

OECD ENVIRONMENTAL STRATEGY FOR THE FIRST DECADE OF THE 21ST CENTURY



OECD Environmental Strategy for the First Decade of the 21st Century

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

OECD Environmental Strategy for the First Decade of the 21st Century

TOWARDS ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

What is the purpose of the Strategy?

This OECD Environmental Strategy for the First Decade of the 21st Century is intended to provide clear directions for environmentally sustainable policies in OECD Member countries, and will guide the future work of the OECD in the field of environment. It is a follow up to the 1998 OECD Environment Ministers' Shared Goals for Action which "invited the OECD to develop a new environmental strategy for the next decade and agreed to review it when they meet in 2001".

The Strategy should be implemented before 2010. The OECD Environmental Performance Reviews and the environmental indicators programme will be used for the monitoring of progress. Future meetings of the OECD Environment Policy Committee (EPOC) at ministerial level will review the progress achieved in implementing the Strategy.

The Strategy is an important building block for the OECD-wide Sustainable Development Initiative. OECD Member countries have a special responsibility in the follow-up to the Rio Principles and to Agenda 21 agreed in Rio de Janeiro in 1992. The World Summit on Sustainable Development in South Africa in 2002 will serve as a unique opportunity for OECD Member countries to demonstrate leadership in implementing already agreed as well as new policies that will serve to achieve progress towards sustainable development. Implicit in this will be the integration of the economic, social and environmental pillars of sustainable development.

Underlying the Strategy is a need to further develop environmental policy towards fostering sustainable development within and among OECD countries in a way that is responsive to non-member countries in their search for sustainable development. The success of implementing this Strategy will therefore also depend on strengthened co-operation with non-member countries, including developing countries and countries with economies in transition. OECD countries have an important role to play by building capacity in non-member countries and working with other countries to develop effective and equitable burden sharing arrangements for addressing global environmental problems, recognising their common but differentiated responsibilities.

In implementing the Strategy, governments and the OECD will seek active partnership with the private sector and civil society, and promote co-operation among stakeholders, for example in the workplace.

What is the *Environmental Outlook* and what is driving it?

In 2020, the world population is expected to reach 7.5 billion, an increase of almost one-quarter compared to the current 6.1 billion, and the urban population of the world is projected to almost double, reaching over 4 billion in 2020. In OECD countries, the population is expected to increase by 11% to 1.25 billion in 2020, accompanied by an ageing of the population. Continued GDP growth is expected in all regions of the world, in a period characterised by globalisation with rapid increases in international trade and cross-border investment. Consumption and production

are increasing and a "new economy" is emerging, driven by high growth in the information technology sector. Major technological breakthroughs are expected, which will contribute to economic development worldwide.

Pressures on the environment have been high in the recent past both in OECD regions and globally, but at the same time, there have been a number of environmental improvements. Economic, social and technological developments over the next few decades are likely to result in reductions in some pressures on the environment, but will increase others, sometimes significantly. A number of pressures or concerns will need to be urgently addressed by OECD countries in the first decade of the 21st century, and this Strategy specifies national actions that countries can take to address some of the most pressing issues, the indicators that can be used to measure progress, and the work OECD can undertake to support its Member countries in these actions.

The *OECD Environmental Outlook* has identified some "GREEN LIGHTS", signalling recent and projected future environmental improvements for which the current policy approaches in most OECD Member countries appear to be adequate, but which should be monitored carefully. Thus, in many OECD countries industrial point source pollution is being successfully tackled and there have been significant improvements in the efficiency with which resources and energy are used. In addition, emissions are declining for some key air pollutants (including CO, SO_x and lead), and some of the worst polluted rivers and lakes have been cleaned up. At the same time, "green" purchasing is gaining ground, the land used for organic agriculture is rapidly expanding (although still small), and the size of protected areas and total forest coverage is also growing in a number of OECD countries.

Other issues have been classified as "YELLOW LIGHTS" in the *OECD Environmental Outlook*, signalling uncertainty or potential problems. Effects on human health and ecosystem functions due to toxic emissions from industries are still uncertain and poorly understood, and hazardous waste generation continues to be a problem across the OECD. The full environmental impacts of rapidly expanding aquaculture fish production and plantation forests are yet to be understood. Potential future effects of some technological developments, in particular in the area of biotechnology, are also uncertain or largely unknown. Furthermore, while significant improvements in energy and transport technologies are foreseen, the efficiency gains from these improvements are expected to be significantly outweighed by the "volume" effects of increasing total energy use and transportation.

Despite achievements in OECD countries in reducing many environmental pressures, the *OECD Environmental Outlook* has also identified a number of "RED LIGHT" environmental problems, signalling recent and projected future negative environmental trends which urgently need to be addressed by OECD Member countries. The generation of municipal waste is projected to continue to increase substantially in OECD countries. Total motor vehicle kilometres travelled are likely to increase by almost 40% in OECD regions to 2020, and air travel is projected to triple worldwide. As a result of increasing transport and energy use, greenhouse gas emissions are rising and total CO₂ emissions are projected to increase by approximately 33% in OECD countries under present policies, far from the overall Kyoto Protocol target for Annex I countries of a 5% reduction of greenhouse gas emissions from 1990 levels before 2008-2012. The effects of global warming are increasingly evident, and air quality standards in many urban areas will continue to be exceeded in OECD countries, with adverse effects on human health and ecosystems as a result. Agriculture is still a major source of pollution to air, soil and water, and of biodiversity loss. Groundwater pollution is expected to be a major problem facing OECD countries in the future, limiting the availability of clean freshwater. The use of a number of

renewable natural resources, including fish and tropical forests, have reached environmentally unsustainable levels in many regions, and pressures on biological diversity and ecosystems continue. For example, the majority of the world's marine fisheries are now fully exploited or overexploited.

