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**Sous-groupe sur l'information et les perspectives environnementales  
Working Group on Environmental Information and Outlooks**

**DÉPENSES DE LUTTE CONTRE LA POLLUTION DANS LES PAYS DE L'OCDE  
POLLUTION ABATEMENT AND CONTROL EXPENDITURE IN OECD COUNTRIES**

*Rapport préparé par le Secrétariat de l'OCDE sur la base des réponses des pays membres au questionnaire 2002 sur les dépenses et les revenus de protection de l'environnement exploité conjointement par l'OCDE et l'Office Statistique des Communautés Européennes (Eurostat).*  
*Report prepared by the OECD Secretariat on the basis of member country replies to the 2002 questionnaire on environmental protection expenditure and revenues, jointly operated by the OECD and the Statistical Office of the European Communities (Eurostat).*

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## FOREWORD

The Organisation for Economic Co-operation and Development, in carrying out its task of promoting economic development in Member countries, is concerned with the qualitative and quantitative aspects of economic growth. The OECD's programme of work relating to environmental matters focuses on the interdependence between the economy and the environment. It emphasises the importance of sustainable development and calls for a more systematic and effective integration of environmental and economic decision-making.

To carry out this programme, the availability of meaningful environmental data, including economic data on the environment is essential. In a recommendation on environmental indicators and information adopted in January 1991, Member country governments agreed, to ensure through appropriate co-ordination the development of objective, reliable and comparable environmental statistics and information at international level. They agreed in particular to intensify their efforts to link environmental and economic information through work on pollution abatement and control expenditures, and on environmental accounting. This was further reinforced in April 1998 at the ministerial meeting of the OECD Environment Policy Committee, where Member country governments agreed to further improve environmental information and to provide appropriate access to it.

The OECD reports on Pollution Abatement and Control expenditure in OECD countries, published since 1990, respond to these objectives. They supplement the biennial OECD Environmental Data Compendium and provide the factual basis needed for the work of the Environment Policy Committee, in particular for measuring environmental indicators and for assessing countries' environmental performance.

The Working Group on Environmental Information and Outlooks contributed, with data and expert advice, to the elaboration of the present document, which is published on the responsibility of the Secretary-General of the OECD.

## AVANT-PROPOS

L'Organisation de Coopération et de Développement Économiques, dans son effort pour promouvoir le développement économique des pays Membres, se préoccupe à la fois des aspects qualitatifs et quantitatifs de la croissance économique. Le programme de travail de l'OCDE sur l'environnement s'intéresse plus particulièrement à l'interdépendance qui existe entre l'économie et l'environnement. Il met l'accent sur l'importance d'un développement durable et préconise une intégration plus systématique et plus efficace des décisions dans le domaine de l'environnement et de l'économie.

Pour mener à bien ce programme, la disponibilité de données significatives sur l'environnement, y compris des données économiques, est essentielle. Dans la Recommandation sur les indicateurs et l'information environnementale adoptée le 31 janvier 1991 par le Conseil de l'OCDE, les Gouvernements des pays Membres ont convenu d'assurer par une coordination appropriée l'obtention, au niveau international, d'informations et de statistiques sur l'environnement qui soient objectives, fiables et comparables. Ils ont convenu en particulier d'intensifier leurs efforts pour lier les informations environnementales et économiques grâce aux travaux sur les dépenses de lutte contre la pollution, et la comptabilité environnementale. Cet objectif fut renforcé en avril 1998 à l'occasion de la réunion ministérielle du Comité des politiques d'Environnement de l'OCDE, où les gouvernements des Etats Membres ont convenu d'améliorer encore l'information environnementale et de fournir un accès approprié à cette information.

Les rapports de l'OCDE sur les dépenses de lutte contre la pollution dans les pays de l'OCDE, publiés depuis 1990, répondent à ces objectifs. Ils complètent le Compendium de données OCDE sur l'environnement et fournissent la base factuelle pour les travaux du Comité des Politiques d'Environnement, et plus particulièrement pour le calcul d'indicateurs d'environnement et l'évaluation des performances environnementales des pays.

