

EXECUTIVE SUMMARY

This report examines Denmark's progress since the previous OECD Environmental Performance Review in 1999, and the extent to which the country has met its domestic objectives and honoured its international commitments. The report also reviews Denmark's progress in the context of the OECD Environmental Strategy for the First Decade of the 21st Century. Some 37 recommendations^{*} are made that could contribute to further environmental progress in Denmark.

Denmark's economic progress provides the country with high average income per capita and extensive welfare benefits. Its open economy thrives on trade in the EU and globally. It is largely driven by intensive agriculture and fisheries, which support a large agro-food industry and have a large environmental impact. Other severe environmental pressures stem from its transport sector and from its energy supply structure, which continues to rely mainly on fossil fuels. Environmental issues in Denmark also have a strong international dimension due to regional economic and environmental interdependencies (e.g. EU co-operation, North Sea and Baltic Sea pollution, transfrontier air pollution). Denmark is strongly involved in European and global environmental issues and environmental aid.

Over the review period, economic growth and implementation of European Union legislation provided the context for economic and environmental decision-making in Denmark, together with a tax freeze and a major territorial government reform. The implementation of environmental policies is being further devolved to municipal authorities. Environmental policies currently focus on: air pollution, the aquatic environment (nutrient discharges and groundwater contamination), biodiversity, chemical substances, environmental health, and global issues such as climate change. Measures to address these issues rely on a range of diverse, well-established and in some cases innovative policy instruments.

1. Despite excellent environmental policies...

Building on solid environmental legislation largely harmonised with and derived from EU environmental directives, and benefiting from experienced environmental administrations at national and territorial level, environmental management in Denmark is going through a reform period, marked by further devolution of environmental responsibilities to municipalities as well as the creation of regional environmental centres within the Ministry of Environment. This is taking place in the context of an overall territorial government reform, which included the elimination of counties and aggregation of the 271 municipalities into 98, on 1 January 2007.

Environmental regulations continue to play a major role in Danish environmental policies. Land-use regulations, particularly those applicable to rural and coastal areas, are rigorous, and spatial planning contributes effectively to protection of the environment, nature, landscapes and coastal areas. Stringent waste incineration regulation has been a driving force for the development of cogeneration and district heating. The concept of producer responsibility was embodied in Danish waste legislation (further to EU directives on end-of-life vehicles and on waste electrical and electronic equipment). More generally, Denmark performs very well in transposing and implementing EU environmental legislation. Policy making continues to be open and consultative. Denmark uses economic instruments (environmental charges, environmental taxes, other economic instruments) extensively. The full cost-recovery principle has been tacitly applied in water management for some time and was included in the 2001 Environmental Protection Law. Green taxes apply to air, water and waste management policies. The tax on sulphur emissions (1996) contributed to drastic decreases in SO₂ emissions. The waste water tax (1997) led to a significant reduction of nitrogen, phosphorus and organic matter in waste water. Since the 1999 review, Denmark has introduced several new environmental taxes (e.g. CO₂ tax on gasoline, tax on ozone-depleting greenhouse gases, taxes on PVC and phthalates, tax on mineral phosphorous added to feed). Increasing emphasis is placed on the use of cost-effectiveness analysis in ex-ante evaluations of environmental actions to optimise the mix of instruments applied. Overall, public environmental expenditures are covered by environmental charges or taxes, and the polluter pays principle applies to households and, to a lesser extent, industry.

^{*} The objectives of the Strategy are covered in the following sections of these Conclusions and Recommendations: maintaining the integrity of ecosystems is covered in Section 1; decoupling of environmental pressures from economic growth, in Sections 2.1 and 2.2; and global environmental interdependence, in Section 3.

^{**} See Annex.

... a number of environmental challenges remain.

