2.4 *Economic instruments*

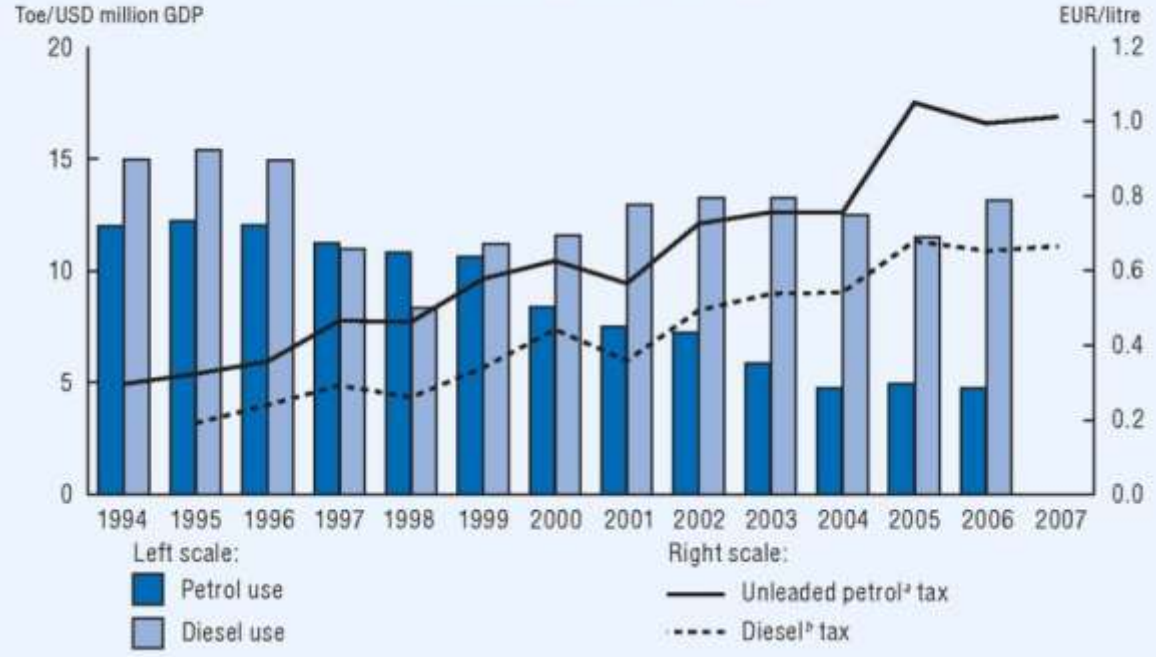
Currently, no *environmental charges or taxes* for managing air pollution are applied directly. Previous funding arrangements, with part of the revenue from motor vehicle inspection fees, vehicle sales and fees on airplane tickets going to the Environmental Pollution Prevention Fund, were discontinued with the Fund's elimination in 2001 (Chapter 5).

Environmentally related taxes

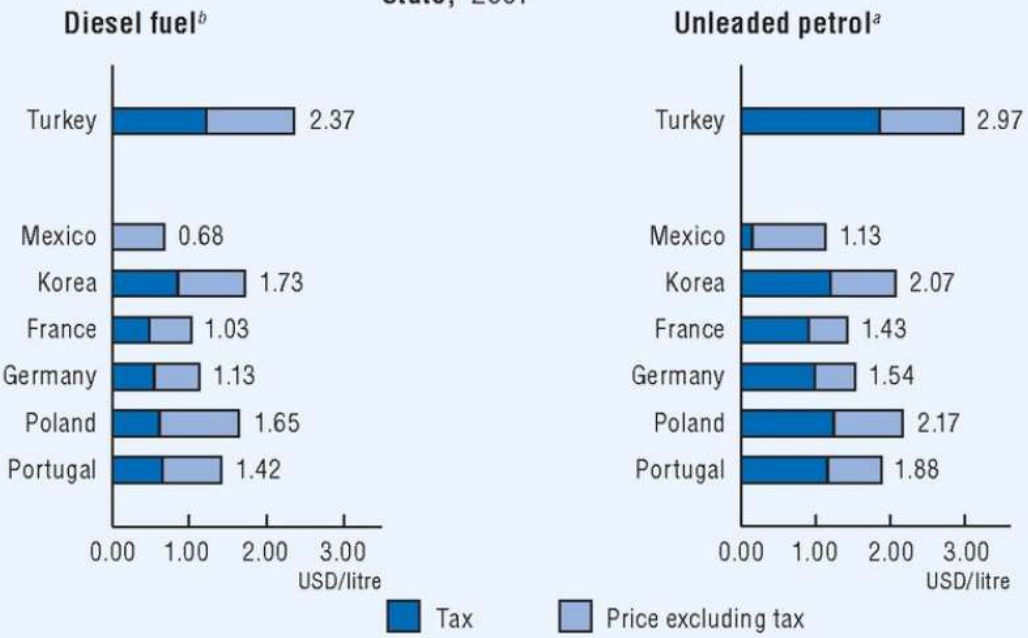
Environmentally related taxes include taxes on fuels and on vehicles. Road fuel prices in Turkey are among the highest in OECD countries. A *special consumption tax on motor vehicle fuels* (gasoline and diesel) was introduced in 2002 and its increase over the last five years is associated with a decrease in the use of motor fuels per unit of GDP (Figure 2.3). Given that many low-income households in Turkey do not own a car, this reform has touched middle-income and higher-income households. Since the tax rate for diesel fuel with sulphur content below 0.05% (EUR 0.52/l) is higher than for fuel with a higher sulphur content (between 0.05 and 0.20%), the wrong incentive is given from an environmental perspective (OECD, 2007).