Le Sous-Groupe sur l'information et les perspectives environnementales a contribué, grâce aux données qu'il a fournies, mais aussi grâce à son expertise et à ses conseils, à l'élaboration de ce document qui est publié sous la responsabilité du Secrétaire général de l'OCDE.

*Data in this report largely come from country replies to the "2002 questionnaire on Environmental Expenditure and Revenues" jointly operated by the OECD and the Statistical Office of the European Communities (Eurostat). These data are harmonised through the work of the OECD Working Group on Environmental Information and Outlooks (WGEIO) and through related work by Eurostat. Some were updated or revised on the basis of comments from national Delegates as received by January 2003.*

*In many countries, the collection of economic data on the environment has a short history or is done on an adhoc basis. These data are often derived from information collected for other purposes. In addition, definitions and methodologies for the compilation of such data have often changed over time. When reading this report, one should thus keep in mind that definitions and methodologies may vary significantly among countries and that intercountry comparisons and comparisons over time require great caution.*

*Les données de ce rapport proviennent essentiellement des réponses des pays au "Questionnaire 2002 sur les dépenses et les revenus de protection de l'environnement" exploité conjointement par l' OCDE et l'Office Statistique des Communautés Européennes (Eurostat). Elles ont été harmonisées grâce au travail du Sous-Groupe de l'OCDE sur l'information et les perspectives environnementales (WGEIO) et aux travaux afférents d'Eurostat. Certaines données ont été mises à jour ou révisées sur la base de commentaires reçus de Délégués nationaux avant janvier 2003.*

*Dans de nombreux pays, la collecte de données économiques sur l'environnement est une activité soit récente, soit réalisée de façon irrégulière. Souvent ces données sont dérivés d'informations collectées pour d'autres objectifs. De plus, les définitions et méthodologies qui s'appliquent à la collecte de ces données ont souvent changé au cours du temps. En lisant ce rapport, il faut donc garder à l'esprit que les définitions et les méthodes de mesure peuvent varier de façon significative d'un pays à l'autre et que toute comparaison entre pays et dans le temps doit se faire avec beaucoup de prudence.*

Dépenses de lutte contre la pollution dans les pays de l'OCDE  
Pollution abatement and control expenditure in OECD countries

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PART 1.  
INTRODUCTION AND METHODOLOGY

## INTRODUCTION

- Mandate** The work the OECD has been carrying out since thirty years on environmental economics, aims at supporting Member countries' governments in developing, harmonising and implementing effective and sustainable environmental policies based, inter alia, on a systematic integration of environmental and economic decision-making. This was reiterated during several G-7 Economic Summits, as well as by several meetings of the OECD Environment Policy Committee at Ministerial level and in the the OECD Environmental Strategy for the First Decade of the 21<sup>st</sup> Century, adopted by OECD Environment Ministers in May 2001.
- The 1991 Recommendation of the OECD Council on Environmental Indicators and Information, in particular, made explicit reference to work on pollution abatement and control (PAC) expenditure statistics to link environmental and economic information. This was further reinforced in April 1998 at the ministerial meeting of the OECD Environment Policy Committee, where Member country governments agreed to further improve environmental information and to provide appropriate access to it.
- Chronology** This mandate reinforced the work on pollution abatement and control expenditure that has been pursued in the OECD since the late 1970s. The first questionnaire on PAC expenditure was sent to Member countries in 1980 under the auspices of the OECD Group on Environment and Economic Policy Integration. In 1991, this Group agreed on a revised questionnaire and data was subsequently collected in association with the two-yearly data collection on the state of the environment under the auspices of the Working Group on Environmental Information and Outlook<sup>2</sup>. Since 1996, the questionnaire is used jointly by the OECD and the Statistical Office of the European Communities (Eurostat). The current version has been revised jointly by the OECD and Eurostat in 2000-2001 to further harmonise the definitions and classifications used, to foster comparability among countries and to minimise reporting efforts in European countries. It has been approved by Member countries in October 2001.
- OECD publications on PAC expenditure** Data on PAC expenditure in OECD countries have been published regularly since 1990. They supplement the biennial OECD Compendium of Environmental Data and provide the quantitative information base for OECD's environmental programme and policy analysis. They especially respond to information needs for environmental accounting and for environmental indicator development, and contribute to the OECD programmes on country environmental performance reviews, and on environment and economic policy integration.
- Structure of the document** This document consists of three parts. Part 1 deals with concepts and methodological principles that apply to the compilation and interpretation of PAC and other environmental protection expenditure data. Part 2 and Part 3 present the results of the 2002 survey: Part 2 includes summary tables covering all countries; Part 3 includes detailed tables for individual countries. Each country table is accompanied by a note on country-specific methodology and data sources.
- Data sources** This report is based on data and information made available to the OECD Secretariat up to January 2003. Data on environmental expenditure largely come from country replies to the "2002 OECD questionnaire on environmental expenditure and revenues (EPER)" jointly operated with the Statistical Office of the European Communities (Eurostat). Whenever possible, selected data from country replies to earlier editions of the questionnaire were added to give an indication of developments over time. Economic and population data used in this report come from other internal OECD sources.