These "red lights" have significant economic, financial and social costs, including to human health, which could be avoided through better management of the environment and the pressures on it. Policy options exist which have the potential to decrease pressures and improve the state of the environment in the future, including cost-effective options and some potential win-win opportunities. In order for the OECD countries to successfully address the "red lights", policy implementation gaps need to be closed by fully implementing already agreed policies, designing and putting in place new policies, meeting existing targets and defining time-bound quantitative targets where they do not already exist. OECD could serve to facilitate the development of such targets and related indicators for selected issues. This Environmental Strategy identifies a number of indicators which can be used to measure progress in implementing the Strategy to 2010.

How do we reverse unsustainable trends and guarantee vital environmental functions by 2010 and beyond?

As indicated by the "red lights" of the *OECD Environmental Outlook*, for most areas relative success in controlling pollution and improving efficiency in resource use have been outweighed by the "volume effects" of increased levels of production and consumption. It will be necessary in the next decade to not only de-couple environmental degradation from continued economic growth, but to ensure that pressures on the environment are at a level compatible with environmentally sustainable development. Closing the policy implementation gap and enhancing the effective use of market and other instruments to change the patterns of production and consumption will be fundamental to achieving environmental sustainability. Successful implementation requires integration of environmental and sectoral policies and horizontal policy coherence.

We must place the health of ecosystems and their carrying capacity at the centre of our preoccupations. To achieve environmentally sustainable development, it is necessary that the biosphere is able to provide society with sufficient natural goods and services of adequate quality in the long run. This includes energy, materials, space, geophysical conditions, functioning hydrological and biogeochemical cycles, biodiversity, etc. The quantity and quality of certain critical categories of natural goods and services should be maintained, and policies should be driven by a concern to address the critical elements that determine the environmental sustainability of ecosystems. The state of natural goods and services should be viewed from a long term perspective of at least several generations, focusing in particular on irreversible changes, and taking into account indirect effects and complex causal chains, including relatively inconspicuous phenomenon that may trigger large harmful effects. Thus, four specific criteria can be defined for environmental sustainability:

- I. Regeneration: Renewable resources shall be used efficiently and their use shall not be permitted to exceed their long-term rates of natural regeneration.
- II. Substitutability: Non-renewable resources shall be used efficiently and their use limited to levels which can be offset by substitution by renewable resources or other forms of capital.
- III. Assimilation: Releases of hazardous or polluting substances to the environment shall not exceed its assimilative capacity; concentrations shall be kept below established critical levels necessary for the protection of human health and the environment. When assimilative capacity is effectively zero (e.g. for hazardous substances that are persistent and/or bio-accumulative), effectively a zero release of such substances is required to avoid their accumulation in the environment.
- IV. Avoiding Irreversibility: Irreversible adverse effects of human activities on ecosystems and on biogeochemical and hydrological cycles shall be avoided. The natural processes capable of maintaining or restoring the integrity of ecosystems should be safeguarded from adverse impacts of human activities. The differing levels of resilience and carrying capacity of ecosystems must be considered in order to conserve their populations of threatened, endangered and critical species.

When designing policies for environmental sustainability which operationalise these criteria, countries should apply precaution as appropriate in situations where there is lack of scientific certainty. Principle 15 of The Rio Declaration on Environment and Development of 1992 includes the precautionary approach, and precaution has subsequently been addressed by various Multilateral Environmental Agreements (MEAs), such as the Framework Convention on Climate Change, the Convention on Biological Diversity and its Protocol on Biosafety, the Convention on POPs, etc. Policies and measures for environmental sustainability should also be implemented in a cost-effective manner, and contribute to the full and consistent application of the Polluter Pays and User Pays Principles.

Building on the criteria for environmental sustainability and taking into account the analysis contained in the *OECD Environmental Outlook*, the Strategy identifies five inter-linked objectives for enhancing cost-effective and operational environmental policies in the context of sustainable development:

1. Maintaining the integrity of ecosystems through the efficient management of natural resources.
2. De-coupling environmental pressures from economic growth.
3. Improving information for decision making: Measuring progress through indicators.
4. The social and environmental interface: Enhancing the quality of life.
5. Global environmental interdependence: Improving governance and co-operation.

OBJECTIVE 1 MAINTAINING THE INTEGRITY OF ECOSYSTEMS THROUGH THE EFFICIENT MANAGEMENT OF NATURAL RESOURCES

Maintaining the integrity of ecosystems through the efficient and appropriate management of natural resources is a key objective for OECD Member countries for the next decade. Ecosystems are finite and vulnerable, their capacity as sinks and sources is limited, and efficient use of natural resources should aim for their conservation.

The currently unsustainable use of many renewable resources is of particular concern, including the overfishing and pollution of marine ecosystems, land degradation and tropical deforestation. Unsustainable production and consumption patterns are increasingly threatening the health of global ecosystems and biological diversity, climate patterns and the global environment.

