

ENVIRONMENTAL PERFORMANCE REVIEW OF JAPAN

EXECUTIVE SUMMARY

Population and economic activities are extremely concentrated in dense metropolitan areas and along coastal plains in Japan, while two-thirds of the archipelago is mountainous and covered with forests. In the 1990s, economic growth in Japan was considerably slower than in the 1980s, with contraction of the economy for parts of the period. Agricultural and industrial production decreased. Final energy consumption and the energy intensity of the economy (energy use per unit of GDP) increased substantially, as did total road traffic. The Japanese economy is very dependent on imports of natural resources, such as energy, food and other raw materials.

The most important pressures on Japan's environment today originate from transport, agriculture, industry and, particularly, the growth of energy demand and private final consumption. Priority environmental issues include urban air pollution (NO_x, suspended particulate matter, toxics), waste management, water eutrophication, nature conservation, climate change, chemical management and international co-operation for environmental conservation. The Ministry of the Environment was established in 2001, 30 years after the Japan Environment Agency (which it replaced), with extended or strengthened environmental responsibilities such as waste management, international environmental co-operation.

This report examines progress made by Japan since the previous OECD environmental performance review (EPR) in 1994, and the extent to which Japan's domestic objectives and international commitments are being met. It also reviews the country's progress in the context of the OECD Environmental Strategy. 60 recommendations^{**} are put forward that could help strengthen the country's environmental performance in a context of sustainable development.

Implementing more efficient environmental policies

In the 1990s, Japan's environmental legislation was further developed. Overall, the mix of instruments used to implement environmental policy is highly effective. Regulations are strict, well enforced and based on strong monitoring capacities. Significant progress has been made in tackling non-conventional air pollutants (e.g. dioxins, benzene), and waste management can be expected to improve further with the recent overhaul of the relevant legislative framework. Strict standard setting and financial support for research and development on new environmental technologies and treatment methods have had a positive technology-forcing effect, which has helped assure timely implementation of stringent regulations. The present system also has some cost-effectiveness advantages: nationwide emission or discharge limits are made more stringent at regional and/or local level when needed, often through agreements negotiated by prefectures and municipalities with industry. Environmental impact assessment (EIA) is systematically applied to major projects, and consultation of the public and of regional and local authorities has improved. Japanese industry has been proactive in establishing environmental management and reporting systems, and several branches have taken initiatives to reduce their environmental "footprint".

Nevertheless, important gains in cost-effectiveness could be achieved through wider use of economic instruments. In particular, such instruments could help in: i) internalising externalities and generating economic signals that influence producer and consumer choices; and, ii) alleviating national and local government budget deficits. User and pollution charges and environmental taxes are not sufficiently used to internalise environmental costs. Financial assistance programmes are widely used to implement environmental policy, and their cost-effectiveness is not systematically evaluated. Application of the polluter pays and user pays principles is still incomplete, particularly concerning wastewater and waste services. Japan has made encouraging progress with user charges to cover the cost of wastewater services, but for household waste services, there is still a long way to go to achieve full cost recovery. With the exception of agricultural land contamination, management of soil contamination lacks a legal framework

* The 2001 OECD Environmental Strategy's main objectives covered in the present Conclusions and Recommendations are: integrity of ecosystems, decoupling environmental pressures from economic growth, the social and environmental interface, and global environmental interdependence.

** See Annex.

and liability is often unclear. In making policy decisions, greater consideration should be given to economic analysis of the options. There is still a need to improve consideration of mitigating measures and alternative options during the EIA process, giving a greater role to the public and NGOs. Voluntary agreements in the industrial sector should be rendered more transparent, with built-in monitoring mechanisms, and quantitative targets.

Towards sustainable development

Japan has achieved major decoupling of environmental deterioration from economic growth during the two last decades in terms of SO_x, NO_x, fertilisers and pesticides. Water withdrawal and municipal and industrial waste generation are no longer growing. With the First and Second Basic Environment Plans, Japan established the necessary platform for integrating environmental concerns in sectoral planning; the Central Environment Council reviews progress reports from the various ministries implementing the plans. Environmental concerns are also part of the annual national budgeting process. A comprehensive Greening of Government programme implemented in the late 1990s has reduced the environmental footprint of the public sector. Based on the law on the procurement of eco-friendly goods (2000), a new programme for greening of government was launched in April 2001. Integration of environmental concerns and fiscal policies has begun with the ongoing greening of the automobile tax and automobile acquisition tax. Coal subsidies are decreasing and are scheduled to be phased out entirely in 2002.

