

# ENVIRONMENTAL PERFORMANCE REVIEW OF GERMANY

## EXECUTIVE SUMMARY

In Germany, environmental protection continues to be a major public concern and a high policy priority. This is largely due to pressures on the environment resulting from its high population density, level of industrialisation and strong dependence on fossil fuels. Transport and agriculture also continue to generate diffuse pressures on the environment. Economic and social changes in the New Länder (representing 30% of Germany's land, 20% of its population and 10% of GDP) have led to the alleviation of some environmental pressures, but they also present new sustainable development challenges.

The decoupling of economic growth from emissions of several major pollutants during the 1990s is indicative of Germany's achievement and its continuing efforts to reconcile economic growth and environmental objectives. However, important environment related challenges remain (e.g. waste treatment and disposal, strengthening of the waste water infrastructure, combating nitrate pollution and transport pollution, nature conservation, progressive phasing out of nuclear energy, further implementation and development of the ecological tax reform and climate change related commitments).

This report examines progress made since the previous OECD environmental performance review of Germany, and the extent to which its environmental domestic objectives and international commitments are being met. 65 recommendations\* are put forward that could contribute to strengthening the country's environmental performance, and to its progress towards sustainable development.

### ***Implementing environmental policies.***

Overall, Germany has met most of its national environmental objectives and international environmental commitments. In the 1990s, its progress in decoupling economic growth from emissions to air (e.g. SO<sub>x</sub>, NO<sub>x</sub>, VOCs, CO), water pollution (e.g. BOD) and use of resources (e.g. water, energy) was impressive. Significant progress was also achieved in regard to waste management. In the Old Länder, these improvements have resulted mostly from environmental investment and management efforts; in the New Länder, economic contraction and restructuring and changes in energy supply have also played a major role. Nonetheless, Germany has established further ambitious objectives and is exploring new approaches to reach them.

German environmental legislation has continued to develop, influencing and being influenced by EU legislation. Cross-media approaches have gained importance (e.g. environmental impact assessment, environmental liability, environmental audits). Enforcement and compliance are generally effective, based on good monitoring and institutional capacities. An Environmental Code, aiming at harmonising, simplifying and integrating environmental legislation, is at an advanced stage of preparation.

German environmental policy is guided by three principles (polluter-pays, precaution, and co-operation), expressed in regulations and economic instruments, pro-active initiatives addressing new challenges, and increasing participation and involvement of stakeholders. The PPP is well established and implemented, particularly for traditional air pollutants; those benefiting from waste and water management are increasingly covering the full costs of environmental services. A range of economic instruments are used to internalise costs and contribute to economic efficiency.

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\* See Annex.

Emphasis on best available technology (BAT) and related work to introduce clean technology has triggered innovations upstream and presented new research, development and marketing perspectives. Many industries and individual firms have recognised the benefits of voluntary agreements and good environmental management (with high rates of participation in ISO and EMAS schemes), often accompanied by savings in energy and resource use and export benefits. Germany is a leading exporter of environmental technology, goods and services.

***Cost-effectiveness of environmental policies.***

However, there is scope for further improvement in regard to some challenging national and international commitments (e.g. CO<sub>2</sub> and GHGs, nitrates, transport related pollution) and the relatively limited results of nature conservation policies. Given the environmental progress and economic and energy changes achieved in both the New and Old Länder, marginal pollution abatement costs at point sources are increasing substantially. Moreover, environmental pressures of a diffuse nature (e.g. those deriving from patterns of consumption, transport and agriculture) require more determined and cost-effective actions.

Further progress will depend on more cost-effective environmental policies, as well as improved integration of environmental concerns in sectoral and economic policies. Transposition of the EU Directives on integrated pollution prevention and control (IPPC) and on environmental impact assessment should contribute to progress in this regard. As stressed in the 1993 OECD environmental performance review of Germany, use of measures differentiated according to ecosystem characteristics should be increased (e.g. varying deadlines for the introduction of BAT in existing installations). Use of economic instruments should be expanded, taking into account their wider economic and social implications. In turn, it is essential to better ensure that economic policy incentives are consistent with basic environmental objectives and do not encourage environmentally unsustainable production and consumption modes. The effectiveness and efficiency of voluntary agreements should be reviewed. Alternative measures should be considered if the targets of these agreements are not reached.