Despite these excellent environmental policies and many positive trends, Denmark's environmental performance is not always high by OECD standards except for a few indicators (i.e. SO_x emission intensity, public waste water treatment, energy intensity). The actual results are in the middle range for some indicators (e.g. pesticide use, NO_x emission intensity), and below OECD standards for others (municipal waste per capita, nitrogenous fertiliser use). Some health indicators are also of concern. This suggests that Denmark's environmental policies have not always been strong enough to counter the pressures exerted on the environment from transport, agriculture, fisheries and other economic activities, as well as from consumption patterns. The effectiveness of economic instruments has been hindered by a series of factors. First, tax concessions should be eliminated (e.g. the very low energy tax paid by industry on electricity consumption, the industry exemption from the water supply tax). Second, their incentive effect should be increased: for example, since 2001, most tax rates have not been adjusted for inflation. Third, their scope could be further extended, although this has become difficult following the tax freeze introduced in 2001. Further, there is uncertainty about the extent to which the full cost-recovery principle (enshrined in the 2001 Environmental Protection Act) is applied to municipal waste collection. It is not clear whether the territorial government reform will allow improvement in enforcement of environmental legislation. The number of environmental inspections has decreased drastically to focus on IPPC facilities. Finally, Denmark's sustainable development strategy has not always been used as a platform to develop environmental strategies, though individual environmental action plans do exist (e.g. National Action Plan for the Aquatic Environment, National Action Plan on Chemicals).

2. Addressing them will require integration of environmental concerns into economic sectors and fiscal policies

Denmark gives importance to sustainable development nationally and internationally. In 2002 it adopted a national sustainable development strategy which is to be presented to Parliament every four years and followed up through sectoral plans and a set of indicators published in principle every year. Implementation also takes place at the local level through Local Agenda 21. Over the review period, Denmark successfully decoupled environmental pressures from economic growth in several areas, including SO_x emissions, NO_x emissions, water abstraction, nitrogen fertiliser use and pesticide use. Energy intensity also decreased during the review period. Institutional integration of environmental concerns into sectoral policies progressed in agriculture (e.g. agri-environmental measures, increase in organic production) and energy policies (e.g. emphasis on climate change, energy efficiency, renewable energy). Three quarters of government bills underwent strategic environmental assessment. At project level, regulations on environmental impact assessment were updated to include an EIA-permit and extended public information. Market-based integration relies on a wide range of economic instruments (i.e. charges, taxes, other instruments), although significant subsidies remain (in agriculture, fisheries, tax concessions to industry).

However, Denmark is faced with numerous environmental challenges resulting from unsustainable consumption patterns (e.g. in waste generation, transport, land use). The generation of household waste is growing nearly twice as fast as the economy, and has reached one of the highest generation rates in the OECD. Greenhouse gas emissions have not been decoupled from private car use. High mobility associated with longer commuting distances generates pressure on peri-urban areas otherwise needed for agricultural or recreational purposes. With the adoption of the national sustainable development strategy, Denmark no longer has a white paper on environment, and environmental efforts are scattered throughout a large number of programmes, policies and ministries. The environmental strategic and planning framework and associated objectives should be linked to the sustainable development strategy. Little progress has been made in integrating environmental concerns into transport policy at the strategic level. Although the transport sector accounts for a third of final energy consumption in Denmark and is showing the fastest energy growth, it is explicitly excluded from the (June 2005) political agreement on greater energy efficiency. Transport policy mainly aims at increasing or upgrading road infrastructure supply; insufficient effort is made to modernise and increase the efficiency of the Danish railway. Little consideration is given to transport demand management.

3. Strengthened international environmental co-operation is needed to address climate change and marine protection challenges

Denmark's proactive stance on protecting the environment through international co-operation has played an influential role in a number of international negotiations, particularly in the EU context. Denmark has met or is well on the way to meeting many of its international commitments (e.g. reduced discharges of phosphorous and heavy metals into the Baltic and the North Seas, reduced atmospheric emissions of SO₂ and VOCs). Denmark has phased out or reduced its emissions of ozone-depleting substances ahead of internationally agreed deadlines. Denmark continues to provide a relatively high level of official development assistance (0.81% of GNI in 2005). Environmental management is mainstreamed into a substantial part of bilateral and multilateral regional assistance programmes. Danish export credits are well managed and the environmental risk assessment follows the rules agreed within the OECD. Concerning marine issues, Denmark (recently) ratified the 1978 UN Convention on the Law of the Sea and shows progress in implementing conventions such as MARPOL, London and OSPAR. Illegal oil spills in the Baltic and the North Seas were reduced by half during the review period. Finally, the Greenland Dialogue on climate is welcome.

