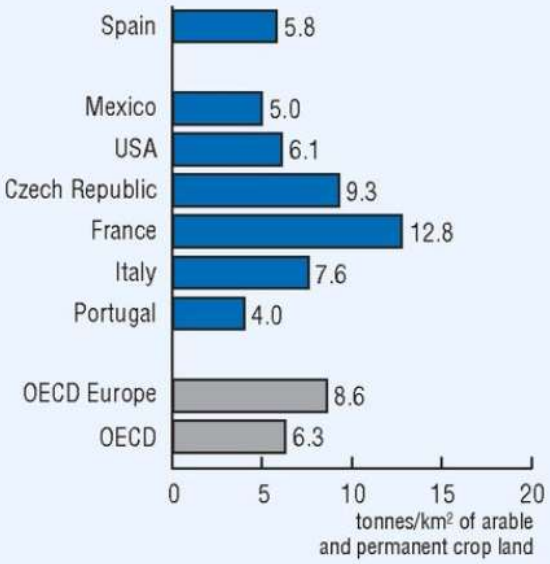
6. Expenditure and Financing

6.1 Expenditure

Concerning *pollution abatement and control (PAC) expenditure*, no comprehensive, up-to-date information on the state and trends of total public and private water-related expenditure is available. Public PAC investment expenditure in 2000 can be estimated at EUR 1.3 billion, including 25% from the central government (this figure includes EU funding). Current public PAC expenditure exceeded EUR 0.65 billion (i.e. total revenue from charges for sewage treatment received by utilities). Thus total public investment and current expenditure in 2000 may have exceeded EUR 2 billion, or about 0.3% of GDP. No estimate of private PAC expenditure (i.e. by business) has been made.

Figure 3.6 **Intensity of use of nitrogenous fertilisers,** 2001



Source: FAO; OECD.

Expenditure related to *drinking water* is still three times as great as public PAC expenditure. However, the share of expenditure on waste water treatment is steadily growing as more treatment capacity comes on line with the implementation of the EU Urban Waste Water Treatment Directive. Revenue from water supply increased at close to 3% per year in the late 1990s; that from sewage treatment grew at about 9% per year.

6.2 *Water charges and financing*

Pricing municipal water services

The average price of water from urban water supply utilities was EUR 0.64/m^3 in 2000. It varied from a low of EUR 0.42/m^3 in the wet northern part of Spain (Galicia Costa, Norte, Duero and Ebro) to over EUR 0.66/m^3 on the eastern Mediterranean coast. Although the price of water has risen in recent years, it remains relatively low (around 0.33% of an average family budget, compared with the 1% common in OECD Europe). Municipalities are *committed to cost recovery*, i.e. to recovering water supply costs through water supply charges; this legal requirement has been met increasingly in recent years, reducing implicit subsidies from other municipal financial sources. Concerning the price structure of these municipal water supply charges, the water supply bills of almost all domestic consumers have fixed and variable portions. The fixed portion may be calculated based on the diameter of the pipe that connects a dwelling to the network (as in the autonomous region of Madrid); the variable portion usually consists of a three-step block tariff, with the unit price increasing with consumption in about 70% of cases.

Charges for sewerage and waste water treatment services are not subject to the same rule. The price structure for sewerage and sewage treatment is more variable, and revenue does not necessarily cover all corresponding costs. There is a recent trend towards *integrated charges*; in Madrid, for example, consumers receive single bills with itemised charges for water supply, distribution, sewerage and sewage treatment.

Effluent pollution charge

The 1999 Water Act substituted a simplified *effluent pollution charge* (canon de control de vertido) for an earlier complex charge (canon de vertido) that went largely unpaid. This charge is based on a flat rate, modified by a coefficient related to the type of (industrial or municipal) effluent and the receiving environment. While most (85%) of the revenue from the old levy was channelled to autonomous regions to finance treatment stations, the new levy is wholly earmarked for the RBA's general water management activities. Autonomous regions continue to levy a regional pollution charge (canon de saneamiento); the revenue is also used to help finance investment in waste water treatment infrastructure.

Irrigation related charges

In principle, irrigators bear all private and district costs as well as the variable parts of the cost incurred by RBAs for the supply of bulk water to the irrigation district; *in practice, the RBAs are unable to collect 20% of irrigation charges.* Irrigation water charges are still mostly based on irrigated area, although the meters now being installed will allow that situation to change. Charges vary widely, depending on factors such as the crop, the type and age of the irrigation system and the cost of bringing water to the fields. Prices (calculated based on representative water consumption) are lowest in the traditional, gravity-fed irrigation systems, at EUR 0.01-0.03/m^3; where groundwater is pumped to the surface, prices are in the order of EUR 0.03-0.10/m^3. If water is supplied through inter-basin transfers requiring large infrastructure, prices are in the range of EUR 0.12-0.15/m^3. When water is extremely scarce, prices may reach EUR 0.15-0.40/m^3.

