

# 1

## CONCLUSIONS AND RECOMMENDATIONS

This report examines Turkey's progress since the previous OECD Environmental Performance Review in 1999 and the extent to which the country has met its national objectives and international commitments regarding the management of the environment and natural resources. The report also reviews Turkey's progress in the context of the OECD Environmental Strategy,\*\* and compares to the recommendations of the 1999 OECD review. Progress has stemmed from environmental and economic decisions and actions by national and territorial authorities, as well as by enterprises, households and non-governmental organisations. 45 recommendations are made that could contribute to further environmental progress in Turkey.

In the review period, the 2000/2001 economic crisis was followed by an impressive recovery and Turkey presents one of the strongest economic growth rates among OECD countries in recent years (7.5% of yearly average growth since 2002). Turkey has also been undergoing structural changes (further privatisation of enterprises, price liberalisation, integration in the European and global economy). However, the share of the informal sector in the Turkish economy remains high. Turkey's population has reached 73 million\*\*\*\* and remains one of the fastest growing in the OECD. Per capita income is the lowest among OECD countries. Major migrations from rural areas to urban, industrial and tourist areas continue. Turkey is surrounded by Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Iran, Iraq, Syria as well as the Aegean, Black, Marmara and Mediterranean seas.

Turkey confronts the challenge of ensuring that economic growth is associated with environmental and social progress, namely sustainable development. It has experienced increasing environmental pressures from energy, industry, agriculture, transport and tourism. They translate in a range of environmental challenges concerning air quality, water services, water resources, waste management, soil erosion and nature protection, as well as marine issues. A range of institutional and legislative elements of environmental reform have been put in place, largely as pre-accession efforts of convergence with the EU environmental acquis. The national development planning effort is remarkable. Although current emissions and discharges per capita remain low compared to OECD per capita averages, much of the necessary environmental infrastructure must still be created in urban and industrial areas. Environment has had a relatively low priority in Turkey. Strengthened environmental

---

\* Conclusions and Recommendations reviewed and approved by the Working Party on Environmental Performance at its meeting on 3 June 2008.

\*\* The following objectives of the OECD Environmental Strategy for the First Decade of the 21<sup>st</sup> Century are covered in the Conclusions and Recommendations: maintaining the integrity of ecosystems (Section 1), decoupling of environmental pressures from economic growth (Section 2) and global environmental interdependence (Section 3).

\*\*\*\* Refers to 2006 present population. Resident population in 2007 was 71 million.

efforts from national government, municipalities and the private sector are required to achieve environmental convergence with other OECD countries. Turkey is a founding member of OECD and adheres to all the environmental Acts of the OECD Council.

Looking to the future, to face its environmental challenges effectively, it will be necessary for Turkey to i) strengthen environmental policies and their implementation where appropriate; ii) further integrate environmental concerns into economic and sectoral decisions and iii) further develop international environmental co-operation.

## **1. Environmental Management**

### *Strengthening the implementation of environmental policies*

In the review period, the EU harmonisation process has become the main driving force in a major national environmental reform. It translates in a large number of new environmental legislation and regulations. The 2006 “comprehensive amendment” of the 1983 Environmental Law, and the new Law on Municipalities contributed to the clarification of environmental responsibilities amongst the various levels of administration. Enforcement capacities have been strengthened by new regulations and the creation of a separate division in the Ministry responsible for co-ordination of enforcement efforts. Integration of environmental concerns in land-use planning is progressing, though challenges related to unregistered operations remain. Industry is being engaged in voluntary approaches, notably in cement and chemical sectors. Turkey is the OECD country which has the largest revenues from environmentally related taxes (i.e. energy and transport taxes): 4.8% of GDP and 25% of total tax revenue, although these taxes were not designed for environmental purposes. Public-private partnerships have been strengthened, including the establishment of Organised Industrial Zones that provide comprehensive environmental services to industry. Estimates of pollution abatement and control expenditure (PAC expenditure) have increased from 1.1% to 1.24% of GDP.