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\*\* . former Group on the State of the Environment.



## PAC EXPENDITURE: CONCEPT AND METHODOLOGY

### DEFINITIONS

#### Pollution Abatement and Control versus Environmental Protection

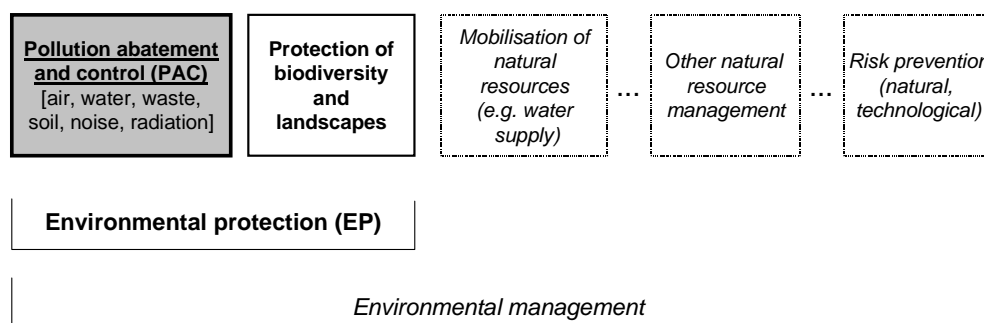
This report focuses on pollution abatement and control (PAC) expenditure. PAC activities are defined as purposeful activities aimed directly at the prevention, reduction and elimination of pollution or nuisances arising as a residual of production processes or the consumption of goods and services.

This definition excludes expenditure on natural resource management and prevention of natural disasters and hazards<sup>1</sup>, on nature protection (such as the protection of endangered species, the establishment of natural parks and green belts) and on the exploitation and mobilisation of natural resources (such as the supply of drinking water). Other exclusions are expenditure that primarily satisfy health and safety requirements (such as expenditure intended for workplace protection) or expenditure on the improvement of the production process for commercial or technical reasons, even when they have environmental benefits.

In total, PAC expenditure comprises the flow of investment, internal current expenditure, subsidies and fees that is directly aimed at pollution abatement and control, and which is incurred by the public sector, the business sector, private households and specialised producers of PAC services. Excluded are:

- ◆ calculated cost items such as depreciation (consumption of fixed capital) or the cost of capital (only actual outlays are recorded);
- ◆ payments of interest, fines and penalties for non-compliance with environmental regulations or compensations to third parties etc., as they are not directly linked with a PAC activity.

PAC expenditure together with expenditure related to the protection of biodiversity and landscapes (nature protection) form part of environmental protection (EP) expenditure. EP activities include all purposeful activities aimed directly at the prevention, reduction and elimination of pollution or any other degradation of the environment resulting from the production process or from the use of goods and services. The scope of EP is defined according to the Classification of Environmental Protection Activities (CEPA), which distinguishes nine different environmental domains. (Table 2).