Figure 2.3 **Fuel taxes and energy efficiency of road transport**

Trends in Turkey, 1994-2007



State,[c] 2007



a) Unleaded premium (RON 95); Korea: unleaded regular.
b) Automotive diesel for commercial use; Korea: for non commercial use.
c) In USD at current prices and purchasing power parities.
Source: IEA-OECD (2008), Database of End-Use Prices.

The annual *tax on motor vehicles* also has environmental ramifications. Its rates increase with cylinder volume (the tax is 84% higher for SUVs). As vehicles with larger cylinder volumes emit more pollutants, this provides incentives to purchase smaller vehicles. However, the tax decreases with the vehicle's age, which is inconsistent with pollution reduction objectives (ENVEST Planners, 2004).

The replacement of *older vehicles in the fleet* has been encouraged by separate economic incentives. In 2003 and 2004, the *special consumption tax* imposed on the purchase of new vehicles was lowered when a discarded vehicle was at least 20 years old. Overall, between TRY 2.25 and 4.5 million in tax rebates were granted for purchases of 247 000 new vehicles. In 2006, unpaid vehicle-related taxes, interests and fines were cancelled when vehicles at least 20 years old were delivered for scrapping at designated places.

Preferential tax rates apply to other fuels, such as *LPG and bio-diesel*. For example, the LPG tax rate is EUR 0.27/l compared to EUR 0.75/l for low-octane unleaded gasoline. This differentiation provides incentives to use LPG. When gasoline or diesel is mixed with bio-fuels (ethanol and bio-diesel) manufactured from domestic agricultural products, a lower tax rate is applied according to the mixing ratio.[8]

Energy prices

Retail *electricity prices* are relatively high in Turkey, at approximately USD 0.163/kWh for households and USD 0.1/kWh for industrial consumers (Table 2.2). Turkey currently has implicit cross-subsidies between regions and for certain subcategories of consumers. The government is considering a transition period, with a tariff equalisation method, to reduce cross-subsidies and progressively introduce cost-effective tariffs in the medium term.

For households, the *price of natural gas for heating* is relatively low (adjusted for purchasing power parities). On the contrary, the price of oil is three times as high as in OECD Europe (Table 2.2). Differences in energy prices are mainly due to tax differentiation by fuel types: the special consumption tax on natural gas is much lower than on fuel oils. However, no special consumption tax is applied to coal.

During the review period *agri-environmental policies* have gained momentum. As part of the Agricultural Reform Implementation Project (ARIP) (2001, amended 2005), the Environmentally Based Agricultural Land Protection programme (CATAK) was launched to protect environmentally fragile areas subject to severe erosion. Four pilot provinces, covering 5 000 ha, received annual transition payments (for 5 to 10 years) of TRY 560-1 260 per ha for measures such as taking land out of production and the adoption of environmentally beneficial practices (e.g. contour tillage, pasture rehabilitation, reduced flow irrigation). A 2004 regulation on the reduction of nitrate pollution aims at harmonisation with EU policies. Under the 2006 Agricultural Policy Strategy (2006-10), the share of budgetary support for agri-environmental purposes is to reach 5% (OECD, 2008).

The 1994 Regulation on Organic Agriculture and the 2004 Law on Organic Agriculture defined the standards, definitions, certification and regulations for *organic farming*, now in harmony with the EU regulations. Up to 2006 there were no support payments for organic farming. The 2001 Farmer Transition Programme pays farmers for diverting from overproduced commodities to alternative commodities. It was an opportunity to introduce environmentally beneficial management practices, later reinforced by the 2004 Regulation on Good Agricultural Practices. Despite the increase in organic farming, its share in total agricultural land area is low (0.5%) compared to the EU15 average of 4%. In Turkey organic farming is associated with export markets, mainly for horticultural crops but also for cotton (OECD, 2008).

A number of *regional development projects* aim at reducing impacts on the environment from agriculture. Most are partly financed by international development agencies and donors. The Anatolian Watershed Rehabilitation Project, supported by the World Bank with funding of TRY 65 million from 2004 to 2012, aims to restore degraded soils in order to increase farm and forest production in 28 selected upper microcatchments in the watersheds of the Kzlrmak and Yeşilrmak Rivers, which flow into the Black Sea, and supports monitoring and reducing agricultural water pollution in the lower parts of watersheds.

Agriculture

Although 24% of the country is suitable for agricultural development, three-quarters of this land is prone to erosion given Turkey's mountainous and steeply sloped topography (MoEF, 2006c). *Agricultural activities* are for the most part concentrated in the southern steppe regions. Cereals cover about 70% of cultivated land and fruit production 5%, while about 18% is left uncultivated every year.

MARA has implemented measures aiming at *sustainable agriculture*. The 1994 Regulation on *Organic Agriculture* and the 2004 Law on Organic Agriculture led to the certification of over 16 000 organic producers and the cultivation of around 175 000 ha in 2007. Organic farmers are eligible for loans with preferential interest rates.