Despite progress in aligning with the EU environmental legislation, transposition is still waiting for several pieces of legislation concerning air, water and nature protection, and several standards are not consistent with EU limit values. Allocation of environmental responsibilities among government institutions could benefit from review and revision. Environmental concerns have been too often superseded by development interests in local decision-making. Implementation and enforcement remain challenging; a special autonomous environmental agency should be established to drive and conduct environmental inspections at national and territorial levels with appropriate resources, as well as training and monitoring support systems. The permitting system needs particular attention, as the current media based procedure is not sufficient, burdensome and needs regular renewal provisions. Despite the introduction of environmental charges, as well as fuel and motor vehicles tax differentiation, the use of a variety of economic instruments for environmental purposes (including specific taxes, charges, emission trading systems) in Turkey should be considered to meet objectives of efficiency and financing, with due regard to social issues. Low landfill charges hamper the recycling industry. A number of unregistered installations, mostly small and medium size, operate without environmental management systems. Adoption of environmental management systems in industry and public organisations as well as development of public-private partnerships should be promoted. Turkey faces the challenge of mobilising substantial financial resources for environmental investment, especially to work towards its new environmental objectives. This will require engaging private and public fundings for environmental improvement, to match external resources provided by the new EU instruments for accession, and strengthening the capacity of provincial and local authorities to prepare detailed projects and implement them. This will also require moving progressively to the full implementation of polluter pays and user pays principles.

### Recommendations:

- continue to harmonise the national environmental legislation with the EU environmental acquis, following the EU Integrated Environmental Approximation Strategy, with particular attention to framework Directives and EU emissions and quality standards;
- strengthen the permitting system: moving from media based permitting to integrated pollution prevention and control, distinguishing large and small/medium size installations; using periodic permit renewals to gradually introduce stricter emission standards; and promoting best available technology;
- strengthen the enforcement system, through: an autonomous environmental agency in charge of inspection at national and territorial levels, increased resources for inspections and compliance monitoring, and increased training for inspectors; integrate environmental concerns (i.e. pollution, natural resources, nature concerns) at all levels of land-use planning, and strengthen land-use plans enforcement;
- develop the use of economic instruments, seeking an effective and efficient mix of instruments, with due regard to social issues; promote the implementation of the polluter pays and user pays principles, with a progressive shift from public to private funding, and a time limit for environmental subsidy schemes;
- develop public-private partnerships and industry-driven environmental initiatives with appropriate involvement of the Turkish Business Associations;
- strengthen the emergency preparedness and response system (e.g. establishing a commission to support the implementation of legislation natural and industrial disasters, extending institutional co-ordination, acquiring appropriate equipment, performing regular drills and simulations);
- increase the capacity of provincial and municipality authorities to prepare and implement environmental infrastructure projects, including those with EU funding; continue the reform of the Bank of Provinces to increase the efficiency in transfers of public funds to municipalities and in municipal investments.

### *Air*

During the review period, Turkey achieved a strong decoupling of SO<sub>2</sub> and CO emissions from economic development. The use of high-sulphur coal in residential heating has been prohibited, and its substitution by gas (mostly from Russia and Iran) has expanded in urban areas. Turkey has also developed significant lignite washing capacity. Energy intensity has improved, and air quality concerns have been better integrated into energy policies. The new Energy Efficiency Law and the Law on Utilisation of Renewable Energy Resources for Generating Electricity aim to promote energy efficiency and the use of renewables. There are lower tax rates for natural gas, LPG and bio-diesel. Part of these changes were brought about by the new regulations on air emissions from stationary sources. All coal fired power plants have been equipped with flue gas desulphurisation units. In the transport sector, several new regulations on emissions from motor vehicles and quality standards for motor fuels have promoted vehicle fleet renewal, with an increasing proportion of the car fleet being equipped with catalytic converters. The use of leaded gasoline was banned in 2004. Turkish gasoline and diesel prices (at current exchange rates) are among the highest in OECD member countries, due to relatively high taxes and the supply conditions in the region.