Environmental levies

Spain considers that *water is public property* (Chapter 4). It has not imposed any explicit levies for abstraction. Nevertheless, the national *environmental levy* (cuota ambiental) proposed in the law on the PHN could be considered an abstraction levy; PHN water charges will include EUR 0.03 per cubic metre of transferred water, to be spent on environmental compensation measures in the donor basin. It might be asked whether this amount approaches the true value of the environmental externality involved. At the regional level, Navarre provides an example of the application of an economic instrument. The regional electricity utility has a long-standing, long-term concession for abstraction of water from local rivers. This concession does not recognise the need for ecological reserve flows. The autonomous region of Navarre has concluded a voluntary agreement with the company to limit abstractions when this is necessary to protect aquatic ecosystems. It has agreed to pay 50% of the losses resulting from any reduction in electricity production.

6.3 Strengthening water economics

Although the principle of full recovery of all operational and capital costs has been established by law, *this principle is far from being fully implemented.* One reason is that (with few exceptions) the value of subsidies is not included in the calculations, and therefore not in water prices. Among such subsidies are those provided by the EU. Since 1985 these subsidies have been a key instrument for achieving convergence with other EU countries. Now that this goal is within sight and EU structural funds are likely to be reduced in the not so distant future, it is time to fully implement the principle of full recovery. In addition, EU subsidies for

financing the PHN (which have been requested by Spain) would clearly contravene this principle. The cost of environmental externalities (estimated at up to EUR 0.50 per cubic metre for remedial action to restore depleted aquifers, for example) has not been included in prices up to now.

In line with the EU Water Framework Directive and the 1997 OECD recommendation that Spain institute *rigorous and transparent cost-benefit analyses* for all its water development infrastructure projects, the 2001 law on the PHN now requires such studies. EU rules also require *cost-benefit* studies as a condition for EU funding. Many recent water projects (including the PHN) have included economic analysis (Box 3.1). It is unclear to what extent the main purpose of studies carried out to date has been to justify projects (as opposed to being used as a decision-making tool to define the scope of projects and evaluate different options).

Public expenditure on forestry, which includes EU co-funding (EAGGF guidance, ERDF, IFC and FC), increased over the years to reach EUR 210 million in 1999. Most of these funds are currently used for tree planting (40%), forest management (35%) and fire and pest control (20%); little (5%) is devoted to forest biodiversity enhancement. A larger share (around 20%) of forest expenditure is allocated to biodiversity management in the Balearic Islands, Cantabria and Madrid. Very little has been done in this area in Andalucia, Asturias, Extremadura and Valencia.

4.2 Agriculture

Agri-environmental measures to accompany the Common Agricultural Policy reforms were transposed in 1995 (Council Regulation (EEC) 2078/92) and in 2001 (Council Regulation (EC) 1257/1999). Spain *lags behind* other EU countries in implementing these measures. They cover only some 2 million hectares, or 8% of the Agricultural Area in Use (AAU), compared with an EU average of nearly 30%. In part, this reflects the difficulty of using all available EU funds due to lack of co-financing from the Spanish budget. Most payments (60%) have been used to maintain traditional farming systems, and the rest (40%) to compensate farmers for income loss; 80% of payments have supported extensive cereal farming (Table 4.7). *Organic farming* has developed significantly. It now involves 18 000 farmers on 665 000 hectares. In addition to a national scheme, agri-environmental measures are targeted to a specific area. In 1993-2001 this included around EUR 1 billion in expenditure by the autonomous regions, nearly EUR 600 million by the National Park Organisation to finance activities in the vicinity of national parks (thereby reducing pressure), and around EUR 150 million to involve farmers in wetland protection and implementation of the Birds Directive (Table 4.7).

Agri-environmental payments represented EUR 2.5 billion in support over the period 1993-2001 (excluding the Basque Country and Navarre, which have their own funding mechanism), accounting for *4-5% of total EU agricultural support* to Spain (EUR 6.2 billion in 2001). This agri-environmental scheme (under Council Regulation (EEC) 2078/92) has been supplemented since 2001 by a scheme for less favoured areas and agri-environmental measures under Council Regulation (EC) 1257/1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF). This adds about a third of the EUR 500 million per year allocated to Spain under the Guarantee Fund in 2000-06. In Spain annual EAGGF expenditure on agri-environmental measures (AEMs) is

EUR 5 per hectare of AAU (the EU average is EUR 17/ha AAU). This is partly because the share of EAGGF expenditure allocated to AEMs is much lower in Spain (22%) than the Community average (50%). The situation is quite similar in less favoured areas (LFAs), which account for less than 10% of EAGGF expenditure in Spain (the EU average is nearly 20%). Farmers in LFAs receiving compensatory allowances are required to respect the standards of good farming practices.

Recovery of *drovers' routes*, especially those on the extensive high plain of *Cañadas Reales* and other routes forming part of the national network, is receiving increasing attention. The Ministry of the Environment, in collaboration with autonomous regions, has undertaken to begin classifying, marking and signposting the national network. This activity currently involves several hundred kilometres in Castilla y León, Extremadura, Navarre and Valencia. Drovers' routes continue to play an important role in livestock movement, while contributing to preservation of wild flora and fauna. Provided there is a favourable cost-benefit analysis, they could create employment in rural areas and support rural tourism.