1. covered under other broader frameworks such as SERIEE and the SEEA 2000.

## CONCEPTUAL ISSUES

There are three major conceptual issues associated with the statistical treatment of PAC expenditure, including:

- ◆ definition of a baseline for PAC expenditure;
- ◆ treatment of integrated pollution control technologies;
- ◆ treatment of specialised producers;
- ◆ avoidance of double counting.

These issues are important for the correct compilation, use and interpretation of PAC expenditure data. The following sections consider each of them in turn.

### Defining the baseline

Expenditure can have positive environmental effects without being directly motivated by environmental concerns. One example is investment in energy-saving equipment that is carried out because of increases in energy prices. Thus, investment in environmentally friendly equipment by firms may be part of normal, profit-maximising business behaviour. This type of expenditure can be distinguished from other expenditure that is directly incurred for PAC purposes (e.g. as a consequence of government environmental policies and regulations).

The question arises whether PAC expenditure data should include only expenditure directly incurred for PAC purposes or all expenditure with positive environmental effects. The answer depends on the use of PAC expenditure data.

- ◆ If PAC expenditure data are used to identify the financial consequences of government environmental policy, then only expenditures incurred directly for PAC purposes should be included.
- ◆ If the objective of collecting PAC expenditure data is to assess the overall links between capital formation and pollution burden or to identify the share of overall expenditure which has positive effects for the environment, then all expenditure with positive environmental effects should be included in PAC expenditure.

Most OECD Member countries, in their statistical approaches, include only expenditure that is directly aimed at environmental protection. This approach was also adopted in the OECD/Eurostat questionnaire in which activities such as energy and material saving are only included to the extent that they mainly aim at environmental protection.

In statistical practice, the identification of such expenditure is difficult, particularly in the business sector, where firms may be unable to distinguish between the different investment motives. It is difficult to identify when pollution abatement is the actual motivation behind less wasteful use of raw materials; therefore, the measurement of air and water pollution abatement and of waste management expenditure may differ from this baseline.

### Treatment of end-of-pipe and integrated technologies

The abatement and control of residuals from production processes can be done either by end-of-pipe technology attached to a given production process, or by changing the process itself. Investments in end-of-pipe technologies do not affect the production process itself, and the amount of pollution generated, instead they serve to treat pollution already generated. The difficulty associated with investments in integrated technologies is establishing what proportion of the total investment expenditure should be allocated to pollution abatement and control. When a new production process is introduced, the expenditure consists of the outlays over and above what would have been paid for a cheaper, viable, but less environmentally benign equipment. Where an existing plant is modified, the investment is equal to the total outlays for the environmental adaptation. There is, however, no easy way to handle this problem in statistical practice. One possibility is to pose this question explicitly in business surveys. Experience from a number of OECD countries shows that respondents often find it difficult to deliver accurate replies.

The problem of accounting for investments in integrated technology has become more important as Government's environmental policies and business' strategies have been moving from curative to preventive approaches, thus increasing the relevance of integrated technologies as opposed to end-of-pipe solutions. In Portugal, for instance, process integrated investments accounted for 22% of industrial PAC investments in 1994 and for 38% in 2000.

### Treatment of specialised producers

PAC and other EP activities can be done either directly by the considered economic entities, or indirectly by the purchase of PAC or EP services from public or private specialised producers. Such specialised producers have grown in importance in the last years, mainly because of the trend in the public sector to privatise responsibilities such as waste collection, waste treatment, or sewage treatment, and the trend in the business sector to outsource certain activities to other firms or to external consultants.

Experience shows considerable variations among countries in the way PAC activities are organised and executed, and in the statistical treatment of related expenditure. In practice, it is not always easy to distinguish the activities carried out through specialised producers from those carried out directly by the public and the private sectors, nor to track the financial flows among the different entities. Furthermore, business surveys used to collect PAC expenditure data from enterprises do not cover systematically expenditure by specialised producers.