To effectively manage natural resources and ensure the continued provision of essential environmental services, OECD countries will need to remove or reform subsidies and other policies that encourage unsustainable use of natural resources - beginning with the agriculture, transport and energy sectors (see Objective 2) - and ensure the internalisation of the full external costs of natural resource use through market and other policy instruments, and reflecting the User Pays Principle and the Polluter Pays Principle. A range of other policies and instruments for demand side management, including infrastructure development, provision of information to the public and environmental awareness raising, should be used when relevant to support market-based instruments and access restrictions. Policies should be developed in close co-operation with other stakeholders, such as business and non-governmental organisations (NGOs), indigenous people and local communities. These policies should take into account global and regional as well as national and local concerns, and contribute to the successful implementation of multilateral environmental agreements.

Climate

Challenges:

- A. Significantly reduce global greenhouse gas emissions, with developed countries taking the lead, and protect and enhance greenhouse gas sinks and reservoirs in order to stabilise concentrations in the atmosphere over the long term at a level that would prevent dangerous anthropogenic interference with the climate system.
- B. Meet all obligations under the UNFCCC and work through international processes to take forward its objectives; for a large majority of OECD countries this means seeking entry into force of the Kyoto Protocol by 2002, with timely ratification processes, and with the broadest possible support of the international community.
- C. Further develop new technologies, market approaches and other innovative solutions to address climate change, in particular with a view to combining actions for energy savings, and efficient and low greenhouse gas-emitting technologies.

National action by OECD countries:

1. Fully implement national commitments, such as emission limitation and reduction targets, including those established under the UNFCCC.
2. Expand research and assessments on the rate, timing and impacts of climate change; on technologies to respond to it; and on possible response policies; and continue to support the work of the IPCC.
3. Create incentives for emission reductions through technological and social innovation, giving priority inter alia to market-based instruments such as subsidy removal and green tax reform, tradable emission permits or quotas, international offset projects, as well as sector policies, including well targeted voluntary agreements and more rigorous regulatory enforcement.
4. Develop and implement effective policies designed to reduce greenhouse gas emissions, including from the production and use of energy in electricity generation, greenhouse gas emission intensive sectors of the economy, transport, and agriculture.
5. Protect and enhance greenhouse gas sinks and reservoirs, taking into account other environmental concerns, such as biodiversity conservation.

Measurement of progress:

- Actual and projected emissions and removals of greenhouse gases, relative to national targets where appropriate, by major sources and sinks.
- Rates of change in emissions by sources and in removals by sinks; and GHG emission intensities of the economy and energy sector.
- Support for climate-related scientific assessments and technology research and development.
- Implemented and planned policy responses to climate change.

Further work in the OECD:

In support of the work of the UNFCCC:

- Assist countries to implement domestic policy responses to climate change, including adaptation measures, and contribute to increased institutional capacity for policy design and implementation that takes the multiple environmental benefits of policies (ancillary effects) into account.
- Facilitate dialogue and support analysis among OECD and non-OECD partners on the economic, environmental, developmental and social connections between sustainability and climate change (mitigation and adaptation) strategies, including on synergies in the implementation of the various global conventions.
- Assess policies needed to provide incentives to achieve long-term stabilisation of greenhouse gas concentrations.
- Further analyse specific implementation options, including the options contained in the Kyoto Protocol and market-based mechanisms, against the specific criteria of maximising environmental effectiveness and economic efficiency, and considering distributive effects, and other equity implications.
- Promote the exchange of information on climate policy measures.
- Contribute to the development of tools to evaluate progress.

Freshwater

Challenges:

- A. Manage the use of freshwater resources and associated watersheds so as to maintain adequate supply of freshwater of suitable quality for human use and to support aquatic and other ecosystems.
- B. Protect, restore and prevent deterioration of all bodies of surface water and groundwater to ensure the achievement of water quality objectives in OECD countries.

National action by OECD countries:

1. Ensure access for all to safe drinking water and adequate sanitation.
2. Achieve agreed water quality targets and adopt additional targets necessary to ensure the ecological value of in-situ water resources and the ecological functions they provide.
3. Apply the ecosystem approach to the management of freshwater resources and associated watersheds, based on integrated river basin management.
4. Develop and apply legal frameworks supported by appropriate policy instruments to ensure the sustainable use of freshwater resources, including measures to enhance their efficient use.
5. Establish policies aimed at recovering the full costs of water services provision and the external costs associated with water use, and provide incentives to use water resources efficiently (demand side management), taking the social impacts of such policies into account.
6. Significantly reduce water network leakage.
7. Develop appropriate strategies to manage watersheds ecologically to prevent extreme flood and drought risk.
8. Ensure co-operation for the environmentally sound management and efficient use of transboundary water resources to reduce flood risks and to minimise potential conflicts from the use or pollution of transboundary water resources.
9. Provide support for capacity building and technology transfer to assist developing countries in managing and developing their freshwater resources in a sustainable manner, and in ensuring safe drinking water and adequate sanitation.

Measurement of progress:

- Intensity of use of water resources (abstractions as a percentage of available resources, abstractions per capita or by sector).
- Ambient water quality (for specific water systems, regarding nutrient levels, chemical residues, biological oxygen demand, and biological status).
- Share of population connected to secondary and tertiary wastewater treatment systems.

