StatLink http://dx.doi.org/10.1787/888934002015

Denmark is introducing innovative techniques to support inspections. For example, in relation to sulphur pollution from ships leaving the Baltic Sea through Danish waters, it has started using sensors to single out ships for inspection (Box 2.5)

Box 2.5. Monitoring sulphur pollution from ships crossing Danish waters

To determine vessel compliance with international sulphur regulations, as outlined by the International Maritime Organization in MARPOL Convention Annex VI, Denmark runs controls on ships passing through its waters. The authorities monitor emissions from ship funnels using a sniffer installed on a helicopter or drone (a plane was formerly used), as well as one on the Great Belt Bridge. In 2017, between July and December alone, 404 ships were checked and a substantially elevated sulphur content was found in 22 of them (5.4%). This was the first time that micro-sensor technology, in the form of a mini sniffer system, was officially used.

If too much sulphur is detected, the Danish Maritime Authority is informed and the ship is further checked at a Danish port, as oil samples are required as proof. Since 2015, 21 companies have been reported to the authorities, and 7 have been fined thus far. For ships heading to non-Danish ports, the EPA notifies the relevant authorities that there may be grounds for monitoring. It shares monitoring information with other EU countries via the THETIS port state control database, allowing EU and national authorities to act on the information. To strengthen enforcement of the sulphur regulations, in October 2018 the Danish environment minister presented a legislative proposal to Parliament that would allow the EPA to publicly "name and shame" non-complying companies.

Aarhus University estimated that the stricter regulation more than halved the sulphur content of the air over Denmark. Two subsequent reports concluded that some 95% of ships now respect the sulphur limits. Given that all ships entering or leaving the Baltic Sea need to pass through Danish waters, this monitoring, if supported by action by other countries in the region (e.g. in response to Danish authorities' notifications), can be considered a best practice contributing to the improvement of air quality in the region.

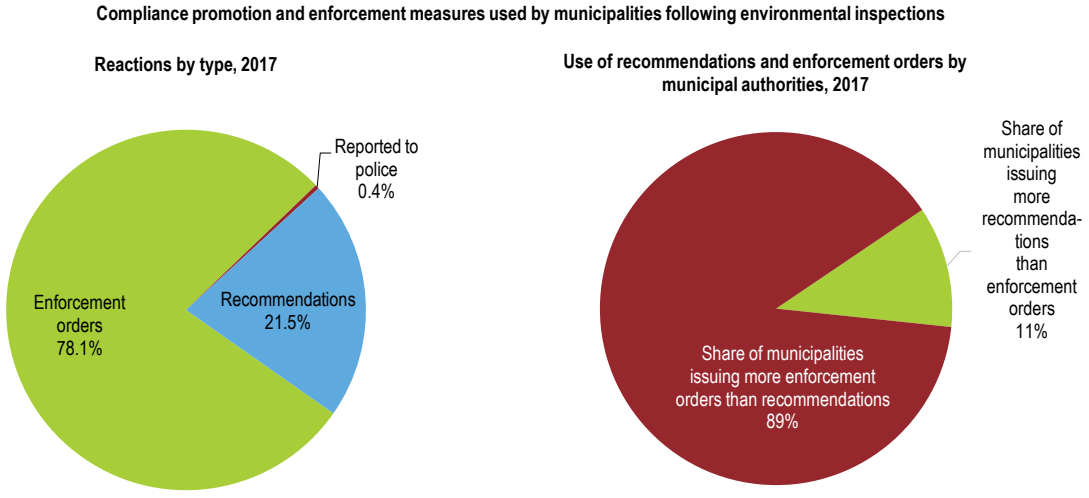
Source: (Explicit ApS, 2018[24]), (EPA, 2017[25]), (ITF, 2016[26]), (MEF, 2017[7]).

2.5.2. Enforcement and environmental liability

Danish authorities have three categories of compliance promotion and enforcement measures at their disposal: reporting companies to the police, issuing enforcement orders prescribing corrective actions and issuing non-binding recommendations. If authorities detect violations during an inspection, they must issue an enforcement order. In the most severe cases, they report companies to the police. However, this occurred in just 30 cases out of some 17 600 inspections in 2017. As a preventive measure, authorities may issue recommendations to help companies improve environmental management and avoid future violations. These can take the form of non-binding agreements on specific improvements.

Guidance documents on compliance promotion and enforcement measures have existed since 2005 (EPA, 2005[27]), but in practice, municipalities vary widely in their use of the measures. In 2017, recommendations made up 21.5% of reactions recorded following inspections of the potentially most environmentally harmful companies (Figure 2.3). However, 11% of municipalities opted for a more instructive (less punitive) approach by choosing to use recommendations more often than enforcement orders. Eight of these municipalities issued recommendations five times more often than enforcement orders.

