

## Executive Summary

Since the last OECD Environmental Performance Review in 2001, Norway has continued to play a pioneering role in environmental protection and sustainable development. Nationally, environmental policies have been strengthened in many areas. As a result, the quality of air and water is generally high. The number of species threatened by extinction is low by OECD standards. Internationally, Norway has spearheaded an impressive range of important initiatives.

Norway's environmental progress was achieved in a period of relatively high growth: GDP rose by 18% from 2000-09. This growth increased many environmental pressures. Total final consumption (TFC) of energy increased, particularly private final consumption and transport use. CO<sub>2</sub> emissions, municipal waste generation and pesticide use all increased. Thus there is a continued need to implement efficient and effective environmental policies and to make them more coherent, both from an environmental policy perspective and in relation to economic and sectoral policies.

Norway experienced a comparatively short and modest downturn in the global economic and financial crisis. This reduced some environmental pressures. Economic recovery is now under way: the rate of growth is expected to be positive and to increase in 2010-11. The rapid recovery is due in part to a stimulus package of NOK 20 billion in 2009, equivalent to 0.8% of GDP. An additional stimulus of 0.6% of GDP was built into the 2010 budget. Some estimates suggest that about 17% of the 2009 stimulus was "green". However, many of the measures were designed to boost employment, and some were likely to reinforce environmental pressures. The overall environmental and economic impacts of these measures merit careful assessment. There is scope to remove environmentally harmful subsidies, and to scale back exemptions and increase revenue from environmentally related taxes. This would support policies for both fiscal consolidation and environmental protection.

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### *Sustainable development is an overarching policy objective*

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Norway's leading role in environmental protection and sustainable development coincides with a period in which it has continued to benefit from the exploitation of oil and gas. In 2009, this sector accounted for about 24% of GDP and 46% of export revenue. In 2002, Norway adopted a National Sustainable Development Strategy (NSDS), which was revised in 2007. It focuses on how Norway can contribute to sustainable development globally and assure sustainable development nationally. The concept of sustainability nationally is

framed in terms of maintaining national capital over time. Key questions are: i) whether national wealth components – human, natural, produced and financial – are being built up; and ii) the extent to which depletion of Norway’s oil and gas reserves is compensated by increases in other forms of capital.

To support this focus on national capital, Norway has established a strong analytical framework for integrating environmental, social and economic considerations. The Ministry of Finance is responsible for co-ordinating the government’s work on sustainable development. The National Sustainable Development Strategy establishes seven priority areas<sup>1</sup> and five key principles<sup>2</sup> to be used when evaluating policies. Progress is monitored through a set of indicators. The evidence suggests that the total capital stock, and the income it generates, is increasing, despite the gradual depletion of oil and gas reserves. Human capital appears to account for about three-quarters of total national capital.

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*Substantial progress has been made in developing and implementing environmental policies*

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As a member of the European Economic Area (EEA), Norway has transposed all EU environmental directives covered by the EEA Agreement. In some areas, Norwegian requirements are more stringent. Steps have been taken to simplify regulatory procedures, such as those related to environmental permitting, and to reduce administrative burdens on the regulated community. Enforcement is better targeted, is risk based, and has a deterrent effect. The pioneering use of economic instruments has been extended in innovative ways, e.g. through taxes on waste landfilling and incineration, and on SO<sub>x</sub> and NO<sub>x</sub> emissions. The percentage of taxes in energy prices is higher in Norway than in most other OECD countries. In some cases, negotiated agreements with industry have played a useful role. The application of some environmental policy instruments has helped stimulate environmentally favourable innovations.

Emissions of conventional air pollutants (SO<sub>x</sub>, NO<sub>x</sub>, ammonia, NMVOCs and CO) decreased over the review period, despite the high rate of economic growth. These emission reductions have helped reduce the acidification and eutrophication effects of air pollution. Nevertheless, further efforts are needed to achieve the emission reduction target for NO<sub>x</sub>, particularly from shipping, oil and gas extraction, and land transport, and to maintain urban air quality standards during winter.

Water management has improved. Discharges of nitrogen and phosphorus to inland and coastal waters were reduced from urban areas, industry and agriculture. However, eutrophication is expected to continue to be a challenge from these sources and, increasingly, from aquaculture. Norway has begun implementing the EU Water Framework Directive ahead of schedule. In June 2010, the government approved the first water management plans, covering about 20% of fresh and coastal waters. Modernisation of the water supply and sanitation networks should be accelerated to minimise potentially adverse effects on human health and reduce costs associated with leakage.