This can affect the level of total expenditure in areas such as waste and sewage management, and lead to reduced comparability of the data reported. Estimates have shown that in the European Union specialised producers could account for as much as one third of total expenditure on environmental protection depending on the degree of privatisation of certain public services and the degree of outsourcing in the private sector (see also "avoiding double counting" below).

### Avoiding double counting: evaluation framework

As economic agents interact, the same pollution control activity can be recorded by several agents, thus making double counting a possibility. One example is private sector PAC expenditure that is subsidised by the government. Unless a clear distinction is made between the execution and the financing of the PAC activity, both the public sector and the firm will report the expenditure for PAC purposes, resulting in double counting. It is, therefore, important to distinguish between the execution of an environmental service (*abater principle*) and the financing of the environmental service (*financing principle*).

The OECD/Eurostat questionnaire, used for collecting data on environmental protection expenditure in Member countries, follows a structure that distinguishes and links these two approaches. Its framework is based on double entry bookkeeping, where each activity and expenditure item has an abater (producer) and a financing side. All financing flows should be recorded twice, both at the paying and the receiving sector. (see table 1)

- ◆ Expenditure according to the abater principle (EXP I), includes all expenditure that the sector has for measures they themselves execute. Any economic benefits directly linked with the environmental protection activities (Receipts from by-products) are deducted in order to calculate the net amount of money spent by the sector for its own activities.
- ◆ The financing principle (EXP II) measures how much money a particular sector (directly) contributes to overall environmental protection activities, wherever they are executed. This means that the part of EXP I that was directly financed by others (through subsidies, fees or payments received) should be deducted, while the part of EXP I in other sectors that this sector finances directly (through subsidies or fees paid) should be added.

More and more countries evaluate expenditure according to both principles. Their work shows a significant difference between expenditure calculated according to the abater principle and that based on the financing principle. For instance in France in 2000, PAC expenditure for public sector amounted to 78172 million FRF according to the abater principle and to 39389 million FRF according to the financing principle.

Table 1: Evaluation framework for environmental protection expenditure

	PUBLIC SECTOR	BUSINESS SECTOR	HOUSEHOLDS	SPECIALISED PRODUCERS	TOTAL ECONOMY
	1	2	3	4	
<b>A</b>	Investment expenditure	Investment expenditure	--	Investment expenditure	1+2+4
	--	<i>of which end-of-pipe</i>	--	--	
<b>B</b>	Internal current expenditure	Internal current expenditure	Connected and adapted products	Internal current expenditure	1+2+3+4
<b>C</b>	Receipts from by-products	Receipts from by-products	--	Receipts from by-products	1+2+4
<b>ABATER PRINCIPLE</b>	<b>Expenditure I (A+B-C)</b>	<b>Expenditure I (A+B-C)</b>	<b>Expenditure I (B)</b>	<b>Expenditure I (A+B-C)</b>	<b>1+2+3+4</b>
<b>D</b>	Subsidies, transfers (paid)	Subsidies, transfers (received)	Subsidies, transfers (received)	Subsidies, transfers (received)	zero*
<b>E</b>	Fees, purchases (paid for EP services)	Fees, purchases (paid for EP services) <i>of which paid to public sector</i>	Fees, purchases (paid for EP services) <i>of which paid to public sector</i>	Fees, purchases (paid for EP services) <i>of which paid to public sector</i>	1+2+3+4
<b>F</b>	Revenues (for EP services)	--	--	Revenues (from EP services)	1+4
<b>FINANCING PRINCIPLE</b>	<b>Expenditure II (EXP I +D+E-F)</b>	<b>Expenditure II (EXP I -D+E)</b>	<b>Expenditure II (EXP I -D+E)</b>	<b>Expenditure II (EXP I -D+E-F)</b>	<b>1+2+3+4 (=EXP I)</b>

\* The equilibrium will not hold e.g. when transfers are received from or given to the rest of the world, or when EP services are exported or imported.