Figure 2.3. Municipalities enforce environmental rules differently



Note: Data refer to inspections carried out by municipalities in the most potentially harmful companies.
Source: Country submission.

Different types of industries are not evenly distributed across the country. Since different industries give rise to different kinds of environmental issues, applying compliance promotion and enforcement measures to the exact same degree across municipalities should

not be an aim in itself. However, the same types of companies should experience uniform treatment irrespective of the municipality they are based in. To thus level the playing field for companies, national authorities should ensure that municipalities promote compliance with environmental rules and enforce them in a comparable manner, while respecting municipal autonomy and taking differences in the regional distribution of industries into account (Mazur, 2011[28]).

In 2017, MEF launched a new enforcement strategy for its agencies, including the EPA (MEF, 2017[29]). It includes scaling up guidance efforts and ensuring transparent and uniform treatment of companies. The results of this strategy should be used to provide municipalities with additional, evidence-based criteria for identifying appropriate compliance promotion and enforcement measures. In addition, the EPA could illustrate its guidance documents with examples from actual cases in municipalities.

Section 196 of the Danish Penal Code makes it a crime to pollute air, water, soil or the underground to such an extent that the pollution causes significant damage or immediate danger of damage to the environment. It is also a crime to store or remove waste or similar substances where it causes significant damage or immediate danger of damage to the environment. Violations of environmental law of a systematic or organised nature are also considered crimes.

The most severe penalty for an environmental crime given during the review period was in a case decided by the Danish High Court in 2017. Two men were sentenced, one to three years in prison and the other to three years and nine months, for crimes including disposal of waste in a forest in violation of paragraph 196 of the Criminal Code. However, criminal liability is reserved for the most serious breaches of environmental law. In less serious cases, Denmark applies the polluter-pays principle, requiring the polluter to bear the cost of remedying the environmental damage.

Denmark transposed the EU Environmental Liability Directive in 2008 and has published a comprehensive guidance document on its application. It has not yet experienced any cases of environmental damage to which the directive applied. In 2016, the European Commission launched an investigation into whether Danish legislation was compatible with the directive.

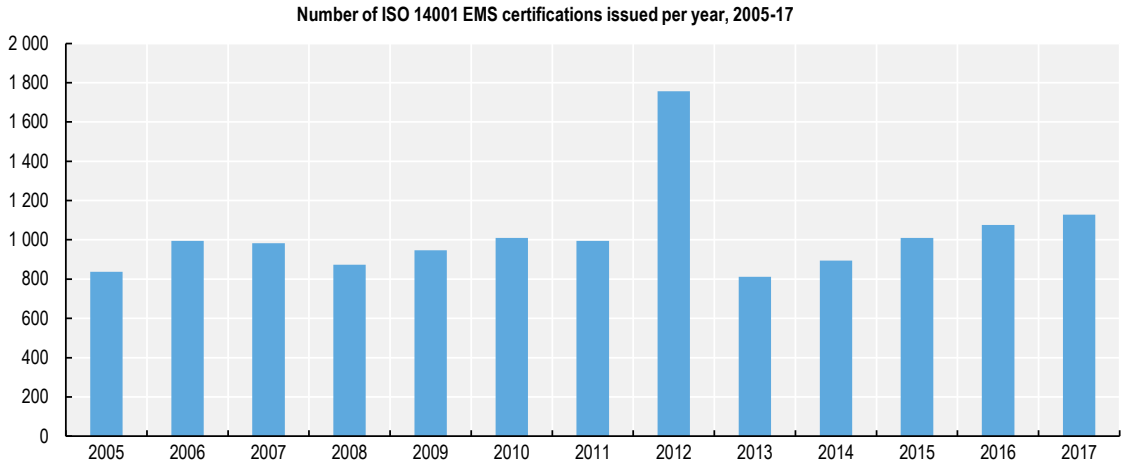
The context of violations of environmental rules differs between the most and least potentially harmful companies. Increasingly, the least potentially harmful companies are not required to have environmental permits but must comply with general rules. To promote their compliance, information measures in line with the inspection strategy might be useful.

The most potentially harmful companies must have environmental permits, which give detailed guidance on how each company is to comply with environmental legislation. Nevertheless, more violations are found among these companies than among those without permits. This suggests that lack of guidance is not the underlying issue. Making fuller use of the database on inspections would help shed light on reasons for non-compliance.