MARA and NGOs are active in combating *land degradation and soil erosion*, which are increasing. For instance, MARA provides support for drip irrigation, which reduces the salinity of the soil. As a way to combat rural poverty, which generates pressures on land, many projects have been carried out by NGOs to provide income to local villagers (e.g. beekeeping, apricot tree planting). As a result, around 150 000 ha of land has been rehabilitated, both for pasture and forestry. However, more comprehensive agri-environmental measures are needed, such as direct payment for environmentally friendly farming and measures to reduce the use of chemical fertilisers and pesticides.

Protection of *steppe ecosystems* has improved since the 1998 Pasture Law was enacted. The law generated benefits for biodiversity protection, for the sustainable use of pasture resources, and for limiting land degradation and soil erosion. However, pressure to convert steppe ecosystems into agricultural land is high, especially on the western and southern coasts.

The 2006 *National Rural Development Strategy* includes objectives to improve the management and development of protected areas. There are long-term development and management plans to promote sustainable management of protected areas, and further support is to be given to local communities to use land assets for income-generating activities in a sustainable way.

3.6 Expenditure and financing

Expenditure on nature protection and biodiversity conservation has been increasing, reaching TRY 5 million in 2005 and TRY 11 million in 2006. A large part is devoted to investment and expenditure for *national park management*, with 30% financed through *extra-budgetary sources* (e.g. entrance fees, rentals and sales) and two-thirds from government funds. According to the Law on Hunting, 30% of the income from hunting licences should be returned to finance wildlife management. Local governments do not provide financing for nature protection and biodiversity conservation. During the review period, several major projects have been supported by *foreign financing* (e.g. World Bank, Global Environment Facility, the EU). These included Ecological Risk Analysis and Management Planning of Lake Manyas (LIFE-EU), Biological Diversity and Natural Resources Management (GEF-II Project), GEF-II supported income-generating programmes (Camili Biosphere Reserve, Iğneada Longoz Ormanlari, Köprülü Kanyon and Sultansazliği National Parks) and draft management plans for protected areas (Camili, Iğneada, Köprülü Kanyon, Sultansazliği, Manyas and the Küre Mountains). *NGOs* have also contributed to financing biodiversity measures. Overall, expenditure for nature protection and biodiversity conservation as part of total environmental protection expenditure is low, at about 0.6% in 2005, though its share grew to 1.4% in 2006.[10]

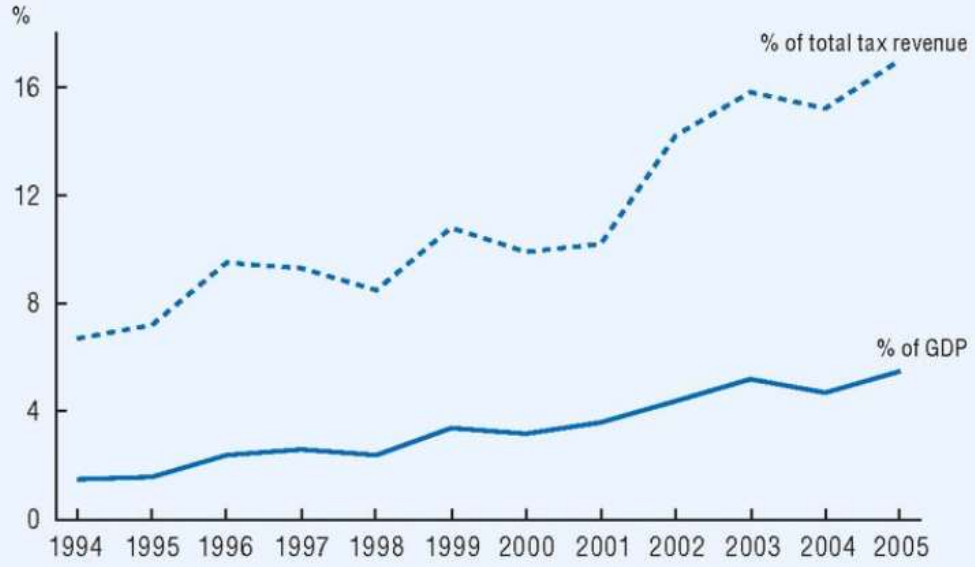
1.3 *Sustainable development in practice: market-based integration*

A number of steps have been taken by the government in the post-2000 period to *reduce tax distortions, broaden the tax base and improve the efficiency of tax administration*. In June 2002 a special consumption tax was enacted that consolidated many different taxes on some consumption and luxury goods. In April 2003 another tax package on direct taxation was approved by Parliament. With this new law, the system of tax exemption on investments was restructured and simplified, special expenditure reductions were transformed into tax credit, and the system for deducting some expenditure from income tax was simplified and made easier to implement (ENVEST, 2004b).

Environmentally related taxes

Environmentally related taxes represented 15.2% of total tax revenue in 2004, the highest share in any OECD country (the OECD average is 7%) and 4.8% of GDP (the OECD average is 2.6%) (Figure 5.3). These shares had increased significantly from 7.2% of total tax revenue and 1.6% of GDP in 1995. The weight of fuel and motor vehicle taxes in environmentally related tax revenue is very high: 96.5%. The fuel tax itself represents 65% (OECD, 2007).

