

# NORWAY

**CONCLUSIONS AND RECOMMENDATIONS** (see next page)

## OUTLINE OF THE REPORT

**1. THE CONTEXT** .....

Part I

**POLLUTION CONTROL AND MANAGEMENT OF NATURAL RESOURCES**

**2. NATURE CONSERVATION** .....

**3. WATER AND WASTE MANAGEMENT** .....

**4. AIR MANAGEMENT** .....

Part II

**INTEGRATION OF POLICIES**

**5. ENVIRONMENTAL AND ECONOMIC POLICIES** .....

**6. INTEGRATION OF ENVIRONMENTAL CONCERNS IN ENERGY POLICY** .....

Part III

**CO-OPERATION WITH THE INTERNATIONAL COMMUNITY**

**7. INTERNATIONAL ASPECTS OF AIR POLLUTION** .....

**8. OTHER INTERNATIONAL ENVIRONMENTAL COMMITMENTS** .....

**ANNEXES** .....

## CONCLUSIONS AND RECOMMENDATIONS\*

Much of Norway's economic activity rests on the use of its natural resource base. Its abundant energy resources support growing oil and gas exports and a range of energy-intensive industries. Fisheries and related industries form the backbone of coastal settlements, and forestry contributes to rural employment in southern and central Norway.

Norway has an open economy highly dependent on international trade. Following strong economic expansion in the 1970s and the early 1980s, the fall in oil prices in 1986 initiated a recession that has proved the longest in Norway's post-war history, accompanied by growing unemployment. Awareness of domestic and international environmental issues has long been high, and Norway is exposed to air and coastal water pollution arising from emissions from other countries. These factors have resulted in Norway developing a considerable international environmental role.

The challenge to achieve sustainable development largely depends on Norway achieving its economic and environmental objectives through the integration of environmental, sectoral and economic policies, and through an effective combination of economic, regulatory and other policy instruments. Environmental issues under discussion in Norway include: climate change, protection of the ozone layer, biodiversity, acidification, eutrophication, toxic contamination and hazardous waste.

This OECD report sets out the baseline for assessing future environmental progress and examines the environmental performance of Norway in five major areas:

- nature conservation;
- pollution management: the cases of water and waste;
- sectoral development: air, energy and related issues;
- international co-operation;
- integration of environmental and economic decision making.

In each of these areas, the extent to which government policy objectives are being met has been assessed, including both domestic objectives and international commitments, and environmental effectiveness and economic efficiency criteria are taken into consideration. A number of proposals are put forward that could contribute to environmental progress in Norway.

### 1. Nature Conservation

Norway has one of the lowest population densities among OECD Member countries and possesses some of the most extensive tracts of wilderness in Europe. Wilderness areas are, however, under pressure.

#### *Terrestrial natural resources*

Norway has a high level of protection of terrestrial natural resources. Protected areas occupy 6.3 per cent of the mainland's surface area and a network of protected peat marshes, other wetlands and rich deciduous forests throughout all counties covers about 3 per cent of the total surface area of these environments. Fourteen wetlands areas were registered under the Ramsar Convention and ten new areas will probably be listed in 1993. Twenty per cent of the hydroelectric potential in watercourses are protected from hydropower development and strict measures have been taken to reduce pollution of lakes. Populations of wild ungulates are well balanced; however, the situation of large predators, except lynxes, is a source of concern. The amendment by the Parliament of paragraph 11 of the Wildlife Act in June 1993 should avoid abuses.

In the arctic zone, the Svalbard archipelago is recognised as a natural legacy of worldwide importance; continued protection and vigilance are needed because plans to extend tourism and mining operations and to open the northern part of the Barents Sea to oil drilling could seriously damage its wilderness areas.

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\* Conclusions and Recommendations approved by the Group on Environmental Performance at its July 1993 meeting.

Norway's forest management meets the quantitative criterion of sustainability, though intensive forestry may pose threats to environmental values. The Coniferous Forest Conservation Plan proposes to protect significantly less than the 2 per cent of productive forests that was considered the scientific minimum to be preserved.