However, much remains to be done. In some urban and industrial centres, ambient air pollution by SO<sub>2</sub>, NO<sub>x</sub> and particulates exceeds national air quality standards. Information about ambient air quality is limited, particularly regarding NO<sub>x</sub> and O<sub>3</sub>. Although SO<sub>x</sub> standards for emissions from medium-sized solid fuel plants were strengthened during the review period, emission standards for power plants using high-sulphur oil are still lenient compared to EU regulations. After a

notable drop in 2000-01, both road freight and passenger traffics have increased rapidly and are a major source of air pollution, including in urban centres. Taxes on some motor fuels and vehicles still do not reflect their impact on air quality. For example, the tax rate for high-sulphur diesel fuel is lower than for fuel with a low sulphur content. CO<sub>2</sub> emissions have continued to increase. There are cross-subsidies concerning electricity prices. Even though Turkey is the first country in Europe that uses solar energy for heating (e.g. water heating) on a wide scale the large potential for use of heat from renewables (geothermal, solar thermal and biomass) has not been effectively utilised. Despite major upgrading of the rail network, railway freight traffic has not increased and railway passenger traffic has decreased.

#### Recommendations:

- strengthen regulatory standards, including those for air emissions and fuel quality, to bring them in line with EU legislation, and ensure that they are implemented effectively and efficiently;
- continue to promote the use of cleaner fuels for motor vehicles and for residential uses;
- develop the use of economic instruments to reduce air emissions from stationary and non-point sources; review and revise, as appropriate, existing taxes on fuels and motor vehicles to support air pollution reduction objectives;
- continue, and strengthen, efforts to improve energy efficiency in the energy, transport, industry, residential and services sectors, to capture related multiple benefits, including those of reduced air pollution and reduced GHG emissions;
- strengthen efforts to integrate air quality concerns into transport policy, including modal shift from road to public transport (e.g. railways), with appropriate cost-benefit analysis of investments and co-operation among levels of government and relevant sectors; extend the use of cleaner motor vehicles;
- continue and strengthen efforts to improve the information base for air management: including additional pollutants in the air emission inventories; extending ambient air quality monitoring; adopting and implementing the draft Regulation on Air Quality Evaluation.

### ***Water***

Ensuring availability of water for the economy and the population was among the highest priorities in the 8<sup>th</sup> and 9<sup>th</sup> National Development Plans of Turkey. These plans also included a number of other objectives related to water management, which are gradually being met. For example, all river basins have now their water management plans, and water quality problems are being addressed. Investment in water supply and waste water infrastructure has increased, with funding from municipalities and the Bank of Provinces. The rate of connection of the population to waste water treatment plants has increased to reach about 40%. Out of 19 larger municipalities, 16 have waste water treatment plants. Almost all irrigation infrastructure (95%) was transferred to user associations and their operation is becoming more efficient. In line with the EU legal framework, a number of regulations have been adopted relating to: discharges of dangerous substances into water, quality of surface water intended for the abstraction of drinking water, protection of water against nitrate pollution from agriculture, urban waste water treatment, and the use of water for aquaculture and bathing. The MoEF is now responsible for both water quality and water quantity management.

However, surface water quality has remained low in many water bodies, or deteriorated due to insufficient pollution control, reaching alarming levels for surface waters in some large municipalities. Despite some progress, still approximately 53% of total waste water from industry is discharged into rivers and coastal waters without any treatment, often containing mercury, lead, chromium and zinc. Groundwater quality and levels are of concern, as groundwater is often

contaminated by leakages from waste water and waste dumps, and increasingly used by households and agriculture. Unaccounted water uses and losses (e.g. unbilled uses, illegal uses, leakages) is about 55%. Although prices for drinking water have increased, with the attempt to recover operational costs, water for industry and agriculture, as well as waste water services continue to be underpriced. This results in inefficient use of water, excessive demands for water infrastructure and heavy indebtedness of municipalities. Nitrate and pesticide pollution from agriculture is continuing. Two thirds of agricultural land is prone to erosion. Large scale hydraulic engineering works, such as dams, remain a main feature of water management responding to objectives of economic development and population needs.