Figure 5.3 **Environmentally related taxes[a] in total tax revenue and GDP**



a) Includes transport and energy related taxes.
Source: OECD/EEA database on instruments used for environmental policy and natural resources management.

Motor fuel taxes (called "special consumption tax on fuels") are excise taxes levied on motor vehicle fuels, fuel oil and natural gas. They are among the highest in OECD countries and are differentiated between unleaded gasoline and diesel, with a lower rate for diesel.[10] The consumption tax on gasoline and diesel was introduced in 2002 and its increase over the last five years is associated with a decrease in the use of motor fuels per unit of GDP (Figure 2.3). Given that many low-income households in Turkey do not own a car, this reform has touched middle-income and higher-income households. However, since the tax rate for diesel fuel with sulphur content below 0.05% (EUR 0.52/l) is higher than for fuel with a higher sulphur content (between 0.05 and 0.20%), the wrong incentive is given from an environmental perspective (OECD, 2007). A small tax reduction (2%) is applied to fuels (diesel and gasoline) containing a proportion of biofuel. A lower tax is applied to LPG compared with gasoline and other fuels. For example, in 2007 the LPG tax rate was EUR 0.37/l compared to EUR 0.85/l for low-octane unleaded gasoline. On average, in 2004 taxes represented 69.5 and 61.4% of unleaded gasoline and diesel prices respectively (IEA, 2005).

The special *consumption tax on motor vehicles* is a sub-category of the excise taxes paid on consumption goods such as alcohol, cigarettes and luxury goods. This tax on the purchase of new vehicles ranges between 0.5 and 84% of the vehicle's net tax price. For automobiles, the tax rate varies according to engine capacity (in 2007, 37% for engines up to 1 600 cm^3; 60% for those between 1 600 and 2 000 cm^3; 84%

for those above 2 000 cm^3). To accelerate the phase-out of old and polluting vehicles (more than 20 years old and not exceeding 1 600 cm^3), a tax discount was introduced in 2003 and 2004 for the acquisition of a new vehicle (in the same category and with engine capacity not exceeding 1 600 cm^3) while discarding a vehicle that was at least 20 years old.

The *motor vehicle tax* is paid annually and covers 152 categories of vehicles. While the rate increases with engine power, thus providing a positive signal with respect to the environment, there is a strong negative correlation with vehicle age which can be environmentally counterproductive, as emissions are usually greater in the case of older vehicles. However, changes to this provision are envisaged. To reduce illegal abandonment or scrapping of older vehicles, owners who dispose of vehicles through the appropriate provincial administration are exempted from past unpaid fines and motor vehicle tax.

Environmentally harmful subsidies

Various types of *financial assistance* are provided by the State to economic entities with an impact on the environment. Some support measures can be environmentally harmful, as they distort prices and resource allocation decisions as well as affecting the amount of goods and services produced and consumed in an economy.

The 1999 *reform of agricultural subsidies* resulted in an initial decrease in the Producer Support Estimate (PSE) by 2001, followed by an increase to 26% of gross farm receipts in 2003-05 (OECD, 2006c). At *3.5% of GDP,* the PSE level in Turkey is the highest in any OECD country.

The *structure of agricultural subsidies* has changed towards more environmentally friendly agriculture. The share of input payments (e.g. subsidised prices of those pesticides and fertilisers most likely to have negative environmental effects) decreased from 30% in 1986-88 to less than 2% in 2003-05. There has also been a general shift from market price support to direct income support (DIS) payments since 2001,[11] in line with the "decoupling" objective of the EU Common Agricultural Policy. Nevertheless, low water and electricity prices as well as irrigation subsidies (e.g. electricity for irrigation pumps is 50-60% cheaper than for other uses) are granted to farmers.

Concerning *energy subsidies*, hard coal remains subsidised.[12] As current hard coal prices do not allow Turkish State-owned coal producers to recover costs, they receive the balance as a government subsidy, mainly to cover the cost of labour. The government considers that this subsidy is necessary to promote domestic hard coal production and to diversify energy supply, bearing in mind the objectives of security of supply and social

considerations in the mining regions. Total subsidies paid to coal producers amounted to USD 266 million in 2003 (about 0.05% of GDP). While there is not a large volume of hard coal production in Turkey, aid per tonne of coal equivalent has been relatively high compared with other OECD countries that subsidise coal production.

While Turkish *lignite* producers have not received direct subsidies since 1994, they have been able to cover their costs and make a profit.[13] Until now lignite power plants have had a guaranteed market, but this will disappear when the Turkish Electricity Generation Company (EUAS) is privatised as anticipated in the 2001 Electricity Market Law (IEA, 2005).

1.4 Environmental expenditure and financing

Environmental expenditure

Pollution abatement and control (PAC) expenditure[14] was estimated at 1.2% of GDP (0.9% public expenditure, 0.3% business expenditure) in 2006, an increase from 1.1% in 1997 (OECD, 2007); private (business) expenditure includes energy saving measures. Since 1997, detailed PAC data are available only for the public sector and thermal power plants; they show a slight increase in public expenditure, mainly due to increased expenditure at municipal level.