In order to conserve terrestrial natural resources for future generations and to maintain a high level of biodiversity, it is recommended that consideration be given to the following proposals:

- Although Norway has a large number of protected zones, it would be worthwhile to extend the protected zones to cover about 12 per cent of the mainland territory, as proposed by the Government in a report adopted by the Parliament in April 1993. The financial resources necessary for this extension should be made available so that the character of the wilderness areas may be preserved.
- The area of protected forest should be enlarged to cover a viable sample of all types of forest environments.
- To achieve sustainable management of the forest heritage, close co-operation would be needed between the Ministry of Agriculture and the Ministry of Environment.
- New measures are needed to protect rivers against damage caused, *inter alia*, by sand and gravel extraction, and to ensure that most of the remaining wild rivers remain intact.
- The survey of the state of Norwegian ecosystems and species should be completed, and research on the biology of indigenous species should be strengthened.

### *Marine natural resources*

The key issue in fisheries management is now recognised: if sustainable levels of fish stocks are to be reached, strict adherence to specified total allowable catches (TACs) and quotas is needed. Norwegian fishermen by and large observe technical management requirements, rules for discard, quotas and other regulations. The control of fishing by foreign fleets of stocks under Norwegian management is not sufficient and is a major concern for Norwegian authorities.

The main fish stocks in the Barents Sea have recovered due to better natural conditions and measures taken by Russian and Norwegian authorities. The stock situation in the North Sea needs to be urgently addressed because European Community and Norwegian fishing is far above reasonable levels and for some stocks, notably cod and haddock, the situation could become catastrophic. While the overall aim of Norwegian fishery management policy is to create a sustainable, efficient industry, the specific objectives relating to fisheries and fishermen are sometimes conflicting.

In the area of aquaculture, the escape of salmon constitutes a potential threat that may decrease biodiversity of wild salmon in Norwegian rivers. Stricter measures should be taken to avoid further escapes.

Concerning marine mammals, Norway decided in 1993 to resume limited hunting of minke whales in the north-east Atlantic at a level that would not allow the current stock to be endangered. This decision goes against the views of the International Whaling Commission (IWC). The Norwegian side underlined that the decision of Norway was based on the unanimous recommendation of the Scientific Committee to the IWC to adopt the Revised Management Procedure for baleen whales.

In order to secure conservation and sustainable use of marine natural resources, it is recommended that consideration be given to the following proposals:

- Continued efforts are needed to integrate fishery management policy with other policies and to promote, in a wider context, the preservation of marine ecological balance.
- While multispecies management approaches are gaining importance and research in this area is encouraging, there is a need to accelerate the move towards managing fisheries on a sustainable and multispecies basis and taking stock interactions into account.
- Attention should be paid to the control of fishing by foreign fleets in Norwegian waters in order to secure adherence to TACs and quotas.

## **2. Pollution Management: the Cases of Water and Waste**

Norway's approach to pollution control rests on ambient quality guidelines. The multimedia approach used in permit issuance, compliance inspections and audits, and enforcement proceedings ensures integrated environmental

management. This approach incorporates references to critical loads and levels, and to damage avoidance in pollution control regulations, and aims to allow cost-effectiveness to be taken into account in investment decisions.

### *Water management*

Though Norway was in the past less equipped with municipal waste water treatment facilities than many other European countries, significant policy and financial commitments have recently been made with a view to improving domestic waste water management in the framework of the North Sea Declarations. Norway has substantially improved its performance in water management over the past decade. Data indicate that industrial discharges of nutrients and hazardous substances are decreasing and that appropriate investments are being made. Discharges from municipal sewage and agriculture have also been considerably reduced. It is recommended that consideration be given to the following proposals:

- In order to meet discharge reduction requirements, including for nitrogen, the programme of investments in waste water treatment should continue to receive high priority and corresponding funding.
- The acidity of southern Norway's watercourses and lakes still does not have a permanent solution, the root of the problem largely lying outside Norway's borders.
- To help reduce eutrophication of inland and coastal waters, the Norwegian agricultural sector should further reduce its nutrient discharges.
- The waste water treatment programme should focus more on contamination. A priority programme should be established for the 12 locations where there is a potential health risk from consumption of fish and shellfish and restrictions on commercial fishing are imposed.
- Since municipal sewage sludge is used in agriculture, treating industrial discharges before they go to municipal collection systems should be considered a priority.
- Though the intensity of use of water resources is relatively low, water for agricultural and industrial uses should be priced.