Further work in the OECD:

- Provide information and analysis related to transboundary water resources and security threats from water scarcity or pollution.
- Compare the performance of water management systems of OECD countries and the achievement of water management objectives, and disseminate lessons learned accordingly.
- Analyse social issues regarding access to freshwater resources, and the design of water management policies and cost recovery systems.
- Compare practices and disseminate lessons learned regarding the design and use of domestic transferable permit schemes for water use and pollution.

Biodiversity

Challenges:

- A. Maintain, restore and enhance the diversity of landscapes, ecosystems, species and genetic material.
- B. Significantly reduce threats to ecosystems and their species from habitat loss and fragmentation, changes in land use patterns, pollution, introduction of invasive species, and overexploitation or extinction of wild species, etc.

National action by OECD countries:

1. Integrate biodiversity concerns into physical planning activities, and economic, sectoral and fiscal policies where relevant.
2. Enhance the use of economic instruments to provide incentives for the sustainable use and conservation of biodiversity, including through the development of carefully designed markets for biodiversity services.
3. Support and strengthen nature conservation at national and local levels, including preserving and restoring habitats, and conserving or enhancing the diversity of cultivated plants and livestock.
4. Ensure biosafety at the national and international level, including preventing the introduction of invasive species and diseases, and assessing the implications of biotechnologies (e.g. GMOs).
5. Promote awareness raising related to biodiversity, including through the collection and dissemination of information, stakeholder involvement in biodiversity management, and the development of scientific and technical capacity.
6. Promote on the global level the fair and equitable sharing of the benefits arising from the use of genetic resources, particularly through access to genetic resources and the transfer of relevant technologies.
7. Assist developing countries in reducing threats to ecosystems, species and genetic resources, especially in forest ecosystems, through capacity building and technology transfer.
8. Singly and through implementing regional and international agreements, eliminate overfishing by 2010.

Measurement of progress:

- Share of threatened and extinct species as a percentage of known species.
- Share of protected area as a percentage of national territory (by type of ecosystem and by category of protection).
- Changes in land use and/or cover.
- Total forest coverage as a percentage of national territory, and original forest coverage as a percentage of total forested area.
- Habitat fragmentation and/or alteration (area and number of habitats for indicator species or functional groups, density of road networks in non-urban areas).
- Area of key ecosystems.
- Listing of protected and endangered species.

Further work in the OECD:

In support of the implementation of the Convention on Biological Diversity and related international agreements:

- Further develop and improve biodiversity indicators, including pressure and state indicators, by 2003.

- Develop and promote methods of economic valuation of biological diversity and ecosystem services, and encourage the use of these methods in the design of efficient biodiversity policies.
- Analyse the distributive issues related to access to and the use of natural resources.
- Identify opportunities for the sustainable use of natural resources through economic incentives, including the creation of markets for biodiversity products and services.

OBJECTIVE 2

DE-COUPLING ENVIRONMENTAL PRESSURES FROM ECONOMIC GROWTH

Successful policies and the use of improved technologies have resulted in some environmental improvements as shown in the *OECD Environmental Outlook* - OECD countries are using less natural resources and materials and are generating less pollution and waste per unit of product produced and consumed. However, for many issues the volume effects of total increases in production and consumption have resulted in net increases in environmental degradation. De-coupling environmental pressures from economic growth, with a view to ensuring that continued economic growth is accompanied by enhanced environmental quality, is needed. OECD countries need to make sure that the net effect of de-coupling across all economic sectors combines to ensure that the four criteria of environmental sustainability identified in this Strategy are met.

De-coupling environmental pressures from economic growth, while continuing to satisfy human needs, requires an integrated effort addressing consumption and production patterns, including encouraging more efficient resource use. Increases in resource productivity at the sectoral level can be complemented by changes in the sectoral composition of the economy, such as the shift toward knowledge-based and serviced-based economies in OECD countries, which may reduce the demand for natural resources and enhance waste minimisation, but could also have rebound effects on the environment. Policies to promote greater resource productivity and otherwise reduce environmental impacts should address both supply and demand, and may include economic instruments, such as removal of environmentally harmful subsidies, green tax reform and other market-based instruments, consumer and product information based instruments, as well as regulatory instruments and voluntary approaches. Policies which seek to integrate directly the environmental effects of both consumption and production patterns throughout the lifecycle (e.g. integrated product policies) are necessary. In this context, policies are needed to encourage the substitution of material flows which are hazardous, or which have negative environmental effects in a life-cycle perspective, by less hazardous and more environmentally friendly material flows. Promoting the use of environmentally friendly technologies can also make a significant contribution to both increasing resource productivity and reducing environmental degradation.

Business and industry have a special responsibility for ensuring environmentally friendly production methods, products and services in all sectors of the economy, taking into consideration environmental effects at all stages of the product life cycle. Increasing the availability and comparability of environmental information related to products and production processes can facilitate changes in lifestyles and consumer choices towards preferences for "greener products". To support efforts by industry and consumers, governments should provide the necessary framework conditions, including internalising environmental externalities to facilitate a level playing field for "green" products. Governments should also lead the way through

green public procurement practices, encouraging demand for green products, and through the consideration of the environmental impacts of infrastructure developments.