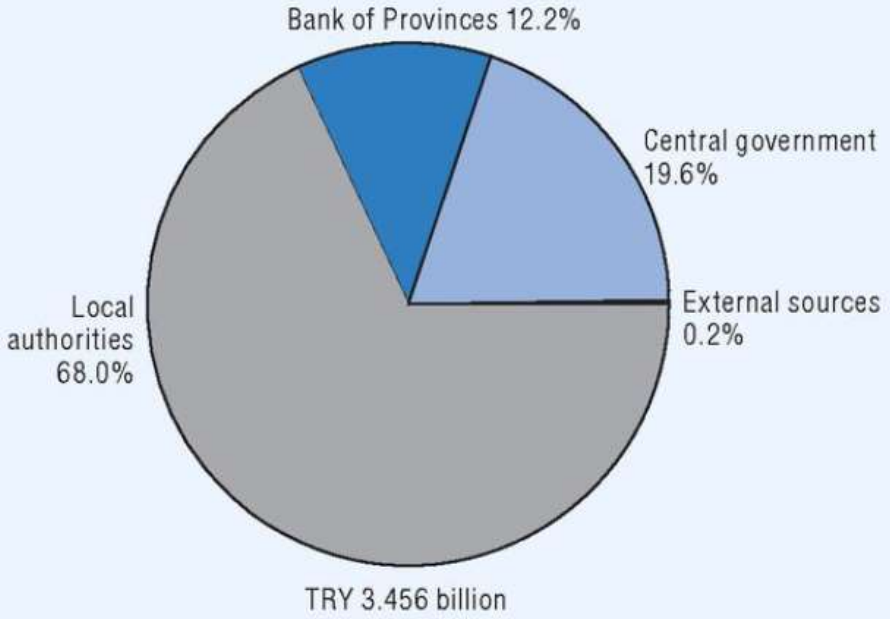
For a number of years *total public investment expenditure* has been around 5% of GDP, with the share allocated to environmental investment declining from 16% in 1999 to 7.5% in 2005.

Financing environmental expenditure

Financing of public environmental investment in 2005 came from four main sources: local authorities (68%), the central government (19.5%), the State-owned Bank of Provinces (Iller Bank) (12%) and external sources (e.g. World Bank, EU, GEF and individual donor countries) (Figure 5.4). Municipal revenues (including environmental charges) play an important role in financing investment and environmentally related operating expenditure (Box 5.3).

During the review period, public financing of environmental projects was modified. Until 2002 a large part of public environmental investment was financed from 20 special funds. In 2002 all budgetary and extra-budgetary funds were closed down;[15] central government resources for the environment are now channelled though a single special revolving account in the Central Directorate of Accounting of MoEF (ENVEST, 2004b), besides direct transfers to municipalities (and provinces) and general transfers through the Bank of Provinces. The termination of these funds has significantly reduced allocations earmarked for environmental infrastructure. "Grants

Figure 5.4 **Financing public environmental investment,** 2005



Source: MoEF.

to municipalities" provided by the central government budget via the Bank of Provinces contribute to the transition (Box 5.4). As part of the post-crisis reform, the number of projects in the overall *public investment programme* was reduced from 5 458 (in 1999) to 3 555 (in 2004). Of the 3 555 projects, 238 provided environmental infrastructure (e.g. waste water treatment plants, sewerage, water supply and solid waste management).

Looking ahead

It is estimated that complying with *EU environmental regulations* will require a total expenditure of EUR 58 billion between 2007 and 2023 (MoEF, 2006). Complying with EU water Directives will require investments accounting for 60% of the total. The central administration is expected to provide 13% of total funding, local administrations 37% (of which 12% by the Bank of Provinces), the private sector 26% and public enterprises 2%. External funding (mostly from the EU) is expected to contribute 22% of total expenditure.

Overall, Turkey faces the challenge of *mobilising financial resources* for environmental improvement, including EU environmental requirements. Some progress has already been made with investment plans for each of the most costly Directives. Further steps need to include i) strengthening the *capacity of provincial and local authorities* to prepare and implement detailed projects; ii) compiling and

reviewing *public and private financing data* to adjust financing strategies, in light of external resources to be provided by the new EU instruments for accession; iii) the current reform of the *Bank of Provinces* to increase the efficiency of transferring public funds to municipalities and of municipal investments; iv) greater use of *private funding*, including public-private partnership arrangements and foreign direct investment. Finally, during the transition phase of the EU environmental approximation strategy, it will be essential to move progressively towards full application of the polluter- and user-pays principles.

Box 5.3 **Sources of municipal revenues**

Central government transfers

Transfers from the central government to municipalities amount to about 2% of GDP. Close to *50% of total municipal revenues* are transfers from the central government. These transfers take place through three mechanisms: the first two provide untied general budget support for the municipal administrations, while the third is earmarked for particular purposes. More specifically:

- 6% of national tax revenues is transferred to municipalities according to their population. This represents *about 55%* of central government transfers to municipalities;
- 4.1% of taxes collected within a province are allocated to a metropolitan municipality if there is one in the province. This represents *about 30%*. Upon receipt by the metropolitan municipal administration, the transfer is divided into three parts. The largest, 55% (of 30%), goes to the various district municipalities according to population, 35% (of 30%) is allocated to the metropolitan municipality, and the final 10% (of 30%) goes to the Water and Sewerage Administrations (SKIs).
- the remainder, about *15%* of transfers, is allocated from the central government budget to a number of ministries and other agencies that in turn allocate funds for (specific) activities in the municipalities. This allocation was previously made through a number of extra-budgetary funds, most of which were eliminated in early 2002 to strengthen the central government budget.