## DIMENSIONS OF PAC AND OTHER EP EXPENDITURE

PAC, as well as other EP expenditure have several dimensions, each with a particular interpretation. Expenditure can be disaggregated by:

- ◆ environmental domains (e.g. air, water, waste, noise);
- ◆ economic sector (public sector, business sector, specialised producers and households);
- ◆ type of expenditure (investment, internal current expenditure, receipts from by-products, subsidies and transfers, fees and purchases, and revenues).

### Environmental domains

Disaggregation of PAC expenditure by environmental media or domain indicates whether pollution control efforts are directed towards waste management, noise reduction, or protection of air or water. The scope of PAC and other environmental protection expenditure is defined according to the Single European Standard Statistical Classification of Environmental Protection Activities that distinguishes nine environmental domains (CEPA<sup>2</sup>, Table 2).

Six of the CEPA domains are directly related to PAC activities:

- ❶ protection of ambient air and climate; ❷ wastewater management; ❸ waste management; ❹ protection and remediation of soil, groundwater and surface water; ❺ noise and vibration abatement; ❻ protection against radiation.

2. The CEPA was prepared jointly by UNECE and Eurostat in 1994 and revised in 2000 to take into account recent developments at national and international level. CEPA 1994 was adopted by the Conference of European Statisticians at its forty-second plenary session in Paris, 13-17 June 1994. CEPA 2000 was accepted by the United Nations Expert Group on International Economic and Social Classifications at its meeting on 18-20 June 2001 in New York, as a member of the Family of International Economic and Social Classifications. The full CEPA, including explanatory notes, can be downloaded from: <http://europa.eu.int/comm/eurostat/ramon>

Two other domains, grouping transversal activities such as ③ R&D, and ⑨ general administration and management, including education and information, are also relevant, though not limited to PAC.

<b>Economic sectors</b>	Disaggregation of PAC expenditure by economic sector indicates, first of all, the sector, where the PAC activity occurs (abater principle). When financial transfers between different sectors are taken into account, disaggregation of PAC expenditure by economic sector points to the sector paying for the PAC activity (financing principle). The economic sectors distinguished are the public sector, the business sector, households and specialised producers of environmental services.
<b>◆ Public sector</b>	<p>The <u>public sector</u> includes central, regional and local governments, authorities, communities and government agencies (mainly ISIC/NACE75 : public administration and defence). Data reported should be net of any transfers between these government bodies. It is important to make a clear distinction between Public sector and public specialised producers that include the publicly owned enterprises specialised in the provision of EP services and waste and wastewater departments in large municipalities (which can be separately identified and are thus recorded under ISIC/NACE 90 in the business register).</p> <p>In this report, data on expenditure by the public sector include expenditure by public specialised producers.</p>
<b>◆ Business sector</b>	<p>Total <u>business sector</u> includes all activities in ISIC/NACE 01-99, excluding public sector (mainly ISIC/NACE 75) and specialised producers (mainly ISIC/NACE 90, and ISIC/NACE 37)<sup>3</sup>.</p> <p><u>Please note:</u> Abater expenditure (investments and internal current expenditure) should be related to measures taken to treat or prevent pollution from the operating activity of the company. Measures to treat pollution generated from the operating activity of other companies should not be included as part of business sector: i.e. expenditure for secondary ISIC/NACE90 activities.</p>
<b>◆ Specialised producers</b>	<p>The <u>specialised producers of EP services</u> include enterprises (both privately or publicly owned) and some departments of large municipalities. These are mainly activities within ISIC/NACE 90 (90.01 Collection and treatment of sewage; 90.02 Collection and treatment of solid waste; 90.03 Sanitation, remediation and similar activities). Specialised producers <u>could also include</u> environmental management activities provided by environmental consultants, the activities of e.g. volunteer environmental organisations or secondary environmental activities in e.g. ISIC/NACE37 Recycling.</p> <p>Expenditure by enterprises for producing market environmental goods (environmental protection equipment, materials and other parts of the environment industry) are <u>excluded</u>.</p> <p>Expenditure recorded for the specialised producers (and their revenues) should be matched by fees/purchases in other sectors.</p>
<b>◆ Private households</b>	<p><u>Household</u> PAC expenditure according to the <u>abater principle</u> (EXP I) include only purchases of connected and adapted products such as:</p> <ul style="list-style-type: none"> <li>◆ purchase, operation and maintenance of air pollution control devices for motor vehicles e.g. extra costs for use of more environmentally friendly goods such as unleaded petrol, or service costs for proper adjustments of engines;</li> <li>◆ purchase of sewage treatment facilities such as septic tanks;</li> <li>◆ purchase of goods used in connection with waste management: e.g. bins, bags, composts.</li> </ul> <p>No distinction is made between investments and current expenditure. Household purchases are viewed as current, in line with the national accounts, and result directly in EXPI.</p> <p>According to the <u>financing principle</u> household expenditure include all payments and fees for services purchased from municipalities and public or private specialised producers of environmental protection services. These include mainly payments for the collection and treatment of waste or wastewater.</p>