Table 4.7 **Agri-environmental payments**[a]

(EUR million)

Period	National scheme					Selected areas				Total
	N1[b]	N2[b]	N3[b]	N4[b]	Sub-total	S1[c]	S2[c]	S3[c]	Sub-total	
1993-97	363	19	16	28	426	586	227	50	863	1 289
1998-2001	224	19	18	44	305	435	344	103	882	1 187
Total	587	38	34	72	731	1 021	571	153	1 745	2 476

a) Council Regulation (EEC) No 2078/92 and Council Regulation (EC) No 1257/1999; figures exclude the Basque Country and Navarre.
b) N1: extensive cereal farming; N2: training; N3: breeding of endangered livestock species; N4: organic farming.
c) S1: autonomous regions; S2: areas surrounding national parks; S3: Ramsar wetlands and Specially Protected Areas (SPAs).
Source: Ministry of the Economy.

Environmental concerns in regional and operational programmes

Spain receives significant *EU funding*. Transfer of this funding in 1989-93 represented 0.7% of national GDP on average (reaching 1.7% of GDP in 1994-99). Only a small portion of the total is spent on environment and natural resources. With respect to environment, Spain benefits from Structural and Cohesion Funds, the LIFE-Environment programme and related investment programmes.

About EUR 3.5 billion in investments aimed at environmental protection have been financed since 1994 with the support of EU *Structural Funds* (Table 5.3). Within the third Community Support Framework (2000-06) for regions whose development is lagging behind (Objective 1), EUR 6 378 million has been allocated to environment, natural resources and water resources (with EUR 2 199 going to Andalucia alone). This represents 16.1% of the total support for Objective 1 regions, compared with 11.7% in 1994-99. For regions undergoing conversion (Objective 2), EUR 303 million has been allocated to environment, natural resources and water resources for 2000-06, absorbing 11% of total Structural Funds allocated to these regions.

Table 5.3 **Use of EU Structural Funds for environmental protection in Spain**

	Period	Planned investment (EUR million)	Implemented investment (EUR million)	Degree of implementation (%)
Objective 1	1994-99	2 446	2 471	*101*
Objective 2	1994-96	44	39	*89*
Objective 2	1997-99	358	363	*101*
Objective 5b	1994-99	22	22	*101*
Objective 1	2000-03	456	354[a]	*78*
Objective 2	2000-03	421	223[a]	*53*

a) As of October 2003.
Source: Ministry of the Environment.

EUR 18 000 million has been allocated to the four beneficiaries of the *Cohesion Fund* (Greece, Ireland, Portugal, Spain) for 2000-06. Spain is expected to receive 62% of the total. To meet EU requirements, it is anticipated that half the total will be spent on environmental projects and half on projects related to transport. EUR 1 092 million was spent on environmental projects in 2001, mainly waste water

treatment and waste treatment facilities, water supply and waste management (49.9% by municipalities, 34% by autonomous regions, 16.1% by the central government). In 2000-02, out of EUR 7 143 million, 47.5% was spent on environmental projects (mainly water waste treatment and sewerage) and 52.5% on transport projects.

In 2000-01, through the *LIFE-Environment programme*, the EU contributed about EUR 8.6 million to finance 20 projects in Spain (total project cost of about EUR 18.9 million).

The *Spanish network of environmental authorities* was created in 1997, as proposed by the EU (Box 5.2). It brings together (for dialogue, debate and exchange of experiences and information) representatives of the central government responsible for programming and for the management of European funds in Spain, environmental authorities of the autonomous regions and EU representatives. More specifically, the network's objectives are to ensure that EU environmental legislation has been implemented through environmental monitoring of projects that receive EU financing, and to promote better integration of environmental concerns in sectoral policies (e.g. policies related to agriculture, industry, transport, fisheries, tourism and energy).

Since the network's inception, 21 plenary meetings have been held in different autonomous regions, providing an opportunity to *discuss issues related to use of EU funds*. Workshops have been organised back-to-back with plenary meetings to explore in greater depth the relationship between the funds and particular economic sectors (e.g. tourism), environmental areas (e.g. water) or horizontal topics (e.g. the Natura 2000 programme). The network has published several documents to assist environmental authorities and fund administrators in monitoring and assessing programmes' environmental components. It has also developed several environmental training and awareness modules.

The network of environmental authorities has been recognised as an *invaluable instrument for co-ordinating environmental legislation* between the central government and the autonomous regions, and as a useful tool for *integrating environmental concerns* in sectoral policies. It has been designated as the thematic group on environment within the framework of Structural Funds 2000-06. The EU has identified the Spanish network as a model to be followed by the new accession countries.

Overall, EU Structural and Cohesion Funds have played a key role in making it possible for Spain to *increase per capita income*, bringing it closer to the European average. Major investments in transport and environmental protection have been financed using these funds. This investment flow has mainly been focused on

infrastructure supply (particularly that of motorways). This may have contributed, to some extent, to a *bias against demand management in environmental policies*.