While other economic sectors also have important environmental impacts, the "red lights" of the *OECD Environmental Outlook* indicate that urgent action is particularly needed to ensure de-coupling of adverse environmental impacts from agriculture, transport and energy. In these sectors, demand structures and increasing consumption and production have resulted in volume effects that continue to outweigh the resource and energy efficiency gains, leading to growing environmental pressures. Implementing effective policies to achieve de-coupling has proven to be more difficult for the non-point and mobile sources in these sectors than for traditional point-sources of pollution. Cost-effective policies aimed at improving resource efficiency and achieving de-coupling in these sectors could lead to important environmental benefits, similar to those resulting from eco-efficiency approaches in industry. A similar approach continues to be needed for industry, including the small and medium-sized enterprises (SMEs) and for other economic sectors in OECD countries, including primary sectors such as fisheries and forestry, and service sectors (e.g. tourism).

Action is urgently needed to ensure that municipal and industrial waste generation is de-coupled from economic growth. Efficiency gains in material use per unit of product and increased recycling and recovery of waste have so far been outweighed by the volume effects of increased production and consumption, leading to growing waste generation and environmental pressures. In order to enhance waste prevention and minimisation, cost-effective policies are needed to increase resource efficiency and change existing production and consumption patterns.

Agriculture

A key goal in the 21st century is the provision of sufficient and safe food and other agricultural products to meet the needs of a growing world population, while reducing environmental degradation from agricultural production and enhancing the environmental benefits provided by agriculture, in the overall context of greater trade liberalisation.

Challenges:

- A. Progressively decrease the negative environmental effects and increase the positive effects of agricultural production so that ecosystem functions can be maintained or restored, while ensuring sufficient and safe agricultural production to provide food security for the world's population.
- B. Extend the application of technologies and management practices that can improve environmental performance, while ensuring that new technologies, for example genetically modified organisms (GMOs), do not entail unacceptable environmental or health risks.

National action by OECD countries:

1. Promote the internalisation of environmental externalities in agriculture, make the transition towards full cost resource pricing, including environmental and social costs, and encourage the implementation of market-based and other policy instruments to enhance the provision of environmental benefits and reduce environmental damage from agriculture.
2. Promote a broader adoption of sustainable farming systems and environmentally sound farm management practices, including organic farming, by the majority of agricultural producers, paying special attention to ecologically vulnerable areas.

3. Integrate biodiversity and ecosystem concerns into agricultural policies and practices.
4. Phase out or reform those agricultural policies and subsidies that have environmentally damaging effects before 2010 and according to an agreed timetable.
5. Set time-bound targets to increase the efficiency of water use and irrigation systems in areas experiencing moderate or high water stress.
6. Set time-bound targets to reduce nitrate leaching and run-off of nutrient loads from agriculture into water, lower the risk of soil erosion and reduce health and environmental risks from the use of pesticides.

Measurement of progress:

- Use of pesticides with lower environmental risk, intensity of pesticide and fertiliser use, and dispersion of nutrient surpluses across agricultural areas.
- Share of agricultural area farmed or number of farmers using environmentally sustainable management practices addressing input use and integrated farm management, including organic agriculture.
- Area of agricultural land at high or moderate risk from soil erosion and degradation.
- Trends in agri-environmental expenditures as a share of support to agriculture.

Further work in the OECD:

- Further develop and use the core set of OECD agri-environmental indicators, and provide information on the adoption of sustainable agricultural management practices by 2003.
- Analyse the impacts of agricultural and related policies on specific environmental problems, such as water quality and scarcity, and greenhouse gas emissions, and provide recommendations on policy reform to ensure environmental sustainability.
- Review the environmental, economic and social effects of sustainable agriculture, including organic agriculture, and assess the policies and market approaches to sustainable farming.
- Provide an inventory of policies related to environmental performance in agriculture, monitor and evaluate effects of agricultural policies and subsidies and suggest alternative policies and approaches to improve environmental performance.
- Promote international harmonisation of regulatory oversight in biotechnology and with respect to novel foods and feeds, in particular regarding safety assessments.
- Monitor the extent to which the risks of GMOs are assessed in Member countries.

Transport

Providing society with safe, economically viable and socially acceptable access to people, places, goods and services is a prerequisite for continued economic prosperity and sustainable development in OECD economies. However, continuing growth in transport activity offsets the gains achieved through technology. Overall, insufficient progress has been made towards achieving environmental sustainability of the transport sector. As indicated by the "red lights" of the *OECD Environmental Outlook*, it is an urgent priority to substantially reduce the serious health and environmental effects, in particular regarding climate change and air quality, stemming from high growth in both freight and passenger transport. At the same time, negative environmental effects of transport infrastructure should be limited and traffic congestion reduced to save fuel and improve air quality.

Challenges:

- A. Significantly reduce the environmental and health effects of transport, particularly regarding air pollution and climate change, by ensuring that efficiency gains from technological developments and demand side management achieve lasting environmental quality improvements.
- B. Avoid exceeding air quality and noise standards, critical levels and loads for acidification, eutrophication and tropospheric ozone, prevent habitat fragmentation and minimise transport-related land use, run-off and waste, and reduce risks associated with maritime transport of hazardous substances.