However, there is room for progress. Concerning climate change, in 2004, Denmark's greenhouse gas emissions had decreased by only 2% compared to 1990 (the base year). This is far from its challenging CO₂ emission reduction target (-21% for 2008-12) under the EU burden sharing agreement. The CO₂ reduction target of the 1990 Energy Plan was not met. Although good progress has been made in reducing greenhouse gas emissions from agriculture, households and the waste sector, much remains to be done and is in progress in the energy, transport and industrial sectors. This is despite the low energy intensity of the Danish economy. Review and revision of energy and transport prices and taxation should be considered. Denmark is one of the few OECD countries that have a carbon tax on energy products, but the CO₂ tax rate was reduced in 2005 to ensure a neutral overall energy tax burden. Further cost-effective domestic efforts will be necessary, given the anticipated allowances under the EU Emission Trading Scheme for the period 2008-12 and the limited scope for expanding the use of the Kyoto Protocol's flexible mechanisms. Afforestation projects are behind schedule with respect to the objective of doubling the forest area by 2040. Concerning marine issues, although Denmark has been active in many international and regional marine protection fora, fish kills (due mainly to oxygen depletion associated with nutrient discharges) have been reported annually for a long time in Danish coastal areas. The risk of oil spills and maritime accidents along the Danish coast, the Belt and the Øresund is high, with the heavy traffic from shipping and fishing activities. Inappropriate dismantling of Danish end-of-life ships in India became an issue in 2005. Concerning transboundary air pollution, while Denmark has met the 1998 Sofia Declaration target for NO_x emissions, achieving the Gothenburg target (55% reduction by 2010 from the 1990 level) will require further action.