Spain has been late in adopting *agri-environmental measures* compared with other EU countries, despite the fact that agriculture represents almost 60% of its total land use (Figure 5.2). In 1997 only 14.5% of the projected budget for agri-environmental programmes in 1993-97 had actually been spent. About 40% of payments compensated farmers who had modified intensive agricultural practices to protect the environment. EUR 304 million was committed to agri-environmental programmes throughout Spain in 1998-2001 (extensive cereal production, 73.4%; organic farming, 14.4%; training, 6.4%; protection of threatened species, 5.8%). The four autonomous regions that benefited most were Aragon (22.9%), Andalucia (18.6%), Castilla y León and Extremadura (each 16.1%). Agri-environmental programmes with a budget of EUR 882 million have also been adopted for specific areas (areas selected by autonomous regions, EUR 435 million; national parks, EUR 344 million; special areas for protection of birds and Ramsar wetlands, EUR 103 million). A Strategic Plan for Spanish Organic Farming to support production and marketing was recently elaborated for 2004-06. There were 16 500 organic producers and 1 200 processors in 2002. Market value was estimated at EUR 173 million; 665 000 hectares was under cultivation.

1.3 Sustainable development and market-based integration

Sectoral subsidies

Subsidised hard and sub-bituminous coal produced in Spain is purchased by electric utilities. The current coal restructuring plan (the third since 1998) is based on agreements between the Ministry of Industry and Energy and the miners' unions. This plan establishes guaranteed consumption levels for *domestic coal* at each of Spain's 15 power stations between 1998 and 2005. Guaranteed levels are to be reduced by 28% over this period. The production level fell slightly between 1997 and 2000, from 18 million to 15.5 million tonnes. The total producer subsidy equivalent (PSE) dropped from ESP 140 billion in 1997 to ESP 131 billion in 2000; PSE per tonne produced decreased from USD 53 to USD 47 in the same period. In addition to direct support for coal mining, the government's 1997 electricity reform legislation contains two provisions related to support for this industry. Under Article 25.1, the government may provide up to 15% of total primary energy required for power generation from domestic fuel sources. And

under the fourth Transitory Provision to this legislation, utilities will receive a premium for using domestic coal. Total incentive payments for use of domestic coal during the ten-year transition period are estimated at approximately ESP 295 billion, including ESP 41 billion paid to utilities to maintain stocks of domestic coal.

Spanish *agriculture* also benefits from financial support, reflecting a shift in the EU from market price support to budgetary payments based on area and on animal numbers. Market price support, which is based on output, tends to stimulate production and input use more than do acreage and headage payments. As already noted, Spain was late in promoting environmentally friendly practices compared with other EU Member States.

Financial support has been provided to the *fishery sector* by the Spanish government and the EU. The resulting Government Financial Transfers (GFT) increased from EUR 360 million in 1998 to EUR 420 million in 2001, falling to EUR 320 million in 2002 (reflecting less direct payments for the Morocco moratorium and less cost reducing transfers for new vessel construction). The bulk of the transfers is still for marine capture fisheries (62% in 2002), the rest going to marketing and processing as well as aquaculture. Nearly three-quarters of direct payments in 2000 and 2001 compensated owners and fishermen of the 230 vessels affected by non-renewal of the fishing agreement between the EU and Morocco. The total catch was reduced from 1.1 million tonnes in 1999 to 750 000 tonnes in 2002, which largely reflected the halt in fishing following the Morocco moratorium. NGOs increasingly express concern about the need to fully implement the Spanish National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (adopted in November 2002).

Environmentally related taxes on energy and transport

In Spain the purpose of energy taxes levied by the *central government* has not been to internalise environmental externalities or to promote more efficient energy use. However, environmental protection was invoked to some extent in 2002 with respect to increasing the tax on retail sales of certain hydrocarbons. Fuel tax rates have increased in real terms, providing an energy efficiency incentive (Table 5.4 and Figure 5.3). Taxes on unleaded gasoline are higher than those on diesel fuel. Because of the tax break for diesel, 60% of new cars are diesel powered; diesel consumption is increasing while that of gasoline has stabilised. Lower taxes on heating oil (compared to diesel) can lead to it being mixed with diesel. Efforts should be made to restructure energy taxes in order to internalise air pollution externalities (e.g. NO_x and PM_{10} emissions from diesel).

Table 5.4 **Evolution of fuel tax rates**, 1995-2002

(EUR)

Type of fuel		Tax rates									(% change)
		1995	1996	1997	1998	1999	2000	2001	2002[a]	2003[a]	1995-2003[b]
Gasoline with lead	(per 1 000 litres)	376.23	389.46	389.46	397.64	404.79	404.79	404.79	428.79[c]	428.79[c]	*14*
Lead-free gasoline ≥97 I.O.	(per 1 000 litres)	345.58	357.60	387.65	395.80	402.92	402.92	402.92	426.92	*426.92*	*24*
Lead-free gasoline ≤97 I.O.	(per 1 000 litres)	345.58	357.60	357.60	365.11	371.69	371.69	371.69	395.69	*395.69*	*15*
Gas oil (general use)	(per 1 000 litres)	250.62	259.64	259.64	265.09	269.86	269.86	269.86	293.86	*293.86*	*17*
Gas oil with benefits (B and C)	(per 1 000 litres)	73.32	75.73	75.73	77.32	78.71	78.71	78.71	84.71	*84.71*	*16*
Fuel oils	(per tonne)	12.50	12.92	12.92	13.19	13.43	13.43	13.43	13.43	*13.43*	*7*
LPG (general purpose)	(per tonne)	739.24	765.09	765.09	781.15	795.22	795.22	795.22	795.22	*125*	*–83*
LPG (public service automobiles)	(per tonne)	53.49	55.29	55.29	56.45	57.47	57.47	57.47	57.47	*57.47*	*7*
LPG (other use as fuel)	(per tonne)	6.85	7.09	7.09	7.24	7.37	0.00	0.00	0.00	*0.00*	*–100*
Methane (general purpose)	(per gigajoule)	15.64	16.19	16.19	16.53	16.83	16.83	16.83	16.83	*16.83*	*8*
Methane fuel	(per gigajoule)	0.14	0.15	0.15	0.15	0.16	0.16	0.16	0.16	*0.16*	*14*
Kerosene (for aircraft, general purpose)	(per 1 000 litres)	271.24	280.73	280.73	286.63	291.79	291.79	291.79	315.79	*315.79*	*16*
Kerosene fuel	(per 1 000 litres)	134.39	139.07	139.07	142.00	144.55	144.55	144.55	150.55	*84.71*	*–37*