Transfers from the central government to the *provincial governments* amount to about 0.3% of GDP or 1.12% of national tax revenues.

Local taxes

About *10% of total municipal revenues* come from local taxes: property taxes, the "environment cleaning tax" and taxes on advertising, entertainment, telecommunications, electricity and gas consumption, and fire insurance. Non-metropolitan municipalities and metropolitan district municipalities collect all local taxes. However, metropolitan district municipalities are required to transfer 10% of the solid waste tax and 20% of the property tax to their metropolitan municipalities.

Other revenues

In addition, municipalities have other revenues representing *25% of total municipal revenues*. These include fees for services provided by municipalities such as connection of residential units to municipal networks (e.g. roads, sewerage systems and water pipes). A further *15% of total municipal revenue* comes from donations and aid, fines, income from municipal enterprises, borrowing and other sources. There are no legal restrictions on municipalities' external borrowing. They may borrow on external markets, but only after meeting tight financial criteria and with a Treasury Guarantee.

Box 5.4 **The Bank of Provinces**

The *Bank of Provinces (Iller Bank)* is an institution affiliated to the Ministry of Public Works and Settlement. It was established as a municipalities bank (Belediyeler Bankas) in 1933, and municipalities have been its shareholders ever since. The Bank's main sources of revenue are: i) annual capital contributions from the local administrations; ii) central government transfer payments; and iii) operating income from commissions, transactions, and banking service revenues and dividends. Currently, the Bank of Provinces carries out three types of activities:

- it serves as a *transfer mechanism* for central government financial payments to municipalities and special provincial administrations. These transfers are generally for the purpose of unconditional budget support for territorial administrations. However, in some exceptional cases transfers may be earmarked for particular (current or investment expenditure) purposes. While transferring central government payments, the Bank has the right to offset transfers against debt service payables to the Bank and/or other agencies of the central government;
- the Bank provides both short-term and long-term *loans* for investments to the municipalities, usually smaller and medium–sized ones, and their utilities;
- on the demand of the municipalities, the Bank provides *technical assistance* to prepare investment projects. These projects include solid waste plants, drinking water treatment plants, water supply, sewerage networks and urban waste water treatment plants. The Bank can also help them develop urban development plans. This technical assistance is financed from the central government grants allocated to the municipalities;

– the Bank also *executes infrastructure projects* through contractors on behalf of the municipalities.

A *reform* of the Bank is underway to increase the efficiency of transferring public funds to municipalities, and to improve the quality and efficiency of municipal investments.

Box 5.5 **EU-Turkish relations**

Membership negotiations

Turkey signed the Association (Ankara) Agreement with the then European Economic Community in 1963. This agreement established an association relationship and envisaged the progressive establishment of a Customs Union which would bring the two sides closer together in economic and trade matters. Turkey was recognised as a *candidate state for EU membership* in 1999.

Turkey's accession negotiations started on 3 October 2005. The *screening of Turkish legislation vis-à-vis* the EU acquis communautaire was conducted between October 2005 and October 2006. Examination of the Environment Chapter was completed in June 2006.

Between 2005 and 2007, negotiations on six chapters were opened and provisionally completed in one chapter. The negotiations are conducted in accordance with the *Negotiating Framework* adopted by the EU member States, which expresses that these negotiations are based on Article 49 of the Treaty on European Union and that the shared objective of the negotiations is accession. These negotiations are an open-ended process.

EU financial assistance

Following the 1999 Helsinki European Council, a *pre-accession orientation* was introduced to the EU financial assistance programmes for Turkey. Initially, assistance focused on structural adjustment: EUR 209 million in 2000 and EUR 214 million in 2001 were allocated for Turkey.

In December 2001, the EU Council adopted the "*Framework Regulation for Financial Assistance to Turkey*" with allocations of EUR 126 million in 2002, EUR 144 million in 2003, EUR 236 million in 2004, EUR 277 million in 2005 and EUR 450 million in 2006. Expected average annual allocation for Turkey for the period 2007-10 increases from EUR497 million in 2007 to EUR 653.7 million in 2010.

Present priorities are to support the reform process, cross-border co-operation and partnerships with the EU Member States. As from 2007, financial assistance is provided through the *Instrument for Pre-Accession (IPA)*, which channels pre-accession assistance to all candidate and potential candidate countries. IPA is divided into five components: institution building, cross-border co-operation, regional development, human resources development and rural development. The novelty of the IPA is that it introduces financial support in new areas (e.g. environment, transport, regional competitiveness, human resource development) managed on the same principles as structural funds.

2.3 *Economic instruments*

Turkey is the OECD country with the largest revenues from environmentally related taxes, both when measures as a per cent of GDP or as a per cent of total tax revenue (Section 1.3). Petrol taxes are the highest in the world. However, the Turkish environmental policies overall are based on regulations, with limited use of other economic instruments, such as *user charges and pollution fees*. All charges principally serve revenue raising purposes. The 2006 amendment to the 1983 Law on Environment (Article 3) states, however, that "… to encourage the protection of the environment and the prevention and elimination of environmental pollution (…), economic instruments and incentives, such as emissions and pollution charges, and market-based mechanisms such as carbon trading shall be used".