National action by OECD countries:

1. Work towards an effective and full internalisation of environmental costs of transportation through the use of effective instruments such as taxation, charges, reform of environmentally harmful subsidies and other incentive-based approaches.
2. Support the further development and implementation of existing international conventions and other commitments on transport, environment and health.
3. Develop and use cost-effective demand side management tools and land use planning to reduce the need for travel, encourage transport usage that minimises its negative environmental effects, such as risks from maritime transport of hazardous substances, including through a better balance in the modal split.
4. Encourage the uptake of clean technologies for vehicles and fuels through targeted incentives.
5. Better assess the strategic environmental impacts of transport inducing infrastructure investment projects, policies, plans and programmes.
6. Contribute to the long-term environmental sustainability of the transport sector by setting targets to meet environmental quality objectives, in particular WHO air quality and noise guidelines.
7. Develop and implement multi-modal strategies based on the Environmentally Sustainable Transport (EST) guidelines, emphasising policy integration among sectors.

Measurement of progress:

Taking into account national conditions:

- Total distances travelled (passenger km and ton km by transport mode).
- Fuel use efficiency by mode of transport.
- Emissions from different modes of transport.
- Frequency of exceeding air quality standards for major transport related air pollutants and hazardous trace pollutants.
- Proportion of population exposed to noise at levels harmful to human health.
- Habitat loss and fragmentation resulting from transport infrastructure.

Further work in the OECD:

- Further develop the OECD work on Environmentally Sustainable Transport (EST), including:
 - the development of regional implementation strategies by 2006, and
 - the development of policies to counter the environmental impacts of high growth rates in aviation and road transport by 2006.
- Analyse strategies for the application of economic instruments, including emissions trading, levies and taxes, that promote environmentally sound aviation and maritime transport, taking into account work in other international organisations.

- Analyse policies and actions for integrating environmental objectives in territorial, regional and land use policies and their impacts on transport supply and demand.
- Analyse barriers to market penetration by environmentally friendly technologies and develop approaches on how to overcome this.
- Analyse the scope for policies to mitigate the negative environmental impacts from leisure and tourism travel.

Energy

The energy sector constitutes a fundamental element of industrialised economies, and supports all economic activity. Thus, it is important that sufficient energy services are available at the national level to support development. Some de-coupling of environmental effects from growth in energy use has been achieved through fuel switching and efficiency gains, from technology improvements and other means, but it is important to ensure that total increases in the volume of emissions from increased energy production and use do not outweigh these efficiency gains. As shown in the *OECD Environmental Outlook*, energy production and use is the main contributor to man-made greenhouse gas emissions and air pollution.

Challenges:

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| <p>A. Redesign and modify energy supply and use systems as to reduce the negative environmental effects of energy production and use, in particular the emission of greenhouse gases and other air pollutants.</p> |
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National action by OECD countries:

1. Remove environmentally damaging subsidies and tax provisions in the energy sector and internalise externalities associated with energy use and production.
2. Accelerate cost-effective reductions in net emissions of carbon dioxide from energy production and use, including through the extensive use of tradable permits.
3. Work towards significantly increasing the share of renewable energy in total primary energy supply.
4. More effectively use technologies to increase the efficiency of energy production and use.

Measurement of progress:

- Carbon and energy intensities and fuel mix (sectorally and nationally, share of renewables).
- Energy prices and taxes (relative, trends).
- Energy consumption (total and per capita).

Further work in the OECD:

- Assess policies to accelerate the deployment of energy efficient technologies in OECD countries, in particular policies that remove barriers to the introduction of “low carbon” energy supply and use systems.
- Assess policies to provide incentives for increasing the share of renewables in fuel mixes and the reduction of energy related pollution, waste and effects on biodiversity.
- Work with Member countries to analyse environmental effects of changes in the fuel mix and to assess possibilities to increase the share of renewables in the fuel mix.
- Continue to assess progress in energy subsidy and green tax reform in Member countries.

OBJECTIVE 3

IMPROVING INFORMATION FOR DECISION MAKING: MEASURING PROGRESS THROUGH INDICATORS

At the national and international levels, environmental policies should be based on environmental indicators and data related to pressures and the state of the environment that reflect the interests and needs of citizens and decision makers. The use of indicators is most effective when directly related to national or internationally agreed time-bound quantitative targets for the interim and long term. The OECD can assist Member countries through the development of consistent frameworks, methodologies, and in measuring performance, and can facilitate the development of time-bound quantifiable targets related to the indicators. Member countries have monitoring programmes in place to ensure that scientifically valid and comparable data to support these indicators is collected. OECD shall continue to help Member countries and selected non-member countries review their environmental progress with respect to domestic objectives and international commitments, using environmental indicators, targets and other information.

It is important that Member countries ensure access to environmental information for all their citizens, by increasing the civil society access to information held by the public authorities and private entities, providing relevant information upon request and promoting the dissemination of environmental information. Furthermore, Member countries can analyse what environmental changes may lie ahead through the development of outlooks and projections. Governments should take steps to ensure that they are made aware of early warning signs of environmental change, which can provide the basis for ongoing modifications of environmental policies and strategies.

Challenges:

- A. Use environmental indicators and related targets to measure progress in achieving environmental sustainability and in implementing this Strategy.
- B. Support national policies in stimulating greater accountability, with respect to their national objectives and international commitments (global and regional).

National action by OECD countries:

1. Collect scientifically valid and comparable data and further develop and use indicators and targets to measure environmental progress at the national level.
2. Implement the 1998 OECD Council Recommendation on Environmental Information.
3. Perform integrated analysis of future environmental problems at the national level, including the development of scenarios, outlooks and projections, and support efforts to develop such analysis at the regional or global level (such as those in the *OECD Environmental Outlook*).
4. Make use of environmental impact and cost-benefit assessments as inputs to the decision making process.
5. Improve the dissemination of documents, reports and publications prepared by the OECD.
6. Implement Pollution Release and Transfer Register systems (PRTRs).