Norway has a long tradition of broad participation in policy formulation. Policy development is underpinned by a comprehensive information base and strong capacity for technical and economic analysis. There is increasing use of cost-benefit analyses and macro- and microeconomic modelling of policy options. Nevertheless, the cost-effectiveness of some policies aimed at achieving often ambitious targets could be enhanced, as could coherence among them.

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### *Further efforts are needed to achieve ambitious climate targets*

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Norway continues to be a leader in the international effort to address climate change and has adopted ambitious emission mitigation targets. Its commitment under the Kyoto Protocol is a 1% increase of greenhouse gas (GHG) emissions compared to the 1990 level. Norway also made a unilateral commitment to reduce GHG emissions by 9% against the same baseline. Emissions, associated with a rapidly growing economy, were, until 2008, considerably higher than in 1990. A sharp fall in emissions in 2009, linked to the recession, brought the level close to the Kyoto target. As this reduction is most likely to be transitory, meeting the Kyoto commitments is expected to require the purchase of emission permits on international carbon markets.

CO<sub>2</sub> emissions from energy use have increased by 10% since 2000. The main sources of emissions are transport (36%), oil and gas extraction (26%), and industry (18%). Emissions per unit of GDP have decreased by 16% over the same period, and are well below the OECD Europe average. This reduction is linked to the high share (96%) of hydropower in electricity generation. The CO<sub>2</sub> emission intensity of offshore oil and gas extraction increased by 15% between 2000 and 2009.

Norway has pursued economy-wide as well as sector-specific approaches to reduce emissions. It was one of the first countries to introduce a carbon tax, and it joined the EU Emissions Trading System in 2008. However, the set of economic instruments has become complex, and opportunities exist to streamline and better target measures so as to make them more cost-effective and coherent. For emission sources that are directly or indirectly covered by the cap, further reductions in CO<sub>2</sub> emissions would not be achieved through additional instruments such as emission taxes, renewable energy targets, or energy efficiency standards. Additional instruments are required only if they provide co-benefits (such as improved health outcomes) or effectively address other market failures (*e.g.* technology spillover). They should be applied only if the benefits exceed the costs (without assuming any benefits regarding CO<sub>2</sub> emission reductions). Any subsidies should be well targeted to the relevant market failure and time bound.

Norway is still some distance from achieving its unilateral target for the Kyoto period. Nevertheless, it is considering ambitious targets for 2020 and 2050. This underlines the importance of carefully assessing the environmental and economic implications of such targets, applying the most cost-effective instruments to achieve them, and adapting policy measures in light of experience to close any implementation gaps that may arise.

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### *New and innovative approaches are being applied to maintain biodiversity*

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Norway has developed an ambitious biodiversity policy, and significant progress has been made to provide the means to achieve its goals. The new, innovative Nature Diversity Act (2009) brings together many biodiversity-related issues, and introduces new principles and tools for sustainable management of biodiversity. In addition, several sectoral laws have been revised and new laws enacted that strengthen biodiversity protection. The area of land under protection has increased significantly. Sea management plans could open the way for better protection of marine areas. More broadly, there has been substantial investment in expanding the biodiversity knowledge base, including the establishment of a Biodiversity Information Centre. These activities have been supported by a substantial increase in public expenditure on biodiversity, especially in recent years.

Nevertheless, Norway still faces major challenges in the conservation and sustainable use of biological diversity. Protected areas do not sufficiently cover all nature types; on land, the low percentage of forests under protection is of particular concern. Norway lacks overall targets and objectives for forest protection, though a voluntary forest protection programme is beginning to pay-off five years after implementation. The conservation of biodiversity within protected areas is not sufficiently secured. Increasing aquaculture, including cod farming, poses a threat to fish stocks, water quality and biodiversity in Norwegian coastal waters and possibly beyond. Although Norway's four large carnivore species (brown bear, lynx, wolf and wolverine) show a slight upward trend, they are all listed as threatened on the 2010 Red List. Protection targets are set at levels too low to maintain viable populations. Spatial planning has not been effective in halting the loss of large "wilderness" areas, nor in preventing building in coastal zones and along lakes and rivers.

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### *Waste generation continues to outstrip economic growth*

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Norway's regulatory framework for waste management was revised and simplified in 2004. New instruments were applied to curb waste generation and stimulate waste recovery, including several taxes on landfill and incineration. Consideration should be given to retaining the incineration tax, due to be abolished, as it has proved effective. Intermunicipal co-operation has been enhanced and greater use made of private and corporatised public waste management utilities. In 2008, half of the energy for district heating was produced from waste incineration, and the amount of energy from this source increased by 46% between 2000 and 2008.