### *Waste management*

Although no environmental problems associated with improper disposal by hazardous waste generators were documented during this review, the fact that an estimated 38 000 tonnes per year is unaccounted for should be cause for concern. The programme to identify and clean up active and inactive hazardous waste sites has started well. However, at present funding levels, it is not realistic to assume that financially viable solutions will be found for most sites. Concerning household waste minimisation and recycling, the combination of economic instruments and technical support used by the central Government and municipalities points to a sustained effort on the part of public authorities. It is recommended that consideration be given to the following proposals:

- First and foremost, a decision needs to be made to implement the national hazardous waste programme, notably with respect to the choice of methods and sites for treating organic hazardous waste. Implementation should then proceed as quickly as possible.
- Knowledge of hazardous waste generation and disposal needs to be improved.
- The assessment of active and inactive hazardous waste sites needs to be accelerated. Where problems are found, short-term measures need to be taken immediately. Long-term measures for soil and groundwater cleanup can be deferred until all the sites have been subject to an initial assessment.
- The costs of municipal refuse disposal should be clearly distinguished in municipal accounts so that refuse disposal charges can better reflect costs.
- The results of the house-by-house collection and recycling pilot projects should be put into wider practice as soon as possible. National programmes to establish markets for recycled material, such as those for glass containers and white paper, could be extended to other materials, such as other paper products, automotive batteries and tyres.
- Promoting waste recycling should continue; however, since several options exist for implementing waste collection, recycling and market creation, it would be advisable to evaluate their relative cost-effectiveness.

### 3. Sectoral Integration: Air, Energy and Related Issues

#### *Air management*

Norway has carried out a very successful international policy aimed at solving air pollution problems — such as acid deposition — multilaterally, and has been active within the Nordic Council, the OECD and UN-ECE in creating scientific and political entities to collect the necessary information and draw appropriate Conclusions and Recommendations. It has subscribed to a broad range of percentage reduction or stabilisation targets for emissions in a number of international agreements, even though meeting such targets is often more difficult and costly in Norway than in many other OECD countries.

Norway's atmospheric emissions are largely concentrated in oil use in transport, industry and buildings, and in offshore oil and gas production. This concentration, along with the national emission targets Norway has adopted, presents a challenge for Norway's air management policy.

Satisfactory results have been achieved in some aspects of air management, with the support of a range of economic and regulatory instruments: substantial reductions in emissions of SO<sub>2</sub> and toxic substances such as lead, and the achievement of international and national SO<sub>2</sub> emission reduction targets. However, acid deposition has not significantly decreased in Norway and there is a need for additional measures to reduce SO<sub>2</sub> emissions in Europe. Emissions of NO<sub>x</sub>, VOCs and CO<sub>2</sub> have recently fallen, though probably this is to some extent the result of economic and climatic factors. Norway is taking the lead in technology development, notably on VOC recovery in oil loading and development of clean technology for ship engines. It is recommended that consideration be given to the following proposals:

- The Sofia Declaration target of a 30 per cent NO<sub>x</sub> emission reduction by 1998 compared with 1986 levels is ambitious and will be difficult and costly to meet. Nevertheless, there is room for progress through the NO<sub>x</sub> Action Plan covering all sectors, including road and ship transport and offshore platforms.
- Norway needs to improve pollution control in its rapidly expanding transport sector. Cost-effective measures to encourage modal transfers, including investment, could play an important part in reducing NO<sub>x</sub> emissions. Institutional co-ordination and broad integration should be improved between the Ministry of Environment and other ministries, notably that of Transport.
- Efforts to apply cost-effective technology are likely to help reach much of the VOC emission reduction target, and the VOC Action Plan scheduled for the end of 1993 should ensure that further measures are considered if needed. Regulations on VOC emissions from offshore and onshore facilities could be progressively introduced.
- Norway should support activities aimed at introducing mechanisms of an interim nature for joint implementation of commitments and for financial transfers to facilitate more cost-effective regional reduction strategies for SO<sub>2</sub> and NO<sub>x</sub> emissions.