Concerning *waste management*, charges on solid waste generation are collected by municipalities mainly to contribute to covering the costs of municipal waste collection and disposal.[25] Commercial and industrial sources pay a fixed annual charge based on the type and size of the facility, while households pay a fixed lump sum together with the water bill.[26] The environmental effectiveness of the charge is questionable, as it is not linked to the actual amount of waste generated and covers only a portion (about 15%) of the collection and disposal costs (ENVEST, 2004). The tariff structure is distorted, as industrial plants pay a lower rate than facilities such as schools. The charge rates should be revised, aiming at covering the full cost of disposal and providing an incentive effect to reduce waste generation.

The *deposit-refund system* is also used in waste management. The Regulation on the Management of Solid Waste requires packaging waste (paper, metal, plastic and glass) to be collected after disposal and recycled according to annual quotas. MoEF licenses firms that collect, separate and recycle waste on behalf of other firms that are subject to the quota system. These firms are responsible for keeping records of all the packaging material processed in their plants and have to submit this information to the Ministry periodically. The deposits are returned to those who bring empty containers back to the retailers or wholesalers of the product.

A *charge for hazardous waste treatment* (including treatment of clinical and industrial waste) has been designed to finance the operations of the only dedicated hazardous waste disposal facility (the Izaydas plant located in Izmit).[27] The charge is based on the volume and type of waste delivered to the facility. The rates cover the full operating costs. The capital costs of the plant have been covered by public funding. The effectiveness of the charge is limited, as it is imposed on the small proportion of hazardous waste that is actually delivered for treatment.

Concerning *water management*, a charge on water use and connection to sewers is designed to contribute to cover water supply and waste water disposal costs. Rates are fixed by municipalities; until the revision of the Law on Environment in 2006, a requirement that the level of the waste water charge should not be higher than 50% of the payment for drinking water supply severely undermined the financial and economic rationale of the system. This limitation has been eliminated, and the amended law calls for establishing rates that reflect the marginal social costs. Fees are also applied in the case of waste water discharges by industries unable to operate their own waste water treatment plants for certain periods.[28] The fee provides an incentive for industries to build and operate treatment plants and to reduce pollution.

Concerning *air management*, 20% of the regular inspection cost for motor vehicles feeds MoEF's revolving fund (budget line). There are also tolls (according to vehicle size and the distance travelled) for the country's main highways and a fee (according to vehicle size) paid for crossing either of the two bridges connecting Asia and Europe in Istanbul. Other economic instruments are applied in regard to *noise*[29] and *hunting*. The implementation of tradable emission quotas is currently not foreseen.

Environmentally related financial assistance is available in the form of exemptions from import duties and from the value added tax for purchases of environmental equipment and for environmental R&D and investment. Financial assistance is also available in the form of interest support (with a maximum of TRY 300 000) for investment credits and discounts on energy tariffs (up to 50%) for

pollution treatment and abatement facilities. Although the amount of these subsidies seems limited, they are not consistent with the polluter-pays principle, especially as no time limits are assigned to the subsidy schemes.

2.4 *Private sector initiatives*

Private sector initiatives to improve *environmental management* and reduce environmental impacts have been increasing. The number of enterprises certified for ISO 14 000 grew rapidly, from 91 in 2000 to over 1 400 in 2006; this was especially relevant in the case of those exporting to EU markets.[30] The Turkish Accreditation Agency and the Turkish Institute for Standards (TIS) have been working on the development of industry standards to address waste generation and management problems, as well as air and water pollution. In total 512 standards on the environment (out of which 131 are national and 381 internationally adopted) are in force.[31] TIS provides training to industry and experts and carries out environmental audits. Up to 2007, TIS provided 465 experts with "EMS Auditor/Lead Auditor" training. Technical studies to establish EMAS[32] are being initiated. Eco-labelling is not yet developed, though pioneering work has been done in the textile and leather industries.

Voluntary approaches, initiated and co-ordinated by the Turkish Business Association, have continued in the cement, chemical and automobile industries. Initiatives focus on meeting high environmental standards. Cleaner production initiatives have been applied through the joint efforts of universities and enterprises in the textile, olive oil production, dairy, leather and electroplating sectors. Most initiatives have focused on small and medium-sized enterprises (SMEs) with the greatest potential for water and energy savings. Some assessments concerning olive oil production have led to 95% reductions in waste water generation. Firms in the chemical industry have been implementing the Responsible Care programme and cleaner production training programmes, particularly in SMEs.

Organised Industrial Zones (OIZs) play an important role in industrial development. They provide many services (e.g. infrastructure, security services, legal advice) to enterprises located within a limited geographical area.[33] At the end of 2007, 107 OIZs had been established, covering a total of over 22 000 ha. Many OIZs (such as the one in Gebze, near Kocaeli) were established with the aim of reducing pollution caused by dispersed industrialisation around urban areas. The management of OIZs assists enterprises in their contacts with the environmental administration, arranging environmental permits and meeting other requirements. OIZs also provide environmental infrastructure, including water supply, waste water collection and treatment, waste disposal and emergency response. In addition, they

play an important role in strengthening environmental management in enterprises. Even though their operations focus on firms with foreign capital, sharing the OIZs' experience should be of value across Turkey, particularly for SMEs.