Despite these measures, the target of reducing waste generation relative to the rate of economic growth has not been achieved. Some services, and manufacturing sectors such as food processing, have experienced significant growth. Municipal waste generation is higher than the OECD or EU15 average, although the reported household waste fraction corresponds to the OECD average and is significantly less per capita than those of Denmark, the Netherlands, Spain and Germany. Reported generation of hazardous waste

increased by 64% over the review period and now accounts for 10% of waste generated. About 90% of hazardous waste is treated domestically, approaching the target of 100%.<sup>3</sup> Further efforts are needed to assure appropriate treatment and better control of transboundary movements of hazardous waste.

Norway has made significant progress in diverting waste from landfills and improving their environmental performance. Nevertheless, the total amount of waste sent to landfills has slightly increased. Rates of recovery of household and industrial waste are in line with OECD averages. Transboundary transfers of waste have increased significantly. To some extent, Norway is trading combustible non-hazardous waste for the hazardous residue of waste incinerated abroad.

In most municipalities, waste collection charges are at, or close to, cost-recovery levels. More differentiated charges according to weight or waste fractions could provide further incentives to increase recycling and waste reduction. Extended producer responsibility regimes have been broadened and their effectiveness has been enhanced by the introduction of taxes connected with deposit-refund systems for end-of-life products. Norway is the first European country to provide free “take-back” for waste electrical and electronic equipment (WEEE), going beyond the requirements of the corresponding EU directive. The amount of WEEE collected per capita is eight times the level required by the directive.

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#### *International environmental co-operation remains a high priority*

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Norway has continued to play an active and innovative role in promoting international environmental co-operation, bilaterally (especially with Russia), regionally and globally. Particular emphasis has been given to the development of a sound scientific basis to support international environmental co-operation, *e.g.* in the development of a global convention on mercury and more ambitious global targets on persistent organic pollutants, and in preparing joint assessments of the marine environment in the Barents Sea and North-East Atlantic.

Norway initiated a binding regional agreement, and subsequently a 2009 agreement in the Food and Agriculture Organization (FAO), on port state measures concerning illegal, unreported and unregulated fishing. It has also continued to play a leading role in developing international conventions to reduce the environmental impacts of shipping, for example on ballast water and ship recycling. Further efforts are needed to accede to, and implement, agreements on preparedness for pollution incidents by hazardous and noxious substances and on-ship recycling.

The oil and gas industry has adopted measures that have led to a dramatic reduction of discharges of most harmful chemical additives to the sea. Nevertheless, reducing pollution from oil extraction, including shipping, is becoming more challenging as some fields are nearing depletion. In 2007, an accident in the Statfjord field in the North Sea resulted in the second largest oil spill on the Norwegian continental shelf. With the expected increase of activities in the Barents Sea and the Arctic region, Norway will need to reinforce its efforts to protect the marine environment and establish robust pollution prevention and response mechanisms.

Since 2000, Norway's net official development assistance (ODA) has risen by 67% to reach USD 4 billion in 2009, or 1.06% of gross national income, the second highest percentage among OECD Development Assistance Committee (DAC) donors. Following the adoption of an action plan for the environment in 2006, environment-focused aid doubled to USD 677 million, equivalent to a quarter of bilateral ODA, a high share compared to other donors. However, there is a question on whether sufficient expertise exists in the relevant agencies to manage these resources cost-effectively. Climate change, reduction of deforestation (REDD), and clean energy are the main priorities. There is some risk of climate-related issues crowding out other important environment and development issues. Further efforts are needed to ensure that adequate environmental assessments are carried out on development co-operation programmes and projects, particularly in the energy and oil and gas sectors.

**Notes**

1. i) international co-operation to promote sustainable development and combat poverty; ii) climate change and long-range transboundary air pollution; iii) biodiversity and cultural heritage; iv) natural resource management; v) hazardous chemicals; vi) sustainable economic and social development; and vii) Sami perspectives on environmental and natural resource management.
2. i) equitable distribution; ii) international solidarity; iii) the precautionary principle; iv) the polluter pays principle; and v) joint efforts (i.e. by the whole population).
3. Some caution is needed in interpreting waste data due to the use of different national definitions and new estimation methods introduced during the review period.