Recommendations:

- adopt a comprehensive water law, balancing the demand and supply side of water resource management;
- further develop water resource management by river basin, addressing both quantity and quality issues; establish basin councils to reinforce co-operation and partnership among authorities and water users (municipalities, industries, farmers), on the basis of pilot projects;
- promote better water supply and waste water infrastructure; encourage water saving and investment to reduce water losses;
- promote adequate pricing of water services, for household, industry and agriculture, with attention to efficiency, cost-recovery, and affordability;
- strengthen efforts to promote compliance with waste water legislation for industry (e.g. appropriate permitting, responses to non-compliance);
- reduce water pollution from agriculture (e.g. identification of nutrient vulnerable zones, action plans to address pollution, codes of good agriculture practices, effective inspection and enforcement);
- continue efforts to promote water monitoring, promote the analysis of health and economic impacts of water pollution.

***Nature and biodiversity***

The area of forest and other wooded land has increased to 27.2% of the national territory. Afforestation efforts, partly to combat soil erosion, have reached 250, 350 and 400 million planted seedlings respectively in 2005, 2006 and 2007, a major contribution to the UNEP goal of at least 1 billion tree planting worldwide each year. Legislation concerning biodiversity has improved, as have related institutional co-operation and co-ordination. The total extent of protected areas has increased during the review period and now accounts for 5.3% of Turkey's total land area. Turkey has further strengthened the protection of these areas through management plans. Public participation has become an important part of nature inventories, conservation projects and management plans. Considerable progress has been achieved in public awareness and education related to nature conservation (e.g. large-scale programmes in schools, summer camps and training for various groups including prayer leaders and the military). Initial economic measures have been adopted to promote environmentally friendly agriculture, especially to address problems of salinity of soils and to support organic agriculture. Turkey has ratified all the main international conventions on nature conservation, except the Bonn Convention on the Conservation of Migratory Species of Wild Animals.

However, some parts of Turkey's rich biodiversity are threatened and will face increased pressure in the future. This is largely due to the effects of tourism, urbanisation, industrial and agricultural developments, as well as those of major infrastructure projects in rural areas. Protected areas should be extended and connected with each other. Turkey should consider strict protection of

parts of its natural coastline, including beaches, deltas and wetlands. The Ministry of Environment developed a National Biodiversity Strategy and Action Plan in 2001, and is in the process of adoption of an updated 2006 version. There are a number of separate laws to protect and regulate biodiversity, habitats and landscapes, but no overall framework legislation. Monitoring and inventories are carried out by MoEF and by NGOs, but few country-wide inventories are available. These include incomplete inventories of endangered species and corresponding red lists that still need to be completed and published. Erosion is widespread. Further efforts are needed to integrate nature and biodiversity concerns within agriculture, forestry, and land use planning.

#### Recommendations:

- prepare and adopt a framework law to cover all areas of nature and biodiversity;
- finalise, approve and implement the National Biodiversity Strategy and Action Plan prepared in 2006, including time-bound targets, as proposed by the CBD; set objectives with regard to integration of biodiversity considerations into agriculture and other sectoral policies;
- create protected areas, so as to reach the 10% domestic target by 2010; establish them in an interconnected network; complete, adopt and implement management plans for all protected areas;
- continue afforestation and sustainable forestry efforts; continue and expand all erosion combating efforts;
- improve coastal management; set and implement an objective for strict protection of sensitive parts of the coast; integrate nature conservation in tourism development;
- finalise the inventory of endangered species; publish the corresponding Red List; improve statistics and indicators on biodiversity;
- continue to promote education and awareness concerning nature conservation.

## 2. Towards Sustainable Development

### *Integrating environmental concerns into economic decisions*

Within a strong national economic and development planning founded on National Development Plans (NDP), increasing integration of environmental concerns has been achieved in several sectors, thus providing some progress in the practice of sustainable development. High road fuel prices and taxes (among the highest among OECD countries) provided incentives to reduce the use of petrol and diesel fuel and to renew the motor vehicle fleet. Turkey's energy intensity improved as did its resource intensity. Lignite, which generates significant pollution when used for energy production, does not receive direct subsidies any more. The structure of agriculture subsidies has changed promoting more environmentally friendly practices. Absolute decoupling took place for municipal waste generation and the use of fertilisers. The regulatory framework for environmental impact assessment of projects has been strengthened and steps launched for the introduction of strategic environmental assessment of policies.