a) Includes tax on retail sales of certain hydrocarbons.
b) Real energy end-use price inflation 1995-2003 was 19%.
c) Leaded gasoline was phased out in Spain in 2001; the tax rate applies to a substitution fuel.
Source: Ministry of the Environment.

Some *devolution of fiscal powers* to the autonomous regions has already occurred. Fully discretionary taxation by the autonomous regions (beyond the national tax rate or tax base) represents 3% of GDP and 9% of total tax revenues. Under the new system that entered into force in 2002, autonomous regions are granted all the proceeds of the tax on retail sales of certain hydrocarbons (which are collected at the central level and in the regions of Asturias, Galicia and Madrid) and must allocate them to health or environmental programmes. Thus, the Madrid autonomous region has decided to use the revenues from such a tax to finance improvements to its health services (Box 5.4). Autonomous regions are also granted 40% of the tax on hydrocarbons (entirely collected at the central level). They may levy environmental taxes; in Andalucia, Castilla-La Mancha, Galicia and Murcia there is a tax on air emissions of SO_x and NO_x. Nuclear production of electric power and radioactive waste storage are also taxed in Andalucia, Castilla-La Mancha, Catalonia and Madrid. Other autonomous regions should be encouraged to follow this example. In the Balearic Islands an "eco-tax" of EUR 1 per person was applied to hotel accommodation until 2003. The revenues were designated for improvement of the environment in the tourism sector. However, the eco-tax did not produce good results since it applied only to hotels and not to property owners (Chapter 7).

At the *local level*, annual motor vehicle taxes (IVTM, levied by municipalities) were originally introduced solely for fiscal reasons. As IVTM are progressive, based on weight and engine size, they can also be considered to encourage energy

efficiency. However, the level of IVTM is low (up to EUR 70) and their impact on energy efficiency improvement may be modest. In 2003 a *reform of local taxation* came into effect. Rebates on IVTM (up to 75%) can now be obtained for clean vehicles (with clean technology or using clean fuels). Corporate taxes can be reduced for companies that produce or use renewable energies. Property tax concessions apply to buildings and houses that install solar energy systems.

Ecological tax reform

Consideration should be given to undertaking a green tax reform, as was initiated in Andalucia recently: restructuring of existing taxes (e.g. energy or transport taxes to reflect the polluting characteristics of the different products or activities) and introduction of new taxes (e.g. on water use and water pollution, waste, certain chemicals). At the same time, efforts should be made to remove or adjust environmentally harmful fiscal provisions (e.g. tax exemption or subsidies having detrimental effects on the environment). Attention could be given to the neutrality of such a reform by decreasing taxation on labour. A Green Tax Commission should be established to this effect.

2.3 Use of economic instruments

Spain recently introduced *environmental taxes* to enhance environmental protection. By increasing fuel prices, the introduction in 2002 of the tax on retail sales of certain hydrocarbons created an incentive for energy efficiency, although the price

differential between unleaded gasoline and diesel has been maintained (Table 5.4). Taxes on clean fuels (e.g. LPG) have been greatly reduced and the revenues of this new retail tax earmarked for environmental and health objectives. However, there has been reluctance at many administrative levels to impose environmental taxes or pollution charges to influence companies' behaviour, as it is believed that this could affect competitiveness and employment. There is considerable scope for improving the efficiency of natural resource use with market-based instruments, particularly through full recovery of the costs of supplying environmental services such as water and sewerage (Chapter 3).

A series of charges are used to finance various environmental services in the area of water and waste. Municipalities establish user charges for *waste collection and disposal*, in most cases a flat rate (similar for all inhabitants). Some municipalities do not charge for waste services. There is an intention to increase cost recovery progressively, from the current 31% to 100%, and to establish individual rates according to the quantity of waste produced.

In 2003 Catalonia introduced a *landfill tax* on municipal waste. Landfill operators are required to pay EUR 10 per tonne of waste accepted. The tax (which has no precedent in Spain) is expected to raise EUR 13.5 million in revenues in 2004. Its initial objective is to reduce landfilling to 31% of total municipal waste produced by 2006. Andalucia, the Madrid autonomous region and Murcia subsequently introduced a similar instrument.