Measurement of progress:

- Level of national follow-up to the recommendations of OECD Environmental Performance Reviews.

Further work in the OECD:

- Further develop the work on indicators, in particular through the revision of the core set of environmental indicators, headline indicators and indicators for policy integration, including the social and environmental interface, the development of targets and early warning indicators, and contribute to and support the OECD-wide effort on sustainable development indicators.
- Support the development and use of environmental indicators through ensuring environmental data availability and quality, and related environmental information systems, and contribute to the further streamlining of data collection among international organisations.
- Continue and further the development of environmental outlooks.
- Continue the second cycle of the OECD Environmental Performance Reviews, including its sustainability dimension and its extension beyond OECD countries.
- Further develop methods for environmental accounting in the context of the System of National Accounts.
- Further develop and regularly update OECD databases on environmentally related taxes and other economic instruments.
- Support countries in the implementation of Pollution Release and Transfer Register systems (PRTRs).

**OBJECTIVE 4
THE SOCIAL AND ENVIRONMENTAL INTERFACE:
ENHANCING THE QUALITY OF LIFE**

Sustainable development can only be achieved through a proper balance among and an integration of economic, social and environmental concerns. The interface between economic and environmental issues and the interface between economic and social issues have been studied extensively. Greater efforts are now needed to address the social and environmental interface, with focus on health and safety, urbanisation and spatial development, environmental equity, environment and employment, participation and environmental education. The effects of environmental degradation on human health are significant and affect quality of life (e.g. reduced air quality in urban areas). Providing equitable access to environmental services and natural resources is important, e.g. for poverty alleviation and employment creation and in the context of co-operation with developing countries (see Objective 5). Integration of environmental and social policies can promote environmental objectives through, for example, multi-stakeholder dialogues in environmental decision-making processes and improved access to environmental information (see Objective 3). While in some cases environmental policy measures can lead to negative social effects, in other cases they can generate benefits, such as increased employment, social inclusion, and community development.

Challenges:

- A. Address the various links between environmental and social conditions and trends, and the social impacts of environmental policies, in order to enhance human health, environmental equity, employment, access to information, public participation in decision-making, access to justice in environmental matters and environmental education, thus contributing to enhancing the quality of life.

National action by OECD countries:

With regard to environmental issues related to health and safety (risks):

1. Reduce risks from human-made chemicals in the environment (paying particular attention to their cumulative and combined effects).
2. Take specific measures to limit the exposure to hazardous chemicals and air pollution, including from indoor air pollution, of particularly sensitive groups in the population, such as children.
3. Reduce potential effects on human health from environmental and ecosystem changes, including those resulting from natural and man-made disasters and climate change.
4. Phase-out the use of slowly degradable and bio-accumulative toxic chemicals in products, especially those that are carcinogenic, mutagenic or have effects on reproduction.
5. Limit pollution in marine environments by continuously reducing discharges, emissions and losses of hazardous substances and taking action to minimise the risks of industrial accidents and marine pollution.

With regard to environmental issues relating to urbanisation and spatial development:

1. Limit the adverse environmental effects of urban sprawl, increased transport, noise and urban air pollution, especially from emissions of small particulate matter and nitrogen oxides.
2. Increase efficiency of energy, water and material use in growing urban areas through integrated spatial and environmental planning.
3. Promote urban and rural liveability and revitalisation, and address environmental implications of changing lifestyles, for example in areas exposed to intensive outdoor recreation and tourism activities (coastal zones, protected areas, etc.).

With regard to environmental issues related to equity and employment:

1. Ensure equitable access to natural resources and environmental services.
2. Monitor and reduce disparities in exposure to environmental threats (across households, social groups and communities).
3. Address actual and potential effects of environmental policies on employment and income distribution.
4. Assess and address the social implications of environmental policies, in particular the removal of environmentally harmful subsidies.

With regard to information, participation, access to justice in environmental matters and environmental education:

1. Promote awareness and environmental education as preconditions for identifying, accepting and successfully implementing environmental policies.
2. Take measures to ensure and facilitate access to information, public participation in decision-making and access to justice in environmental matters, for citizens as well as for non-governmental organisations, following for example the approach taken in the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.
3. Ensure that non-governmental organisations and other stakeholders have the opportunity to take a more active role in national and international environmental policy development (including relevant OECD bodies).
4. Provide the conditions to facilitate an enhanced role and active participation of local communities and local governments in environmental policy making and implementation.

5. Strengthen environmental education and learning at all levels, including through community and workplace initiatives.
6. Promote the availability of comparable information on the environmental consequences of the manufacture and use of products, e.g. by means of labelling.