#### *Integrating environmental concerns in energy policy*

With substantial oil, gas and hydro resources, Norway exports most of the energy it produces. With the production of these resources comes a number of environmental concerns, along with those related to Norway's own energy use. Achieving the objectives of Norway's energy and environmental policies requires a balance between energy resource development contributing to economic growth, and environmental protection. While Norway is active in the international debate on energy-related environmental objectives, the challenge to reduce domestic energy-related emissions is considerable.

Norway's efforts on energy conservation compare favourably with those in other OECD countries in recent years. Significant energy savings have been achieved in the industrial, residential and commercial sectors. Norway has been one of the OECD countries taking the lead on the use of economic instruments to integrate environmental concerns in energy policy.

Norway has adopted a preliminary target to stabilise CO<sub>2</sub> emissions at 1989 levels by 2000, and carbon taxation affecting a broad range of energy products and end-use sectors. The potential for further use of regulatory instruments for environmental protection is being explored, and the Climate Change Action Plan being developed will point to further opportunities to improve the integration of environmental and energy policies.

With the possible exception of the hydrocarbons sector, however, the CO<sub>2</sub> tax has a limited incentive effect. The Government recognises that CO<sub>2</sub> taxes will have to be higher if the stabilisation target is to be reached — indeed, higher than in most other OECD countries. Yet it is clear that Norway cannot be significantly out of line with its competitors without serious consequences for its industry and employment. As a result, Norway may find it difficult to reach its stabilisation target without additional CO<sub>2</sub> reduction measures.

In order to make significant progress in the integration of environmental concerns in the energy and transport sectors, it is recommended that consideration be given to the following proposals:

- Encouraging energy conservation and substitution by means other than CO<sub>2</sub> taxes should be fully explored.
- Given the limited impact that can be expected from recent tax changes for motor fuels, the transport sector is in need of further action, such as the promotion of fuel efficiency improvements and modal transfers.
- White papers, notably on transport and energy conservation, as well as the action plans on NO<sub>x</sub> and climate change, are all relevant to the environmental effects of the energy and transport sectors. Sectoral environmental plans covering energy activities and the transport sector could help integrate these initiatives, with the participation and co-operation of relevant ministries.
- Electricity prices charged to electricity-intensive industries should be continually monitored.
- Any subsidies would jeopardise possibilities for improving end-use electricity efficiency and would ultimately result in increased pressure on hydro resources. The potential for energy efficiency improvements, with respect to electricity demand, should be further evaluated.

#### 4. International Co-operation

Although Norway is a small country, its international environmental role is considerable. Norway has fostered and implemented an impressive series of bilateral and multilateral co-operative agreements on environmental protection, supported by high-quality expertise from scientists and engineers in national laboratories and at international meetings. Norway has successfully supported the development of international environmental law and the endorsement of many significant environmental policy declarations. Its role in promoting sustainable development internationally is very significant. The Brundtland Report led to the Bergen Conference and was soon followed by the Rio Conference and the Lucern Ministerial Meeting. Norway's support of these events and their follow-up has buttressed and extended the international dimension of its environmental policies.

Norway is the top-ranking OECD Member country in terms of official development aid per unit of GNP and probably also in terms of environmental aid per unit of GNP. The share spent on environmental aid in Norwegian aid programmes is large and is supplemented by new and additional funds for global issues. Norway is a large contributor to the GEF in relative terms. It has supported environmental assessment of all major aid projects and has made similar assessments of its own projects.