Despite quite advanced and sometimes exemplary policies, the decoupling achieved in the 1990s has not been sufficient in some areas. For instance, CO₂ emissions continue to grow at about the same rate as GDP. A number of pollution trends are still on the increase in absolute terms, most notably those related to traffic and energy use. Remaining waste disposal capacity is reaching a critical point. Physical planning is not well co-ordinated with environmental planning. Strategic environmental assessment is not yet systematically applied to environmentally relevant sectoral policies, plans and programmes. Concerning market-based integration, little use is made of economic instruments such as fees, charges, taxes, tradable permits or deposit-refund programmes. Most environment-related taxes are earmarked for road construction and maintenance. The granting of financial assistance to producers and consumers in several sectors may go against both environmental effectiveness and economic efficiency objectives; sectoral subsidies should be systematically reviewed for their environmental implications.

Climate change

Japan formulated ambitious climate protection targets in the early 1990s and continued to give attention to combating global warming throughout the decade. Japan has a detailed climate protection policy whose implementation is well co-ordinated and regularly reviewed. Japan has consistently supported international climate protection efforts under the UN Framework Convention on Climate Change (UNFCCC). The CO₂ intensity of the economy (kg CO₂/unit GDP) decreased by 1.8% during the 1990s to rank eighth among OECD countries. Japan has pursued fuel switching away from oil and towards gas and nuclear power. It has made extensive and effective use of energy efficiency standards since the 1970s, and significantly strengthened them with the establishment of its "top-runner" programme in 1998. Public transport infrastructure is well developed in major cities, with differentiated tariffs, and public transport continues to account for a large proportion of passenger trips in most metropolitan areas. Voluntary initiatives by Japanese industry have contributed to reductions of greenhouse gas (GHG) emissions from this sector. To influence energy users' behaviour, public education programmes promote efforts against global warming.

While weak decoupling was achieved in the 1990s between CO₂ emissions and economic growth, Japan's performance still contrasts rather starkly with its overall goal of reducing GHG emissions by 6% between 1990 and 2008-12. Its GHG emissions increased by nearly 7% between the baseyear and 1999. Japan has therefore fallen short of the stabilisation targets it declared by ratifying the UNFCCC and by establishing its Action Programme to Halt Global Warming. The energy intensity of the economy (toe/GDP) increased by 5% in the 1990s, a reversal of the trends of the 1970s and 1980s. Although Japan pursued improvements in energy efficiency in all sectors during the 1990s as a means of reducing CO₂ emissions, it has so far largely overlooked the potential contribution of demand management measures and renewable energy sources. Greater effort is needed to harmonise climate protection measures across sectors and among energy sources. Existing environment-related taxes should be reviewed and further developed, where appropriate, from the viewpoint of GHG reduction and other objectives. One example is road transport fuel taxation. Economic instruments such as taxes and charges are used less in Japan than in a number of OECD countries. Japan should continue its efforts to accomplish its targets for limiting HFCs, PFCs and SF₆.

Other international commitments and co-operation

Concerning marine issues, Japan has taken major steps to improve its capacity to respond to large-scale oil spills since ratifying the OPRC Convention (International Convention on Oil Pollution Preparedness, Responses and Co-operation) in 1995. The Coast Guard carries out regular surveillance of the exclusive economic zone for illegal dumping or discharging from ships, and port authorities regularly check for MARPOL compliance by ships. Japan has implemented significant measures to reduce its fishing fleet capacity, in line with Food and Agriculture Organisation recommendations. Bilateral and trilateral co-operation with China and South Korea has been strengthened. Japan played a key role in establishing the Acid Deposition Monitoring Network in East Asia, one of the first region-wide co-operative and collaborative monitoring networks in the region, involving 11 countries. This network has become important for the exchange of scientific data and knowledge, which could lead to regional policy responses. Over 30% of Japan's official development assistance is in the environmental field. Japan ceased its production of CFCs in 1995. There has been a gradual substitution of softwood plywood for hardwood plywood in Japan's imports; the former's share increased from 15% in 1993 to 42% in 1999.

Japan has not yet succeeded in developing regional agreements for oil disaster response as the OPRC Convention requires. Although operating the world's second largest shipping fleet, Japan's measures for the management of ballast waters and ship scrapping are currently insufficient. Bilateral co-operation with Russia faltered in the late 1990s. Shared fish stocks of several fisheries in the North Pacific need to be restored and properly managed. On transboundary pollution, there is still a long way to go to reach the goal of developing a common understanding and basis for policy responses concerning both air and marine pollution. The rate of recovery of CFCs from consumer products should be improved. Progress towards Objective 2000 of the International Tropical Timber Organisation (to ensure that all imported hardwood comes from sustainably managed forests) is not measurable.