Although in the 1990s Germany's annual expenditure on pollution abatement and control (PAC) remained one of the highest among OECD countries (around 1.5% of GDP), a continued investment effort will be needed particularly, but not only, in the New Länder for waste water and waste infrastructure and clean-up of contaminated sites.

***Towards sustainable development.***

Germany's Basic Law, amended in 1994, now provides a constitutional basis for promoting environmental management and sustainable development. A number of quantitative environmental objectives have been adopted nationally or as a result of international commitments. Some are monitored through the Environment Barometer, which is included in the Federal Government's annual economic report. Efforts to firmly establish and refine this scheme (e.g. to cover biodiversity) should continue. As part of a wider reform, Germany has strengthened the environment related components of its tax system. The ecological tax reform is an important step in the right direction, although its steering capacity is limited. It is revenue neutral. Revenue is used to lower ancillary labour costs. The reform aims at producing a double dividend: improved environmental performance and stimulation of employment. Increases in energy prices are likely to bring about reductions in energy intensity and better resource efficiency in general. The environmental guidance function of eco-taxes should be strengthened, particularly by reviewing the concessions made. Exemptions motivated by competition concerns should be modulated. The recently adopted climate protection programme is a positive example of an integrated, cross-sectoral approach.

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Progress in developing a national sustainable development strategy has been very slow. At all levels of government Germany still faces significant problems that hamper better integration of economic, social and environmental concerns. The new Council for Sustainable Development will serve as a forum for exploring common ground, organising consensus and mediating conflicts. The newly established Green Cabinet should strengthen institutional mechanisms for horizontal policy co-ordination and oblige the ministries concerned to develop sector-specific sustainable development strategies, including commitments to act and timelines. Vertical co-operation also needs to be improved among different levels of government. Co-operation among environmental administrations should be strengthened, both among Länder and between the federal and Länder level. For example, a Länder working party or Bund-Länder task force could be established to improve environmental policy integration and co-ordination of sustainable development initiatives. Efforts to green the budget should be intensified. As stressed in the 1993 OECD environmental performance review of Germany, integration of environmental concerns in sectoral decisions should be increased. Sectoral policies need to be reviewed in regard to their funding schemes and economic incentive mechanisms. Eco-responsibility ought to imply that support is to be linked to compliance with basic environmental standards. Subsidies with environmentally harmful effects should be phased out in a number of sectors (e.g. agriculture, energy, transport).

## *International co-operation: achievements...*

In the 1990s, Germany carried out a very wide-ranging and successful programme of international co-operation on environmental protection, particularly with the nine neighbouring countries, its EU partners, the Central and Eastern European countries and developing countries. It has played a leading role at the EU and pan-European levels in combating transfrontier pollution and enhancing environmental co-operation. Germany has considerably decreased its emissions of pollutants to international rivers and has met nearly all its commitments concerning pollution of the North Sea and Baltic Sea by land based sources. It has implemented all its international commitments in regard to transfrontier air pollution by reducing ahead of time its emissions of SO<sub>2</sub>, NO<sub>x</sub> and VOCs. In particular, all large sources of atmospheric pollution in the New Länder have been eliminated, considerably reducing air pollution problems in the Black Triangle area. During the 1990s, Germany reinforced co-operation with its two eastern neighbours (Poland and the Czech Republic). It has implemented new bilateral and trilateral agreements, provided know-how and financial support, and been the leading country in terms of bilateral aid to Central and Eastern European countries. Germany supports global co-operation on climate change and biodiversity. It has phased out halons and CFCs and halted production of equipment using HCFCs. The Secretariats of the Climate Change Convention and Desertification Convention are located in Bonn. Germany is one of the main donors of environmental funds in many international settings.

## *...areas for progress...*

Despite these achievements, there are a few areas in which commitments or expectations have not been met. Regarding pollution of the North Sea and Baltic Sea from land based sources, Germany (like other countries concerned) did not achieve the intended 50% reduction of anthropogenic nitrogen inputs between 1985/87 and 1995. The reduction achieved during that period was in the order of 25% only. This reflects the limited progress in abating these releases from diffuse sources, particularly in the agricultural sector. Germany has so far eliminated only half the hot spots on its territory identified as significant sources of Baltic Sea pollution. Progress in implementing the EU Urban Waste Water Directive in the New Länder has been behind schedule. Because the EU Habitat Directive was implemented in Germany with some delay, the European Commission has notified Germany of a possible delay in releasing Structural Funds.