The packaging industry pays a *product charge* for each package it puts on the market. The revenues are used to finance packaging waste management. There are 128 agreements between producer responsibility organisations and regional and local authorities, besides agreements with private associations to implement this scheme, which involves 13 705 packaging companies.

In regard to municipal *water supply services*, increasing-block tariff structures aimed at achieving both conservation and social benefits are prevalent (Chapter 3). Fixed charges per household or a volumetric rate apply to waste water services. Spain uses water abstraction charges (including for irrigation) and water pollution charges (for industrial effluents).

Nature conservation relies essentially on budgetary transfers and little on economic instruments (Chapter 4).

Spain has an explicit policy of providing *financial assistance* or *tax incentives* to reward environmentally friendly behaviour. A rebate of up to 50% on corporate tax is granted to firms that use energy produced from renewables or cogeneration, locate away from densely populated areas or set up collective transport systems for their

employees. A 10% rebate on corporate tax is granted for investments in environmental protection (e.g. equipment to prevent air pollution in industrial facilities, pollution control equipment for water spillage, industrial waste treatment equipment) and new industrial or commercial road transport vehicles, in compliance with EU Directive 88/77 on exhaust, pollution particles and smoke emissions, and facilities or equipment that take advantage of renewable energy sources. A rebate on property tax applies to properties (up to 50%) and buildings (up to 95%) that rely on solar energy for heating or for generation of electricity. Tax deductions also apply to expenditure on research and development related to environmental protection. As mentioned above, tax relief was introduced under the PREVER programme and through (up to 75%) rebates on the motor vehicle tax to encourage purchases of cleaner vehicles. In the period 1997-99 a financial assistance programme (the Initiative to Support Industrial Technology, Safety and Quality, ATYCA) was developed by the Ministry of Industry and Energy. Its purpose was to promote integration of environmental concerns in industry as a condition for improving business competitiveness. This represented a total investment of EUR 2.4 billion. Under the programme for fostering technical research (PROFIT) (in effect from 2000 to 2003) the Ministry of Science and Technology granted financial assistance through a national environmental programme and a national natural resources programme (EUR 58.5 million in subsidies or refundable loans in 2000).

Increasing the use of economic instruments is a *matter of urgency* in view of the need to secure financing for environmental policies once EU funding declines or is no longer available. Current financial assistance or tax incentive schemes should also be reviewed with respect to their economic efficiency and environmental effectiveness.

2.6 *Environmental expenditure and its financing*

Pollution abatement and control expenditure and environmental expenditure

In 1999 *total expenditure on pollution abatement and control (PAC)* was estimated at almost 0.8% of GDP (about the same share as in 1991, if current expenditure by the business sector is considered to be of the same order of magnitude as investment). PAC expenditure in Spain is therefore well below the EU average (1.2% of GDP).

PAC expenditure by the public sector since the mid-1990s has been of the order of 0.6% of GDP. However, between 1995 and 1999 it increased in real terms from EUR 2.6 billion to EUR 3.2 billion. *Investment in pollution abatement and control by the business sector* was of the order of 0.1% of GDP in 1997-2000. It increased in real terms from EUR 0.4 billion in 1995 to EUR 0.7 billion in 2000 (1995 prices).

PAC expenditure by the business sector in 2001 was EUR 933 million (of which 56% for pollution control and abatement facilities and 44% for integrated processes). Three industrial sectors together spent nearly half of the total: chemicals (EUR 203 million), metallurgy (EUR 147 million) and paper (EUR 103 million). Investments were directed mainly to Catalonia (EUR 209 million), Andalucia (EUR 137 million), the Basque Country (EUR 134 million) and Valencia (EUR 90 million).

Environmental expenditure by the public sector (PAC, nature conservation, water supply) increased in nominal terms from EUR 5 billion in 1995 to EUR 7 billion in 1999. About 80% of this expenditure was by territorial administrations (autonomous regions, local municipalities) and 20% by the central government.

Spain relies heavily on *EU funds* to finance part of its environmental policies, particularly with respect to sewerage, waste water treatment plants and waste management. Availability of central government funding for environmental infrastructure is limited. EU funds will decline and ultimately disappear with the accession of new EU members. Therefore, there is an urgent need to reconsider the financing of environmental policies through developing autonomous *financing mechanisms, such as charges and fees*, and to apply more systematically the *user-pays and polluter-pays principles*, which would reduce the burden on public finances.

1. Environmental Employment

1.1 Direct environmental jobs

Since the 1997 OECD Environmental Performance Review, Spain has experienced *high unemployment* (Box 6.1 and Figure 6.1) despite sustained economic growth and an increasing rate of female participation (53.4% in 2003, compared with 42.1% in 1991). Some environmental policies may negatively affect employment; others contribute to the creation of environmental jobs. The *net labour market effects* of Spanish environmental policies have not been studied systematically. Environmental employment is expected to increase further in the coming years, with the implementation of tighter environmental regulations arising from EU requirements and international agreements and the introduction of various environmental plans.