However, Turkey is facing a number of environmental challenges due to unsustainable production and consumption patterns. The overall material intensity of its economy is still among the highest in the OECD area, as are the pollution intensities (e.g. SO<sub>x</sub> and NO<sub>x</sub> emissions per unit of GDP). This partly reflects the structure of its economy (e.g. with the highest imports of scrap metal in the world and their conversion into exports of metal products to the middle-east, with high imports and production of cotton and high exports of cotton products to Europe). Efforts to speed up economic and social development do not always take environmental concerns into account, especially at sub-national

level, where environmental priorities are not high. Environmentally harmful subsidies, especially in the energy sector, continue to promote polluting activities. With rapid economic growth, a continued increase in motor vehicles ownership and traffic, as well as in municipal and industrial waste generation can be expected. Waste management will require significantly larger collection and treatment infrastructure. While Turkey's preparations for and immediate follow-up to the 2002 World Summit on Sustainable Development, were widely complimented, the efforts to integrate sustainability into sectoral policies has been implemented via a EU project and should be developed through further steps.

Recommendations:

- establish a “green tax commission” to review and revise the full range of economic instrument of relevance for the environment (i.e. taxes, charges, trading, others); consider a comprehensive green tax reform, possibly in a revenue neutral perspective; review motor vehicle related taxes; introduce taxes on polluting products and inputs (e.g. detergents, batteries, pesticides, fertilisers, CFCs);
- reduce environmentally harmful subsidies, in particular in the agriculture and energy sectors, with appropriate measures to deal with competitiveness and distributive implications;
- expand economic information on the environment (e.g. environmental expenditure, environmentally-related taxes, resource prices, employment); develop economic analysis (e.g. cost-benefit analysis of environmental projects);
- undertake strategic environmental assessment concerning transport and agriculture policies;
- maintain a focus on sustainable development within the government, and the country more broadly, through an interministerial committee and associated advisory council that provide for broad participation by private sector institutions and the public.

***Integration of environmental and social decisions***

Important efforts have been made to increase access of the public to information in general and to environmental information in particular. Annual state of the environment reporting at provincial level has been supplemented by nation-wide reports. Environmental information units formed in government agencies, together with the state of the environment reports and national environmental statistics produced by the Turkish Statistical Institute inform the public about environmental issues. Public participation in the management of protected areas, in rural development and in EIAs procedures have become common and the number of environmental NGOs has increased. Initiatives to raise public environmental awareness, including training courses on environmental issues and environmental information dissemination have been developed for rural communities, the armed forces and prayer leaders. Several court cases for non-compliance and for environmental or health damages have proceeded. During the review period, significant progress in extending environmental education to all levels of the formal system was made, particularly for pre-school, primary and secondary schools.

Turkey continues to experience important regional disparities, with poverty affecting more rural areas of Eastern and South-eastern Anatolia, and suburbs of metropolitan areas. Even though a number of regional programmes support economic development of disadvantaged regions, their environmental and sustainable development content is often not sufficient. Studies of the relations between public health and environmental services are few and links between health and environmental policies should be developed. Large health related benefits could be derived from improved environmental conditions, including increased labour productivity, reduced health expenditure, and increased well being of the population. Environmental concerns should be integrated in technology

development and innovation and could stimulate employment, especially in industry. Environmental NGOs face challenges, including establishing themselves, co-operating with other NGOs and raising funds. Turkey has not yet become a party to the Aarhus Convention.

Recommendations:

- develop a white paper on the health-environment interface; develop and implement a national action plan on health and environment; further implement the national children's environmental health action plan;
- reduce the share of people without access to environmental services, (e.g. water supply, water sanitation and waste services) to improve health and the quality of life, in particular for low income households;
- integrate environmental and sustainable development concerns in regional development programmes, with particular attention to rural and disadvantaged regions;
- promote environmental policies which contribute to increased income and job creation, especially in rural areas and poorer districts of large cities;
- continue to monitor the implementation of the right of access to environmental information and of access to courts concerning environmental issues, and correct implementation as needed ;
- continue to strengthen environmental education; develop further efforts by public authorities and environmental NGOs to increase environmental awareness.