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Although Germany supports sustainable development, as agreed at Rio, it has not yet developed a national sustainable development strategy in consultation with all stakeholders. Neither has it increased official development aid as foreseen at Rio. On the contrary, Germany has reduced aid in relative terms. Its ODA (expressed as a percentage of GNP) ranks 16<sup>th</sup> among DAC countries. The considerable expenditure Germany has devoted to ensuring rapid transition in the New Länder and in countries formerly behind the Iron Curtain is now being reduced; this could increase its capacity to provide official development aid.

## *...and special efforts for climate change.*

Germany has established an ambitious national CO<sub>2</sub> emissions target for 2005. It is committed to an ambitious international GHG emissions target for 2008-12. Having reduced CO<sub>2</sub> emissions by 15.5% in 1999 compared with 1990 levels, Germany is one of the few countries likely to achieve the emissions goals set out in the Framework Convention on Climate Change and its Kyoto Protocol, i.e. to return CO<sub>2</sub> emissions by the year 2000 to levels in 1990, and to significantly reduce GHG emissions by 2008-12. Emissions of GHGs such as CH<sub>4</sub> and N<sub>2</sub>O decreased rapidly in the same period. Germany has adopted a number of important measures to reduce CO<sub>2</sub> emissions. The 1999 ecological tax reform was a major step towards energy efficiency improvements, as well as energy saving, without increasing the overall tax burden. The recent Renewable Energy Act offers financial support for renewable energy, such as wind and solar power. Germany has effective bodies to advise on climate change policies, such as two independent Councils to the Federal Government and a Parliamentary Inquest Commission, which have been effective in incorporating expert scientific and technical opinion in decision-making by the Federal Government.

Although Germany has succeeded in reducing CO<sub>2</sub> emissions significantly, this is largely due to economic decline and a changed energy mix in the New Länder following unification. To achieve its national as well as international emission targets (the Kyoto Protocol and associated EU burden-sharing agreement), Germany will need to pursue the measures taken so far more effectively and to implement those adopted in the recent climate protection programme. Eco-tax concessions should be reviewed. In the energy sector, it has not been able to reduce sufficiently the subsidies provided to maintain coal production. The decision to phase out nuclear energy progressively will make CO<sub>2</sub> emissions reduction even more challenging. Transport emissions have increased continuously since 1990, but few mandatory measures have been taken. Economic and other quantitative analysis concerning climate policies has not been fully reflected in the implementation of policies and measures. Little analysis has been carried out of policies related to enhancement of carbon sinks and to reducing emissions of GHGs other than CO<sub>2</sub>.

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**Annex: 65 Recommendations\***