Total *direct environmental employment* in 2000 was estimated at 219 400 (Table 6.1), corresponding to about 1.5% of total civilian employment, in line with the OECD average. Of these jobs, 18.5% were in water management (e.g. supply, treatment, irrigation), 17% in waste management (e.g. urban and industrial, recycling), 12% in street cleaning, 10.6% in organic agriculture and 20% in the public sector (the Ministry of the Environment, the autonomous regions, provincial deputations, municipalities). Overall, environmental employment grew more rapidly than the Spanish economy as a whole. It has now reached a quarter of a million.

Environmental employment is expected to continue to grow in the following sub-sectors: waste management; renewable energies; prevention and control of atmospheric pollution; land, natural spaces and forestry; environmental consultancy and engineering; environmental education; and organic agriculture. The trend towards *increasingly high levels of skill* is expected to continue. While 39% of environmental jobs were held by workers with no qualifications in 2000, 41% by those with higher education and 20% by those with technical or university qualifications, it is estimated that the share of workers in the latter category will increase to 45%. Further development of environmental employment should be closely linked to the development of environmental training and education (Chapter 6, Section 4).

Table 6.1 **Environmental employment**, 1998

Sectors	Jobs	(% total)
Waste management	37 226	*17.0*
urban	28 522	
industrial	3 034	
recycling	5 670	
Street cleaning	25 713	*11.7*
Air pollution management	2 311	*1.0*
Water management	40 636	*18.5*
supply	19 645	
treatment	15 357	
irrigation	3 858	
others	1 776	
Parks and gardens	6 211	*2.8*
Forestry	22 980	*10.5*
Organic agriculture	23 278	*10.6*
Renewable energy	3 522	*1.6*
Tourism	3 750	*1.7*
Others[a]	10 447	*4.8*
Public sector	43 308	*19.8*
Ministry of the Environment	11 255	
autonomous regions	12 589	
provincial deputations	494	
municipalities	18 970	
Total	219 382	*100.0*

a) Includes environmental jobs in private businesses.
Source: Ministry of the Environment.

1.2 Active environmental employment policy

Since 1998, Spain's annual Employment Action Plans have taken account of environmental policies that affect employment. They have included Ministry of the Environment *environmental programmes related to job creation*. Some employment initiatives are particularly labour-intensive (e.g. forestry investments); others are capital-intensive (e.g. investments in technology for meteorological measurement and forecasting). Additional government plans and projects for urban and local development, often partially financed by EU Structural and Cohesion Funds, include initiatives with strong environmental and employment creation components such as water collection and treatment, urban and industrial waste management, and nature and biodiversity conservation. Territorial Employment Pacts, promoted by regional and local authorities, mobilise environmental expertise (to advise small and medium-sized enterprises) and environmental technology development. Such initiatives should be closely and more consistently linked to Local Agenda 21 strategies.

The *Workshop-School and Apprenticeship Centres Programme* promotes youth education and employment by alternating training and work in activities related to restoration of national heritage, environmental protection, urban renewal and the revival of traditional handicrafts. In 1994 this programme was formalised through legislative measures introduced by the Ministry of Labour. The National Employment Institute assumes responsibilities for the programme's implementation, realisation and evaluation, in collaboration with local public authorities and NGOs. This approach provides a solid basis for implementing sustainable development strategies at the local level. It also helps address the problem of youth unemployment. The fourth *Equal Opportunities Plan* (2003-06) promotes environmental employment of women, particularly those who are young, over 45, disabled or from rural areas.

3. Trade and Environment

Spain strongly supports the process of clarifying relations between existing World Trade Organisation regulations and specific trade obligations established in *multilateral environmental agreements* (MEAs). It takes the view that regional fishing agreements should be considered as MEAs, and that the main MEAs should be invited to Special Sessions of the WTO Committee on Trade and Environment (SSCTE). Spain is a party to all MEAs identified by SSCTE as including specific trade obligations (STOs): the UNFCCC, the Montreal Protocol, CITES and the Cartagena Protocol. In 2004 Spain ratified two other MEAs that include STOs, the Rotterdam and Stockholm Conventions.

Spain is a party to the *Basel Convention* and its amendments. Of 22 million tonnes of waste generated annually in Spain (19 million tonnes of municipal waste and 3 million tonnes of hazardous industrial waste, excluding mining and construction waste), some 60 000 tonnes is exported. Spain imports 205 000 tonnes of waste (hazardous and non-hazardous) per year. Under Act 10/1998 on wastes, "hazardous wastes" in Spain refers to those appearing on the Hazardous Wastes List adopted by Royal Decree 952/1997 (i.e. the Community list of hazardous wastes approved through decision 94/904/EEC, which has been derogated by new European

Commission and Council Decisions). Since there is no clear, up-do-date definition of hazardous wastes, it is not always possible to list those wastes that, even if not included under article 1 (1) of the Basel Convention, would be subject to control of shipments. In practice, the following wastes, inter alia, are subject to such control (and in many cases to a ban): sludge from sewage treatment, municipal and domestic wastes, and wastes from combustion of municipal/domestic wastes.

Spain has ratified the *Montreal Protocol* and all its amendments. Controls on methyl bromide are regulated at the EU level and by national Spanish pesticide regulations. Methyl bromide consumption was reduced by 75% in the period 1995 – 2003.Production of chlorofluorocarbons (CFCs) fell from 30 752 tonnes in 1992 to 5 439 tonnes in 2000. Spain still produces carbon tetrachloride (432 tonnes in 2000).