Protection of the North Sea requires heavy investment to reduce discharges of nutrients and toxic substances, and Norwegian authorities, industry and farmers need to act rapidly to meet internationally agreed deadlines. Co-operation with Russia on local transfrontier issues has been successfully started.

Norway, which has no large-scale nuclear activities, is potentially threatened by radioactive pollution from nuclear reactors and waste in other countries. The newly established environmental co-operation with Russia should lead to a better understanding of problems and possible solutions.

Norway is also potentially threatened by oil pollution, not only from its own oil-related activities, but also from foreign oil fields and bulk-carrier and tanker traffic. Thus, it has valid reasons to give precedence to environmental protection requirements over industrial considerations. The risk of a serious oil spill and its effects on fragile ecosystems and fishing activities should not be underestimated.

In order for Norway to continue to take a prominent position in international discussions on sustainable development, it is recommended that consideration be given to the following proposals:

- Co-operation with Russia should be reinforced through training, technology transfer and the preparation of a plan for solving current issues, including appropriate funding.
- Prevention of oil pollution and the protection of the fragile arctic environment should be seen as a priority.
- Environmental expenditure by Norway for global or regional issues should be increased in parallel with progress on joint implementation mechanisms, notably in central and eastern Europe.

- Further development of effects-oriented, cost-effective environmental agreements, such as new SO<sub>2</sub> and NO<sub>x</sub> protocols, should be supported.

Furthermore, in international forums, Norway should continue to support:

- the further development of international law on the basis of the Rio Declaration, notably in the area of public participation;
- the pursuit of mechanisms for joint implementation of international commitments in order to solve regional or global issues.

## 5. Integrating Environmental and Economic Decision Making

Norway has not only been a pioneer internationally in support of sustainable development, but it has also made efforts nationally to integrate environmental and economic policies. It has progressed towards sustainable development by:

- adopting specific targets related to sustainable development and then seeking the most cost-effective ways to reach them;
- introducing many environmentally motivated taxes and other economic instruments and carrying out a comprehensive review of the potential future role of economic instruments;
- exploring the possibility of introducing fiscal reforms balancing a decrease in labor taxation and an increase in the taxation of natural resource use or pollution;
- updating a number of its regulatory instruments and instigating a comprehensive review of their performance and future role along with planning and economic instruments;
- strengthening land use planning legislation and practice, introducing EIA and including a significant environmental dimension in planning studies and budgetary documents;
- providing a great deal of public information on sustainable development and opportunities for public participation;
- strengthening institutional functioning, within the Ministry of Environment and as far as links between some ministries and county and municipal administrations are concerned.

These achievements represent a substantial contribution to the practice and knowledge of sustainable development. The goal, however, is long-term and much remains to be done. It is recommended that consideration be given to the following proposals:

- An overall national plan for the environment should be developed and adopted by the Government; cost-effective sectoral plans should be extended with involvement of the Ministry of Environment, taking into account the various reports to the Parliament.
- National goals should be translated into sustainable development targets for sectoral ministries. New targets should be set for environmental quality and stocks of key natural resources.
- Overall strategic planning should be reinforced within the Ministry of Environment, and co-ordination between the Ministry of Environment and other ministries should be strengthened through formal and informal mechanisms, including steps to ensure that all ministries assess the likely environmental effects of their policies.
- Detailed economic data should be collected to provide a clearer picture of the economic and financial implications of environmental goals and to help in assessing the cost-effectiveness of options to achieve them. Environmental information and evaluation should be better integrated within long-term programmes and national budget proposals.
- Land use and natural resource planning within the Ministry of Environment should be extended. The links between the EIA process and the decision-making process should be strengthened and studies should be made of the possible extension of some form of EIA to policies, plans and programmes.
- A review should be made of regulations (and economic instruments, for comparative purposes) relating to the conservation and use of natural resources. Studies should be made with a view to introducing natural resource pricing, improving evaluation of economic instruments and reviewing subsidy and tax concession programmes.