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| <b>Implementing Environmental Policies</b> | <ul style="list-style-type: none"> <li>▪ Further pursue <i>efforts to decouple</i> economic growth and employment creation from pollution pressures and energy and resource use;</li> <li>▪ extend environmental policy attention to <i>unsolved or new challenges</i>, including nature conservation and diffuse pollution from agriculture and transport;</li> <li>▪ continue efforts to harmonise, streamline and further develop <i>environmental legislation</i> within an integrated Environmental Code;</li> <li>▪ strengthen and extend use of <i>economic instruments</i> to internalise external costs, and to progress towards sustainable production and consumption;</li> <li>▪ improve the efficiency and transparency (e.g. accounting practices) of water and waste related <i>services provided at municipal level</i>;</li> <li>▪ ensure that <i>voluntary agreements</i> become more effective and efficient (e.g. clear targets, reliable monitoring, improved transparency and third party participation);</li> <li>▪ increase <i>economic analyses</i> of environmental policy measures, with the aim of achieving environmental objectives more cost-effectively.</li> </ul>   |
| <b>Air</b>                                 | <ul style="list-style-type: none"> <li>▪ reduce or eliminate <i>environmentally harmful subsidies</i> in the energy and transport sectors;</li> <li>▪ reinforce measures to <i>limit NO<sub>x</sub> and CO<sub>2</sub> emissions from motor vehicle use and emissions of NMVOCs from solvent use</i>;</li> <li>▪ develop more <i>rational transport pricing and taxation</i> to further internalise associated environmental costs, and to encourage more fuel efficient and less polluting modes;</li> <li>▪ develop mechanisms to evaluate the <i>cost-effectiveness of control policy options</i>, and make broader use of economic incentives for achieving air quality objectives;</li> <li>▪ take further <i>measures to reduce total final energy consumption</i> in the residential sector.</li> </ul>  |
| <b>Water</b>                               | <ul style="list-style-type: none"> <li>▪ develop a <i>comprehensive strategy to address diffuse pollution</i> of surface and groundwater, including a mix of measures to further reduce nutrient surpluses from agriculture and to implement specific, more stringent requirements for farmers in vulnerable areas;</li> <li>▪ further reduce <i>point source pollution</i> of water through further investments in advanced treatment facilities, and through increasing the incentive function of water effluent charges;</li> <li>▪ address <i>diffuse water pollution by heavy metals</i> in a comprehensive manner, through extension of charging for rainwater collection and treatment;</li> <li>▪ enhance <i>flood prevention</i> in the main river basins by developing partnership approaches among stakeholders, and by including flood plain areas in regional land use planning and nature conservation;</li> <li>▪ pursue efforts to develop <i>water quality monitoring</i>, particularly for pesticides and nutrients in groundwater and lakes;</li> <li>▪ take further steps towards implementation of water resource management using a river basin approach.</li> </ul>  |
| <b>Waste</b>                               | <ul style="list-style-type: none"> <li>▪ improve <i>efficiency of household waste management</i> by opening the disposal market to competition, with monitoring and control by public authorities;</li> <li>▪ conduct <i>an analysis of the cost-effectiveness of the Duale System</i> for recycling packaging material, and of material recycling schemes in general; assess their environmental benefits compared with other forms of treatment and disposal;</li> <li>▪ further develop implementation of the <i>principle of extended producer responsibility</i> in the industrial sector, possibly expanding the use of economic incentives;</li> <li>▪ elaborate plans to ensure that <i>treatment and disposal of waste (e.g. hazardous waste, household waste) which is unsuitable for recycling</i> are organised efficiently, building on <i>enhanced co-operation</i> between federal and regional authorities and better identifying future infrastructure needs;</li> <li>▪ continue efforts aimed at <i>upgrading landfill sites</i> to meet legal requirements, and at <i>remediating closed dump sites</i> and contaminated sites, especially in the New Länder;</li> <li>▪ take measures to <i>improve the availability and timeliness of data</i> pertaining to waste generation, treatment and disposal at the national level.</li> </ul> |