Further work in the OECD:

- Identify and develop indicators to assess the social and environmental interface.
- In the context of the Environmental Performance Reviews, systematically review national approaches and policies to analyse and shape the social and environmental interface.
- Further develop policies and instruments to identify, prevent and manage risks to human health and the environment posed by chemicals, including pesticides and endocrine disruptors, and products of modern biotechnology.
- Further harmonise the risk assessment of chemicals, for example, by developing criteria for identifying inherently unsafe chemicals (e.g. for persistence, bioaccumulation, toxicity), developing new testing and assessment methods, in particular for endocrine disruptors, and expanding the mutual acceptance of data.
- Expand the co-operative investigation of priority chemicals.
- Analyse policy implications of urban environmental problems and urban sprawl.
- Develop and analyse the effects of policy options to address re-distributive effects (across income categories, sectors or regions) of environmental policies and distributive effects of environmental damage.
- Assess the benefits of preventive environmental policies in terms of environmental improvements and public health benefits, and the cost of implementing such policies.
- Analyse and measure employment effects (across sectors and regions) of environmental policies.
- Analyse types of environmental education that can promote public awareness of environmental problems and participation in developing and implementing environmental policies.
- Analyse further the role of factual and comparable product information as a way of fostering sustainable consumption and production patterns.

OBJECTIVE 5
GLOBAL ENVIRONMENTAL INTERDEPENDANCE:
IMPROVING GOVERNANCE AND CO-OPERATION

Efforts are needed to better manage the environmental effects of globalisation through improved national and international environmental governance. Over time, non-OECD countries will account for an increasing share of environmental pressures at regional and global levels. Action by OECD countries to combat these pressures will only be effective if accompanied by strengthened environmental performance in non-member countries. Developing and transition countries require robust policy and institutional frameworks to play their role in addressing global and regional environmental problems and to ensure that maximum benefits are derived from globalisation. The OECD Development Assistance Committee (DAC) *Strategy for the 21st Century* provides a framework for co-operation with developing countries, based on the principle of partnership around shared goals, including the goal of sustainable development. The Strategy recommends that DAC members should focus on assisting developing countries to establish

good governance, to build human and institutional capacity, and to mobilise internal and external resources for development. In addition, co-operation on global environmental issues should be based on the principle of common but differentiated responsibilities.

Stronger efforts are needed to ratify, implement, and ensure compliance with and enforcement of existing Multilateral Environmental Agreements (MEAs) and instruments. Best practices in the national implementation of existing MEAs should be routinely disseminated. Some new multilateral instruments may need to be developed to address gaps in the existing international environmental governance system, but the priority should be on making existing MEAs as effective as possible. Improved co-operation and coherence between existing MEAs should also be promoted. In addition, the charters, policies and activities of international economic and financial institutions, as well as the agreements they administer, should actively support environmental policies.

With increasing globalisation of production systems, industry (including large, medium and small enterprises) can also make an important contribution to improving environmental governance. Through non-binding instruments, such as the OECD Guidelines for Multinational Enterprises, corporations are encouraged to adopt higher standards of performance in many areas of their operations, including environmental management. At the same time, corporations should bear the responsibility for environmental degradation caused by their activities, and governments should put in place adequate compliance and enforcement mechanisms to this effect.

Challenges:

- A. Ensure coherence within, and strengthen, international environmental governance.
- B. Improve management of the environmental effects of globalisation, and ensure that environmental aspects are taken into account in international governance related to trade and investment, in particular in the World Trade Organisation (WTO) and international financial institutions.

National action by OECD countries:

1. Ratify and implement existing Multilateral Environmental Agreements (MEAs).
2. Promote improved coherence among MEAs (and co-operation among their implementing institutions).
3. Implement OECD Council Decisions and Recommendations.
4. Continue and improve bilateral and multilateral co-operation with non-member countries, including the transfer of environmentally sound technology and capacity building for environmental management.
5. Work with non-member countries to develop effective and equitable burden sharing arrangements for addressing global environmental problems.
6. Assess environmental effects of trade agreements and policies, making use of the methodologies developed by the OECD and others.
7. Expand opportunities for foreign investments and trade to contribute to environmental policy objectives, and for environmental policies to enhance the conditions for foreign investments and trade (e.g. through common approaches to assess the environmental implications of Export Credit Agency activities).
8. Promote implementation of guidelines for enterprises that contribute to ensuring sound environmental management, such as the OECD Guidelines for Multinational Enterprises.

Measurement of progress:

- Adoption and enforcement of the legislative, regulatory and administrative instruments necessary to implement Multilateral Environmental Agreements effectively.
- Incorporation of environmental concerns in international economic, trade and financial agreements.
- Environmental assistance provided to transition and developing countries and its effectiveness.
- Development of effective and equitable burden sharing arrangements.

Further work in the OECD:

- Contribute to better analysis of key issues and options for the ratification and implementation of existing Multilateral Environmental Agreements (e.g. regarding improved compliance, dispute settlement and enforcement mechanisms) and explore potential synergies among these agreements.
- Promote and facilitate the implementation of the OECD Guidelines for Multinational Enterprises.
- Analyse environmental effects of rapid developments in the global economy (e.g. technology change).
- Ensure that trade, social and environmental policies are mutually supportive and develop better impact assessment methodologies.
- Analyse the environmental impacts of activities of international financial institutions, and how environmental objectives could be better incorporated into export credit policies and practices, and into structural adjustment programmes.
- Further the work on investment principles and the environment.
- Deepen environmental dialogue and co-operation with Russia and China, with countries participating in the Task Force of the Environmental Action Programme for Central and Eastern Europe (EAP) and with selected countries from other regions which can contribute to the resolution of pressing regional and global environmental problems.
- Strengthen co-operation between the Environment Policy Committee (EPOC) and the Development Assistance Committee (DAC) on priority issues of mutual concern.