2.5.3. Promotion of compliance and green practices (certification)

The number of Danish companies adopting the ISO 14001 environmental management system was between 800 and 1 000 for most years in the review period (Figure 2.4). After a sharp peak in 2012, from 2013 to 2017 the yearly number increased gradually to reach its second highest level in 2017. An explanation for the fluctuation may be the impact of public support programmes that have promoted uptake of environmental management systems.

Figure 2.4. Enterprises adopting environmental management systems peaked in 2012



Source: ISO (2018), *ISO Survey 2017*.

StatLink http://dx.doi.org/10.1787/888934002034

Denmark does not have an Environmental Code but is attempting to make compliance with environmental legislation easier. To this end, a simplification exercise is being undertaken to reduce the number of regulations related to the environment and food production. It is intended to be a technical legal reorganisation exercise that will not alter existing environmental protection. The aim is to improve legal certainty for citizens and companies by consolidating the relevant legislation and organising it more logically, which will also ease the administrative burden for public authorities.

As a first step, MEF reorganised and merged statutory orders and annulled orders that were no longer applicable. When that exercise was finished in 2016, the number of orders had been reduced by a third without changing the legal stringency of environmental protection. As a second step, a panel of legal experts in the environmental field, chaired by the ombudsman's office of the Danish Parliament, were tasked with proposing a new structure for laws covering the environment and food production. The panel published its recommendations in December 2017 under the title "The Law Compass". It recommended a simplified and modernised legal structure that would reduce the number of laws from 95 to 43 without changing the level of environmental protection (Law Compass Expert Panel, 2017[30]). Initial steps to follow up on these recommendations have been taken, such as repeal of obsolete rules on agriculture. Denmark should further pursue such efforts in order to promote compliance and enforcement.

2.5.4. Voluntary agreements

Governments sometimes use voluntary agreements with business as an alternative or supplement to other policy instruments (e.g. direct environmental regulation, taxes, tradable emission permits), as they are thought by some to be more flexible, efficient or consensus-based. However, if voluntary agreements are not backed by a credible threat of more restrictive action should targets not be met, they risk adding little value while incurring administrative costs for both authorities and companies (OECD, 2003[31]).

Denmark's use of agreements and formalised partnerships between the public and private sectors on the environment reflects a tradition of civil-society involvement in policy

making. Such arrangements also help create consensus and continuity on environmental policies, a preference reflected in the system of informal cross-party political agreements as well. When voluntary agreements include quantitative targets, they are backed by explicit threats of regulatory action (Table 2.2).

Table 2.2. Voluntary agreements with quantitative targets are backed by threats of regulation

Voluntary agreements between government and industry concluded between 2005 and 2018

Name of agreement	Years active	Sector	Quantitative target	Explicit threat
Partnership on precision spraying	2017-21	Agriculture and natural resources	No	No
Partnership on green shipping	2016-	Transport	No	No
Agreement on electrical and electronic waste	2014-16	Waste	No	Yes
Agreements regarding aquatic environment	2009-21	Water	Yes	Yes
Partnership on green public purchasing	2006-	Multiple	No	No
Agreements on Energy Savings Obligations	2006-20	Energy	Yes	Yes

Source: Country submission.

2.6. Promoting environmental democracy

2.6.1. Public participation

Denmark provides for excellent public participation in environmental matters, according to the European Commission (EC, 2017[32]). Across policy areas, the OECD regulatory policy and governance indicator shows Denmark to be slightly above the OECD average in terms of stakeholder engagement in development of legislation (OECD, 2017[19]). Stakeholder engagement is more comprehensive in primary legislation (laws) than in subordinate regulations (statutory orders). This follows the same pattern as EIA, possibly because some statutory orders are simply application decrees of primary laws.

The government aims to have four weeks of public consultation on both primary laws and statutory orders, although it is not a legal requirement. The aim is generally respected on primary laws and, when practical, on statutory orders.

2.6.2. Access to environmental information

The Environmental Information Act, last amended in 2017, constitutes Denmark's implementation of the EU Directive on Public Access to Environmental Information, which in turn implements part of the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the Aarhus Convention). Access to environmental information, to which the act applies, is broader in scope than access to other types of information, which is covered by the Open Administration Act. The definition of environmental information covers the state of the environment; elements such as substances, energy, noise, radiation, waste, emissions and leaks that cause or may cause pollution; policies, legislation, plans, programmes and agreements affecting the environment; reports on implementation of environmental legislation; economic analyses on environmental policy measures; and human health and safety, including the effects of pollution (Statutory Order No. 980 of 16/08/2017). The time in which authorities must handle requests for information ranges between one to two and forty workdays, depending on the complexity of the request.

The Open Administration Act requires national, regional and local authorities to communicate actively about their activities on their websites. Every four years, MEF issues an Environmental Status Report on Denmark's nature and the environment. The latest such report was issued in 2015. In November 2018, Danish authorities said they expected the next Environmental Status Report to be published in 2019.