### **3. International Co-operation**

Turkey significantly expanded its engagement within the international community in the field of environment over the review period. It is currently a party to most key regional and global environmental accords and programmes, and has made effective use of a variety of international mechanisms to acquire technical and financial assistance in support of its national environmental priorities. Its co-operation with the EU on pre-accession convergence efforts has helped keep Turkey's international environmental commitments and responsibilities before national policy makers. It met its commitments under the Montreal Protocol to phase out ozone-depleting substances four years ahead of the target date, which was especially noteworthy given its policy of rejecting international pollution reduction targets based on its "special circumstances" (i.e. Turkey's low per capita income level requires it to emphasise economic growth). It has made impressive improvements in the area of maritime safety by establishing a high-tech Vessel Traffic Services system for the Turkish Straits, and developing oil spill contingency plans at the regional and (in some instances) municipal levels, supported by increased manpower, training and equipment. A progression of increasingly stringent regulations for the management of transboundary movement of hazardous wastes has brought Turkey into compliance with the Basel Convention and OECD rules. Good progress has been made in pursuing national follow-up to the Conferences of the Parties on the UN Convention on Biological Diversity and the UN Convention to Combat Desertification, and in responding to obligations under the UN Framework Convention on Climate Change, which Turkey ratified in 2004. Turkey has recently initiated a procedure of accession to the Kyoto Protocol.

Despite some advances in regional co-operation to address marine pollution in the Black, Mediterranean, Aegean and Marmara seas, water quality is under heavy pressure in Turkey's coastal waters, particularly from the discharge of untreated or lightly treated municipal and industrial waste water. Although marine fisheries management has been improved by a series of new regulations (on fishing practices, closed areas and seasons, and controls on equipment), the state of a number of fish stocks is of concern. With respect to industry, lack of inspection and enforcement capacity and political commitment is constraining the country's ability to improve environmental conditions in the



workplace, and to reduce the potential for environmentally damaging industrial accidents; expanded efforts are needed to promote environmentally sound industrial growth by attaching effective environmental criteria and conditions to foreign direct investment, export credits, and the requirements of Turkish industry operating in other countries. The chemicals area has been cited in recent EU analyses as falling considerably short of EU legislation and requirements for the sound management of potentially toxic chemicals involved in international trade. Recognising efforts already accomplished (e.g. training programmes, brochures) Turkey's response to CITES requirements for controlling trade in endangered species has been limited, and needs further strengthening of inspection by customs agents. Turkey has not lived up to its commitments for data provision and action under the ECE Convention on Long-range Transboundary Air Pollution.

Recommendations:

- continue to strengthen national actions in support of multilateral and regional environmental accords and programmes in which Turkey participates, and to utilise fully the technical and financial support available from the international community through these mechanisms;
- maintain progress in contributing to international efforts to address climate change by preparing a comprehensive National Climate Change Plan, with clear goals, priorities and milestones, which also sets out responsibilities for all sectors of Turkish society; and consider setting nationally-determined voluntary targets (e.g. for energy use, renewable energy, afforestation and greenhouse gas emissions). This would maintain momentum in pursuing the national strategy and to provide an important signal to other countries of Turkey's commitment and intent;
- continue efforts leading to accession to the Kyoto Protocol;
- strengthen national policies, guidance and requirements governing the environmental performance of industry, both in Turkey and elsewhere. This would entail a "greening" of foreign direct investment and export credit decisions, as well as rigorous application to Turkish industry of the environmental aspects of the OECD Guidelines for Multinational Enterprises;
- maintain an open, active dialogue with neighbouring countries on issues related to transboundary rivers, with a view to ensuring sound management of water quality and quantity and increasing co-operation among riparian countries;
- accelerate efforts to protect Turkey's coastal waters from land-based pollution, given the substantial risk to economic growth, tourism and public health if water quality degradation is allowed to persist;
- introduce a dedicated environmental component into Turkey's expanding development assistance programme, including the possible establishment of an Environmental Focal Point in the International Co-operation and Development Agency to oversee and co-ordinate environmental assistance efforts, as well as help ensure the environmental soundness of the overall ODA programme.