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Annex: 37 Recommendations*

<p>Environmental management</p>	<ul style="list-style-type: none"> ▪ further develop the <u>environmental strategic and planning framework</u> with specific environmental quality objectives as well as targets and deadlines, in the context of the sustainable development strategy; pursue efforts to use cost-benefit and cost-effectiveness analyses in policy setting and implementation; ▪ set up capacity building mechanisms to help <u>municipalities carry out new environmental management tasks</u> resulting from the territorial government reform; foster exchange of expertise among municipalities; ▪ adjust the <u>rates of green taxes</u> to internalise externalities; reduce tax concessions and the associated administrative cost of their implementation; ▪ adopt a <u>national action plan for promoting environmental technology</u> based on appropriate economic analysis, and implement it; ▪ ▪ prioritise <u>monitoring</u> of national environmental action plans..
<p>Air</p>	<ul style="list-style-type: none"> ▪ continue to reduce emissions of <u>NO_x and VOCs from mobile sources</u>, including through the use of economic instruments in the most cost-effective way; ▪ strengthen the <u>management of particulate matter</u>, including the monitoring of PM₁₀ and PM_{2.5} concentrations and emissions; develop emission standards for residential <u>wood burning stoves</u>; implement and enforce <u>low emission zones</u> in cities; ▪ continue to encourage the provision of economically and environmentally attractive <u>public transport systems</u> in urban areas; strengthen transport demand management to limit passenger car use in congested areas (e.g. road pricing, parking fees, spatial planning, intelligent transport systems); implement the Bicycle Strategy 2007; address air pollutant emissions from ships; ▪ integrate <u>transport and environmental policies</u>; set quantitative targets, further use demand-side management, and facilitate co-operation among state and territorial authorities and concerned parties; ▪ continue to <u>improve energy efficiency</u> (e.g. transport and building sectors, public sector, distribution companies); review <u>energy taxation</u> to establish appropriate price signals.
<p>Water</p>	<ul style="list-style-type: none"> ▪ carry out a comprehensive assessment of the <u>economic efficiency and environmental effectiveness</u> of water pollution abatement measures in different sectors (municipal, industrial, agricultural), in the context of implementation of the EU Water Framework Directive; ▪ consider the further use of <u>economic instruments to address diffuse pollution</u>; target fiscal incentives to environmental outcomes and improve cost-effectiveness; ▪ speed up identification of <u>areas at high risk of nutrient and pesticide contamination</u> and take measures to protect them, including establishing groundwater protection zones, 10-metre buffer zones along rivers, and buffer zones around lakes; ▪ reinforce the <u>interface between water management and nature protection</u>, in the wake of local government reform and pursuant to VMP III objectives; in particular, speed up creation of new wetlands and define ecological quality objectives for rivers; ▪ move toward <u>river basin management</u> according to the new water districts; in particular, prepare water plans as required by the EU Water Framework Directive; ▪ increase the <u>efficiency of public water supply and waste water management</u>, in particular by exploiting economies of scale in the wake of local government reform and pursuant to the proposed water reform objectives.
<p>Nature and biodiversity management</p>	<ul style="list-style-type: none"> ▪ establish <u>national parks</u> in priority conservation areas and clarify their role in relation to other protected areas; complete <u>management plans for all protected areas</u> including the Natura 2000 areas, incorporating biodiversity objectives and ecological integrity indicators, and establish a network of corridors linking them; develop and adopt <u>ecosystem quality objectives</u> for terrestrial and aquatic habitats, including as part of implementation of the EU Habitats and Water Framework Directives; ▪ develop time-bound objectives for the <u>national nature and biodiversity conservation action plan</u>, including with regard to integration of biodiversity considerations in <u>agriculture, fisheries</u> and other sectoral policies; develop and implement a <u>comprehensive planning system</u>, with a sea use planning component and with cumulative impact assessment and climate change impact scenarios; ▪ adjust the <u>levels of economic incentives</u> and revise the land use legal framework, so as to enhance biodiversity conservation, production of ecological services (e.g. reduction of nitrogen and phosphorus leaching) and groundwater protection (e.g. in priority contaminated areas) on private land; ▪ expand <u>restoration projects for major ecosystems</u>, including major rivers and future national parks, to re-establish their capacity to produce ecological services and to support biodiversity; ▪ accelerate the rate of <u>environmental certification</u> of fish farms.
<p>Environmental-economic interface</p>	<ul style="list-style-type: none"> ▪ continue to rely on and, where relevant, expand the use of <u>environmental taxes</u> to <u>internalise externalities</u>; adjust tax rates for inflation; ▪ continue to examine the existing support schemes from the point of view of their <u>environmental effectiveness and economic efficiency</u>; ▪ develop a <u>sustainable transport plan</u>, as a follow-up to the forthcoming national sustainable development strategy; ▪ review existing <u>transport taxes</u> with a view to restructuring them in a more environmentally friendly way (e.g. taxing both car use and ownership; removing the tax break for commuting); consider the introduction of <u>road pricing</u> as a means to halt congestion; ▪ step up efforts to promote <u>more sustainable consumption patterns</u> (e.g. concerning waste, transportation, land use) by adopting appropriate regulatory and economic instruments, and by focusing on demand management.

* These Recommendations were formally approved by the OECD Working Party on Environmental Performance.

Environmental-social interface

- set up additional targets concerning environmental factors related to health with related indicators; continue to understand better through research and studies the potential links between environmental pollution and chronic illness or child health issues; take action where there is knowledge (e.g. particulate pollution);
- continue to make use of cost-benefit analysis and economic valuation in environmental health policy making; and derive relevant priorities for action;
- include the public health benefits of access to nature and outdoor recreation as an integral part of national environment and health action plans;
- continue to promote environmental democracy through access to environmental information, public participation, and access to courts for citizens and associations (e.g. environmental NGOs);
- assess and reduce disparities in exposure to pollution.

International cooperation

- ensure that cost-effective domestic measures will contribute to meet the Kyoto Protocol's greenhouse gas emission reduction target, especially in sectors not covered by the EU Emission Trading Scheme; accelerate afforestation;
- place higher priority on marine protection, including marine ecosystem protection; take further steps to reduce the discharge of toxic substances and nutrients; ensure that Denmark's international commitments are achieved; continue efforts towards appropriate dismantling of Danish end-of-life ships;
- pursue efforts towards the sustainable management of commercial fisheries and aquaculture;
- continue to play an exemplary role in international environmental protection including through development aid; continue to contribute to sustainable development and capacity building in developing countries through environmental technology exports and other measures (e.g. support for environmental education and awareness programmes);
- continue efforts to ensure appropriate implementation of multilateral environmental agreements involving trade (ozone-depleting substances, hazardous substances, chemicals, endangered species);
- accelerate the ratification of international environmental agreements already signed.