4. Official Development Assistance and the Environment

Total Official Development Assistance provided by Spain in 2002 was USD 1.7 billion. Among the 22 OECD Development Assistance Committee (DAC) countries, this is the 10th highest contribution in absolute terms and the *15th as a share of GNI (0.26%)*, well under the 0.7% UN target reiterated in the 1992 Rio Declaration (Figure 8.1). To reverse the trend and as a step towards reaching the Rio target, EU countries agreed to devote 0.39% of EU GNI to ODA by 2006. Spain's target is to reach 0.33% by 2006. The share of Spain's ODA in terms of GNI has fluctuated in recent years (it was 0.23% in 2000, 0.30% in 2001, 0.26% in 2002 and 0.25% in 2003).

Concerning *environmental ODA*, the ODA expenditure accounting system does not provide for a precise analysis of expenditure on environmental co-operation. Looking at ODA projects individually, the *share of environmental ODA in bilateral contributions* was nearly 8% in recent years. Using the OECD DAC criteria (which include activities to protect the cultural heritage), this share is about 9%. In particular, Spain's ODA environmental projects have supported compliance with three conventions growing out of the 1992 Earth Summit: those on climate change, desertification and biodiversity.

Progress has been made on *environmental assessment* of co-operation projects. Spanish aid policy was reformed during the review period. A Law on International Development Co-operation and a four-year Master Plan (2001-04) have been adopted; the annual plans have been improved and new co-ordinating bodies established. The main purpose of this reform was to enhance consistency and co-ordination within the diverse Spanish aid systems, which include various ministries, autonomous regions, local authorities and civil society organisations. *Environmental*

protection is now considered a mainstream priority, to be integrated in all activities that are carried out. Environmental impact assessment must be included in all programmes and projects. A Spanish Co-operation Strategy for the Environment was released in 2002 to guide the setting of objectives by different Spanish co-operation players and to tie co-operation to the principles of the MEAs.

Spanish development co-operation focuses on 29 countries. Since 1998 the Araucaria Programme promotes sustainable development in *Latin America*, in line with principles of the Convention on Biological Diversity.

The Azahar Programme is specifically aimed at three *Mediterranean subregions*: North Africa, the Middle East and southern Europe. All its projects must consider environmental protection and conservation of natural resources. The Nauta Programme is to co-ordinate Spanish development co-operation activities in the *African fishing sector*.

Spain considers a ratio of 40% *multilateral* and 60% *bilateral aid* to be optimal. The share of multilateral aid has increased from 27% in the mid-1990s to 34% in recent years. Increases were primarily directed to the EU: Spain's contribution to the ninth European Development Fund (2000-05) was EUR 806 million, or 6% of the total. In 1997 Spain contributed EUR 10 million in Special Drawing Rights (SDR) to the first stage of the Global Environment Facility (GEF); in 1999 it contributed EUR 13 million in SDR to GEF-2.

Spain and the European Union

Spain's accession to the European Union in 1986 was a major factor in the modernisation of its economy. Incorporation of Community legislation in Spanish law marked a major change in its economic life with respect to the legal context for business activity and many fields of economic and environmental decision-making. The process of *applying the acquis communautaire* continues, reflecting increasing legislation produced by the EU. With a transposition deficit of less than 1.5%, Spain is among the leaders on the "scoreboard" for transposition of Directives in national legislation published by the European Commission. It has a respectable average annual growth rate, exceeding the EU average; public accounts are in good shape and jobs are being created at a sustained rate. Growth has made it possible for per capita income to rise, bringing it closer to the European average at a rate of one point per year. EU Structural and Cohesion Funds, as well as the Common Agricultural Policy, play a key role in the large net transfers from the EU to Spain (Table 5.1). Average per capita GDP has increased from 72.5% of the EU average in 1988 to 83%.

In the period 2000-06 the *Structural and Cohesion Funds* transferred to Spanish objective 1 regions are equivalent to 0.9% of GDP per year. More significantly, these transfers are estimated to add some 3% to investment in Spain. Empirical analysis shows not only that growth of GDP, employment and productivity in Spain's objective 1 regions has exceeded that in the rest of the EU since the mid-1990s, but also that convergence has been most pronounced in the least prosperous of these regions. Structural interventions have boosted growth by stimulating demand and strengthening the supply side. Spain's GDP in 1999 is estimated to have been some 1½% higher than it would have been without such intervention. In 2000-06 the Structural Funds made available to Spain amounted to EUR 44.4 billion, mostly (89%) for objective 1 regions. In that period some 14% of this funding was for financing investment to improve the environment. Spain is also eligible for some EUR 10 billion under the Cohesion Fund (half for environmental protection). EUR 6.5 billion was spent under Structural Funds and EUR 2.0 billion under the Cohesion Fund in 2002. In both cases, environmental expenditure focused on assisting municipalities to improve waste water infrastructure (up to 75% of investment costs financed by EU funds) and the collection and treatment of solid waste. In the context of the *Common Agricultural Policy*, agri-environmental payments account for 4-5% of total EU agricultural support to Spain (EUR 6.2 billion in 2001).