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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

Annex: 60 Recommendations*

<i>Environmental management</i>	<ul style="list-style-type: none"> ▪ strengthen and extend the use of <u>economic instruments</u> (e.g. taxes and charges) to implement environmental policy in more environmentally effective and economically efficient ways and to progress towards sustainable production and consumption; ▪ continue to assure appropriate <u>enforcement of regulatory</u> measures; ▪ ensure that <u>voluntary agreements</u> become more transparent, effective and efficient; ▪ extend environmental legislation and policy attention to cover all types of <u>contaminated sites</u>; ▪ <u>review financial assistance programmes</u> used to implement environmental policy, assessing their environmental and economic effectiveness and their compatibility with the polluter pays principle (as proposed in the 1994 EPR); ▪ increase <u>economic analysis</u> of environmental policy measures, with the aim of achieving environmental objectives more cost-effectively.
<i>Air</i>	<ul style="list-style-type: none"> ▪ continue efforts to reduce <u>NO_x and NMVOC emissions</u>, in light of the persistent NO₂ and photochemical oxidant issue in metropolitan areas; ▪ further develop and implement comprehensive policies to control <u>fine particulate emissions</u> from both mobile and stationary sources and to meet environmental quality standards; ▪ continue efforts to <u>reduce emissions of toxic chemicals</u>, ensuring in particular that voluntary agreements are efficient and effective; ▪ use <u>cost-benefit analysis</u> more systematically in integrating major air management and transport decisions, including those for road investment; ▪ strengthen the management of <u>motor vehicle traffic</u> through a comprehensive package of policies including traffic demand management measures (e.g. land use planning, economic instruments, information technology) and measures promoting the use of more fuel efficient vehicles and of <u>less polluting transport modes</u>.
<i>Water</i>	<ul style="list-style-type: none"> ▪ consolidate the body of <u>water-related laws</u> into coherent legislation integrating quantity and quality management and taking a whole river basin approach; ▪ take additional measures to expedite implementation of <u>sewerage construction</u> programmes (e.g. expanding advanced treatment infrastructure, improving combined sewer overflows); further increase the application of the polluter pays and user pays principles; consider a possible role for <u>public-private partnerships</u> towards this end; ▪ strengthen implementation of <u>nutrient reduction measures</u> for lakes, bays and inland seas, in particular regarding diffuse sources such as agriculture; ▪ strengthen the control of <u>substances hazardous</u> to human health and ecosystems, through cleaner production, effluent control, pesticide regulation and groundwater protection; ▪ streamline the <u>water quality classification system</u> and include ecological water quality criteria; ▪ continue to actively pursue the <u>restoration of river habitats to near-natural state</u> and extend stakeholder participation in river management to more river basins.
<i>Waste</i>	<ul style="list-style-type: none"> ▪ implement the <u>Basic Law for Establishing a Recycling-Based Society</u> and related recycling regulations, develop quantitative targets, monitor the effectiveness and efficiency of their implementation, and broaden the application of extended producer responsibility (e.g. to automobile producers); ▪ expand the use of <u>economic instruments</u> for waste management, especially <u>user charges</u> for cost recovery in municipal waste services; ▪ develop more efficient <u>municipal waste management services and companies</u>, increasing the setting up of intermunicipal treatment and disposal facilities; ▪ improve the accountability of industry concerning <u>voluntary initiatives</u> on waste reduction and recovery; ▪ increase capacity for <u>treatment and disposal of industrial waste</u>, with appropriate public access to information and participation.
<i>Nature and biodiversity</i>	<ul style="list-style-type: none"> ▪ strengthen measures to prevent the decrease, fragmentation and degradation of habitats in <u>protected areas</u> and extend such areas and their interconnection within a national nature network; ▪ intensify efforts to <u>integrate nature and biodiversity concerns</u> in agriculture, forestry, fishery and spatial planning policies (e.g. by gradually phasing out environmentally harmful subsidies, making support conditional on compliance with environmental and nature conservation standards, or rewarding efforts to improve biodiversity and amenities); ▪ review and revise the <u>national biodiversity strategy</u>; ▪ further strengthen the financial means, human resources and institutional capacities for <u>management of protected areas</u>; explore options for establishing financial mechanisms (e.g. a compensation fund for nature, financed by charges on land conversion and habitat interference); ▪ continue to promote <u>re-naturalisation projects</u> to rehabilitate degraded ecosystems and to return to nature unused agricultural or industrial land and reclaimed wetlands; ▪ accelerate progress in preserving and creating urban or peri-urban <u>open green space</u> and in revitalising <u>river banks</u>, with appropriate public participation.