NOVANA makes national monitoring data available to the public on environmental impacts, status and trends with regard to nature and the environment. Aarhus University publishes a yearly summary of these technical documents as a more accessible supplement.

2.6.3. Access to justice

For most of the review period, the Environment and Nature Appeal Board was an independent authority examining appeals against administrative decisions on environment, nature and spatial planning. On 1 February 2017, the board's responsibilities were split between a new Environment and Food Appeal Board for environment and nature and a separate body for spatial planning appeals. The structure mirrors the division of responsibilities between MEF and MIBFA. An Energy Appeal Board also exists.

The Environment and Food Appeal Board is now the top administrative appellate body for decisions made under MEF. Its membership consists of a president, judges nominated by courts, experts nominated by relevant non-government organisations and business associations; and lay members nominated by Parliament. The composition of the panel examining a given appeal depends on the nature of the appeal, but the president and judges are members of all panels. The president may decide on behalf of the board in cases that do not raise questions of major importance or precedence. A plaintiff unsatisfied with a board decision may appeal it through the regular court system.

In an effort to provide speedier access to justice for citizens, the average number of days taken for board decisions was reduced from 369 in 2011 to 182 in 2015 (Figure 2.3). In 2016, the progress was partly reversed because of adjustments related to relocation of the board from Copenhagen to Viborg.

Table 2.3. Access to justice by the Environment and Nature Appeal Board was expedited

Average number of days to rule on citizen complaints about authorities' decisions, 2011-16

	2011	2012	2013	2014	2015	2016	2011-16 average
Average number of days to decide on a complaint	369	333	392	190	182	232	283

Source: Environment and Nature Appeal Board reports for 2016, 2014, 2012 and 2011.

An ombudsman's office was established in 1955 as an independent legal institution under Parliament to which citizens can file complaints against decisions by public authorities. The ombudsman is elected by Parliament and must be a law graduate. The ombudsman may proffer criticism and recommend that authorities reopen cases and consider changing their decisions. Although the ombudsman cannot make decisions as such, public authorities generally act on the office's recommendations. The ombudsman has issued opinions on authorities' application of the Environmental Information Act, sometimes recommending expansion of its application in specific cases.

2.6.4. Environmental education

Danish authorities use information campaigns to raise public awareness of environmental issues. In recent years, initiatives have been taken to help schools educate children and youth on environmental issues.

The EPA offers educational material on nature on its website (Denmark, 2018[33]). The material is differentiated for all levels of basic education (grades 0 to 9). In grades 4 to 6, the focus is on spreading knowledge of different types of nature. In grades 8 and 9, more difficult concepts are introduced, such as biodiversity and trade-offs between species habitats and human activities.

A green think tank, Concito, has received support from the education ministry to develop a digital learning platform called Sustainable 2.0. It offers material on the Sustainable Development Goals, renewable energy sources, sustainable cities, climate change and consumption patterns (Concito/Klimaambassaden, 2018[34]).

The education and environment ministries and the Danish Agriculture & Food Council have jointly produced material for students on food waste that aims to raise awareness and give students practical tools to limit food waste (ME, 2018[35]).

Recommendations on environmental governance and management

Supporting the institutional framework

- Expand the use of task forces to build municipal capacity in the areas of environmental management where they face challenges, such as waste prevention.
- Further strengthen guidance to municipalities on implementation of environmental legislation to make it easier to use, as Switzerland does with its enforcement aids to cantons.

Making land use more sustainable

- Evaluate the cost-effectiveness of scaling up land acquisition and redistribution of environmentally valuable agricultural land through the MLRF.

Strengthening policy evaluation framework

- (OECD, 2017[8])Consider making socio-economic impact assessment (SEIA) mandatory for government policy decisions with a significant environmental impact, including in the context of RIA, based on the 2017 SEIA guidelines.
- Consider separately quantifying effects in other countries when conducting cost-benefit analyses of Danish environmental policies, e.g. health benefits in neighbouring countries resulting from Danish air pollution measures.

Promoting and ensuring compliance

- While respecting municipal autonomy, create a level playing field for companies by ensuring that municipalities apply compliance promotion and enforcement measures based on well-established and similar criteria; in particular, update the EPA compliance promotion and enforcement guidance documents with factual findings from the enforcement strategy and concrete examples from municipalities.

- Continue efforts to make fuller use of the Danish Environmental Administration database on environmental inspections to gain better understanding of non-compliance among companies and to inform policy making.
- Pursue efforts to simplify environmental legislation to further promote compliance and enforcement.

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