2.2 *Employment and the environment*

The ongoing structural and economic reforms are modernising the labour market. However, employment in agriculture has decreased with no corresponding employment increase in industry and services. *Unemployment* climbed from around 6% in 1998-2000 to over 10% in the period 2002-07.

There are no data on *environmentally related employment*, nor are there studies on the positive, negative and net employment impacts of environmental policies. No active employment policy associated with environmental policies has been established, especially for industry and services. The *environmental goods and services* industry is not considered by Turkey's 2003 SME strategy and action plan[4] or by the Small and Medium Industry Development Organisation (KOSGEB), which runs many support schemes related to technological development/innovation, export promotion, entrepreneurship development, information technology and quality improvement.

The environmental dimension is also missing in current programmes promoting *innovation,* including the National Science and Research Strategy for the period 2005-10.[5] The University-Industry Joint Research Centres Programme (USAMP), managed by the Turkish Scientific and Technological Research Council (TUBITAK), and the SAN-TEZ (a new university-industry co-operation project promoting the transfer of technology) could include environmental concerns to a greater extent. MoEF participates in the work of the Supreme Council for Science and Technology, as the 9thNDP included environmental protection under its competitiveness cluster of objectives.

2.3 *Trade and environment*

Endangered species

In 1996, Turkey became a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Three years later, the CITES Secretariat informed the Conference of Parties that Turkey, along with Fiji, Vietnam and Yemen, had high volumes of trade in CITES-listed species but lacked adequate legislation to meet the requirements of Convention implementation. Turkey's response was to *enact more stringent regulations* governing endangered species, and to establish a CITES Management Authority responsible for documentation and permitting related to the import and export of mammals (except marine animals), birds and reptiles.

In 2001, a *set of regulations* was issued based on the requirements of EU Directives. It was further revised in 2004. That same year an EU Twinning Project was initiated, on Capacity Building in the Field of Environment, with a component on implementation of the CITES Convention and related EU Regulations. Among the activities was an assessment of how to harmonise and upgrade the databases of various Turkish authorities active in endangered species matters: MoEF for CITES follow-up; the Authority for Protection of Special Areas; and TUBITAK for biodiversity.

Trade permitted under CITES, including re-exportation, is managed by the General Directorate of Nature Conservation and National Parks of MoEF, the General Directorate of Protection and Control, and the General Directorate of Agricultural Production and Development of MARA. *Permits* cover parrots, crocodiles, turtles, the skins and trophies of certain game animals, species imported for zoos and circuses, ivory samples, crocodile and snake skins, and museum materials. Overall, the number of CITES permits issued has risen steadily since 1998, with a large jump in the number of re-export permits awarded in the last two years (Table 7.5).

Although *training of customs officers* has been expanded, recent EU analyses point to a *continuing lack of qualitative and quantitative data* on illegal international trade of plants and animals subject to CITES protection. The EU has also recommended that the number of animal rescue centres for confiscated animals be expanded: two are currently in operation but in need of upgrading; none is available in coastal areas; and some species are not covered (Chapter 4).

Table 7.5 **CITES permits**, 1998-2006

	Importation	Exportation	Re-exportation	Other
1998	5	27	29	_
1999	44	5	11	6
2000	36	9	7	11
2001	32	4	16	_
2002	76	4	24	3
2003	98	17	21	5
2004	130	15	47	14
2005	228	7	375	_
2006	192	16	159	9

Source: CITES.

2.4 *Official development assistance*

Over the review period, Turkey has *advanced from an aid recipient to (principally) an aid donor*. Its Official Development Assistance (ODA), including public funds dispensed as bilateral grants as well as contributions and membership fees to multilateral institutions, rose to USD 601 million in 2005. This compares to ODA levels of USD 66 million in 2003 and USD 339 million in 2004 (definition changes and a more complete inventory after 2003 account for some of the growth). Turkey's provision of credits, contributions by the private sector and support for domestic and foreign NGOs raised the overall assistance figure for 2005 to some USD 1 400 million. Responsibility for the design and implementation of the development assistance programme is vested in the *Turkish International Co-operation and Development Agency*, which was restructured and upgraded in 2002.

Since Turkey is a limited recipient of foreign aid as well as a donor, it is designated as *an Upper Middle-Income Country* by the OECD's Development Assistance Committee (DAC). This excludes it from full membership in that body although it does meet other DAC criteria for membership, notably the requirement to provide USD 100 million or more in ODA financing annually. Turkey participates in the DAC with observer status.

Geographically, Turkey's development assistance effort in 2005 involved *88 countries* in the Caucasus and Central Asia (40.5%), the Balkans and Eastern Europe (30%), Africa (6.2%), the Middle East (5.9%) and the Far East (4.7%). Pakistan was the largest recipient (USD 126 million, including a large proportion for earthquake emergency relief), followed by Kyrgyzstan (USD 57 million) and Kazakhstan (USD 46 million). Sectorally, social infrastructure development was the principal focus, with education the largest component. The other major sectors were emergency assistance and peace-building.

The *environmental component* of Turkey's ODA remains very small. In 2005, USD 370 000 was committed under a General Environmental Protection account, mainly in the form of small technical support and training grants in the areas of forest management, drinking water quality and general environmental management.

Another USD 780 000 was allocated in grant support for water supply and sanitation projects. Limited funding was also provided to *multilateral institutions,* notably the GEF and UNEP, to support environmental activities of direct benefit to Turkey.