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

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

<i>Towards sustainable development</i>	<ul style="list-style-type: none"> ▪ better <u>integrate</u> environmental concerns in physical planning, transport, agriculture, energy and urban policies; ▪ ensure that co-ordinated and <u>integrated sectoral plans</u>, associated with the Second Basic Environment Plan, are developed through close co-operation among the ministries concerned, and assure accountability for implementation of the plans; ▪ take the necessary steps to systematically carry out <u>strategic environmental assessment</u> during the development of environmentally relevant policies, plans, and programmes; ▪ strengthen efforts to buy and use "<u>greener goods</u>" (e.g. via green procurement policies and the green consumer movement) so as to promote more sustainable production and consumption patterns; ▪ continue to <u>restructure environment-related taxes</u> in a more environmentally friendly way; ▪ review and further develop the system of <u>road fuel and motor vehicle taxes</u>, with a view to promoting more sustainable modes of transport, to internalising environmental costs, while paying attention to the demand for transport infrastructure and to introducing more flexibility in the allocation of the revenue; ▪ continue to <u>reduce sectoral subsidies</u> that have negative environmental implications.
<i>Environmental/social integration</i>	<ul style="list-style-type: none"> ▪ further develop <u>environmental data, indicators and information</u> as tools facilitating decision making and communication, and review the potential for grouping related institutional capacities together; ▪ improve <u>public access to environmental information</u> held by the environmental administration, sectoral ministries and the private sector; ▪ review <u>distributional implications</u> of proposed market-based instruments for environmental management and sustainable development; ▪ promote the development of <u>environmental NGOs</u> and assure their representation on advisory councils and committees dealing with issues relevant to sustainable development at national and prefectural levels; ▪ promote <u>environmental education</u> at all levels and forms of education, including training for teachers; ▪ assess the impact of changes in <u>technology and lifestyle</u> (e.g. the impact of information/communications technology, increased recreation time, retirement) on environment and nature, taking into account related changes in patterns of settlement, transport, production and consumption.
<i>Sectoral integration: chemicals</i>	<ul style="list-style-type: none"> ▪ further improve the effectiveness and efficiency of <u>chemical management</u> and further extend the scope of regulation to include ecosystem protection; ▪ strengthen voluntary initiatives in the chemical industry and grant a more active role to chemical producers in <u>safety investigations</u> (e.g. of <u>existing chemicals</u>); ▪ introduce measures to encourage manufacturers to reduce the <u>environmental and health risks</u> posed by <u>chemicals used in consumer products</u>, at all stages of the products' life cycle; ▪ continue to instruct farmers about and monitor their <u>compliance with regulations and guidelines concerning the application of pesticides</u>; ▪ continue to develop <u>publicly accessible databases on chemicals</u> (e.g. on toxicity, risk assessment, emissions at all stages of the life cycle) and strengthen <u>risk communication</u> concerning hazardous chemicals; ▪ continue to co-operate with other OECD countries (e.g. on harmonisation of test procedures for new and existing chemicals) and continue to <u>promote environmentally sound chemical management</u> in East Asia.
<i>International environmental co-operation</i>	<ul style="list-style-type: none"> ▪ seek the entry into force of the <u>Kyoto Protocol</u> in 2002, with <u>timely ratification</u> processes, and with the widest possible participation; ▪ further develop the national policy framework to combat climate change, with a <u>balanced mix of policy instruments</u> (including an expanded use of economic instruments such as taxes and charges), to reach domestic and international commitments; review and further develop environment-related taxes where appropriate, from the viewpoint of GHG reduction and other objectives; ▪ develop and implement <u>co-ordinated demand management measures</u> (e.g. road pricing, parking charges, energy service company) and energy efficiency improvement measures (energy efficiency standards and other measures) in the <u>transport and residential/commercial</u> sectors; ▪ review and revise <u>voluntary initiatives in industry</u> to improve energy efficiency and reduce GHG emissions (e.g. more explicit targets, expanded public access to relevant information); ▪ take further measures to encourage the development and use of <u>renewable forms of energy</u> and to promote <u>fuel switching</u> where appropriate; ▪ continue to implement policy measures to reduce emissions of <u>HFCs, PFCs and SF₆</u> with a balanced mix of policy instruments.

* This recommendation is based on the OECD Environmental Strategy for the First Decade of the 21st Century and Section 1.5 of Chapter 9 of this report.

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 commitments

- continue to develop institutions for regional responses to oil emergencies, including surveillance, analysis, communication and response (e.g. in the framework of the North-West Pacific Action Plan);
- continue to develop and implement international technical guidelines regarding ballast waters and ship scrapping;
- seek to strengthen regional collaboration to improve the management of shared fish stocks in the North Pacific;
- strengthen bilateral and regional efforts to address shared environmental concerns, particularly regarding transboundary air and marine pollution, and migratory birds;
- implement the new laws on recovery of fluorocarbons from household appliances, automobiles and commercial air conditioning systems;
- co-operate internationally to develop means of ensuring that timber and wood products used in Japan originate from sustainably managed tropical and boreal forests;
- further increase official development assistance (ODA) for environmental purposes, particularly that aimed at facilitating solutions to global environmental problems, as well as total ODA, taking into account the UN target (0.7% of GNP).