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

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| <b>Nature conservation and biodiversity</b>        | <ul style="list-style-type: none"> <li>▪ formally adopt a <i>set of specific national objectives</i> for nature conservation, and develop specific <i>nature conservation plans</i> at the level of the Länder;</li> <li>▪ increase understanding and awareness of nature conservation and biodiversity issues among decision-makers and the general public; in particular, develop and adopt a <i>national biodiversity strategy</i>;</li> <li>▪ strengthen efforts and set targets for creating <i>new protected areas</i> (including Natura 2000 sites) and improve the representativeness of the network of protected areas;</li> <li>▪ obtain agreement and transposition, at the Länder and local levels, of the federal objective of reducing the <i>rate at which land is urbanised</i> to 30 hectares per day by 2020;</li> <li>▪ establish a performance assessment system to increase the transparency and effectiveness of <i>spatial and landscape planning decisions</i>;</li> <li>▪ extend the role of <i>landscape protection groups</i> in stakeholder mediation procedures concerning extension and management of protected areas;</li> <li>▪ further improve the effectiveness of voluntary <i>agri-environmental measures</i> by ensuring that they are applied on an ecologically appropriate scale;</li> <li>▪ encourage <i>private landowners</i> to conserve nature and biodiversity on their land, e.g. through a wider range of economic instruments.</li> </ul> |
| <b>Towards sustainable development</b>             | <ul style="list-style-type: none"> <li>▪ define and implement a <i>national sustainable development strategy</i> with targets, timelines, and commitments by the key actors;</li> <li>▪ improve co-operation and <i>co-ordination among Länder environmental administrations</i>, and with the federal level, in regard to environmental integration and sustainable development;</li> <li>▪ better <i>integrate environmental concerns</i> in transport, agriculture, energy and regional policies;</li> <li>▪ further use the <i>Environment Barometer</i> and other tools to contribute to environmental and economic policy formulation, implementation, monitoring and assessment; in particular, extend its coverage to biodiversity;</li> <li>▪ continue to integrate environmental concerns in <i>fiscal policies</i> (e.g. ecological tax reform) and, in particular, review concessions leading to major distortions and disincentives;</li> <li>▪ review the environmental significance of <i>subsidies</i> (e.g. in the federal biannual subsidy report), in order to phase out those which are environmentally harmful, and provide incentives for sustainable development, environmental management and innovation.</li> </ul>   |
| <b>Environmental/social interface</b>              | <ul style="list-style-type: none"> <li>▪ further examine <i>disparities in environmental quality</i> and their impacts on health and living conditions in different parts of society;</li> <li>▪ further review the <i>distributional implications</i> of major environmental policy measures and ensure discussion of the results;</li> <li>▪ further implement the joint action programme on <i>environment and health</i>;</li> <li>▪ build on successful local initiatives (e.g. <i>Local Agenda 21</i>) to foster environmental and sustainable development progress;</li> <li>▪ improve the availability and timeliness of <i>data and indicators</i> on environmental quality, environmental pressures and related responses;</li> <li>▪ improve <i>public access</i> to environmental information and access to justice for environmental stakeholders;</li> <li>▪ strengthen <i>public participation</i> in the design, implementation and assessment of environmentally relevant projects and policies;</li> <li>▪ broaden <i>environmental education</i> and encourage behavioural changes towards more sustainable consumption patterns.</li> </ul>  |
| <b>Environmental convergence in the New Länder</b> | <ul style="list-style-type: none"> <li>▪ accelerate connection to <i>sewerage and waste water treatment</i> facilities, and explore more cost-effective ways of financing, building and operating such facilities;</li> <li>▪ continue remediation of <i>contaminated sites</i> and abandoned landfills, setting priorities with the use of risk assessment and cost-benefit analysis;</li> <li>▪ review land privatisation and land use practices in areas with high natural value, to guarantee effective management of <i>protected areas</i>;</li> <li>▪ improve <i>integration of environmental concerns</i> in policies, plans and programmes for the New Länder, particularly with respect to transport, agriculture and regional development;</li> <li>▪ ensure <i>better monitoring and assessment</i> of development plans, programmes and projects, and improve data bases for systematic indicator analyses;</li> <li>▪ <i>facilitate participation of environmental NGOs and other stakeholders</i> in the design, implementation and evaluation of structural policies and other development initiatives;</li> <li>▪ launch sustainable development <i>partnerships at the local and regional level</i>, using innovative mechanisms for granting support, and encourage networking of these initiatives.</li> </ul>   |

# T H E O E C D E N V I R O N M E N T P R O G R A M M E

## ***International co-operation***

- develop internal procedures further in order to speed up *implementation of EU Directives* requiring action by the Länder;
- further address international environmental issues related to the *agricultural sector*, such as releases of nitrates to rivers and ammonia to air;
- implement action plans to cope with flooding in international river basins;
- continue international environmental co-operation with *Central and Eastern European countries*, with a view to facilitating early accession of EU candidate countries;
- increase the level of *official development aid*, particularly so as to facilitate the solution of global environmental problems.

## ***Climate change***

- *implement agreed measures* concerning climate change, taking into account the phase-out of nuclear energy, and specify related schedules;
- speed up the ongoing gradual elimination of subsidies for *domestic coal production*;
- further encourage development of *renewable energy* and *greater energy savings*;
- more vigorously address issues related to CO<sub>2</sub> emissions from *the transport sector*, going beyond voluntary agreements; encourage use of *public transport*;
- develop measures to enhance *carbon sinks* and to reduce emissions of *non-CO<sub>2</sub> GHGs*;
- develop and implement *additional policies and measures* to enable national and international emissions targets to be met and energy efficiency to be increased;
- make *greater use of cost-effectiveness analysis* in determining the components of climate policies.