3. for more details see: <http://unstats.un.org/unsd/cr/registry/>.

<b>Type of expenditure</b>	The distinction between investment and internal current expenditure helps in identifying patterns of abatement and control efforts over time. Typically, when PAC measures are first implemented, investment expenditure accounts for a large share of total PAC expenditure. Over time, internal current expenditure becomes increasingly important.
◆ <b>Investment expenditure</b>	<u>Investment expenditure</u> include all outlays in a given year (purchases and own-account production) for machinery, equipment and land used for PAC purposes. Total investments in a sector or industry is the sum of end-of-pipe investments and investments in integrated technologies. They includes purchases of connected and adapted capital goods such as septic tanks (end-of-pipe) and catalytic converters (integrated).
◆ <b>Internal current expenditure</b>	<u>Internal current expenditure</u> includes the use of energy, material, maintenance and own personnel for measures made by the sector to protect the environment. A large part of it is related to operating environmental protection equipment. There are also other internal expenditure such as general administration, education, information, environmental management and certification, research and development. It includes purchases of connected and adapted non-capital goods such as extra cost for low sulphur fuels and excludes purchases of environmental protection services bought from the public sector or from specialised producers such as waste collection, sewage treatment, environmental consultancy services, or surveillance fees. Such purchases are reported under fees/purchases as they finance EXP I in other sectors.
◆ <b>Receipts from by-products</b>	PAC activities produce <u>by-products</u> that have an economic value. These could either be sold and generate revenues, or be used internally and lead to reductions in costs. Examples include energy generated or material recovered, as a result of waste treatment. There should always be a specific PAC activity (and expenditure) that these receipts stem from. Receipts from by-products is the sum of the sales value and the value of the cost-saving (if used internally) related to these by-products. Energy or material savings due to more efficient processes and other productivity gains resulting from PAC activities are not included in Receipts from by-products.
◆ <b>Subsidies and transfers</b>	<u>Subsidies and transfers</u> include all types of transfers financing PAC activities in other sectors, including transfers to or from other countries. These constitute part of financing expenditure for the paying sector, and reduce the financing of EXP I in the receiving sector. Included are payments of so called "earmarked" environmental taxes (e.g. general pollution taxes), which are not payments for a bought service but where the revenues are ear-marked for financing environmental protection measures. Payments of general environmental or green taxes (such as energy taxes) where the revenues are not earmarked for financing environmental protection measures are excluded.
◆ <b>Fees and purchases</b>	<u>Fees and purchases</u> includes all purchases of PAC services, both from public and private producers. These payments are clearly linked with an environmental protection activity done outside the enterprise and exclude fines and penalties. They include: <ul style="list-style-type: none"> <li>◆ payments to specialised producers (enterprises) for waste and wastewater collection and treatment and payments to environmental consultants linked e.g. with environmental management and education;</li> <li>◆ payments to public sector for waste and wastewater collection and treatment (whatever the name of the payments – fees, charges etc) as well as permits and surveillance fees.</li> </ul> Payments of taxes directly used for financing environmental protection expenditure – so called earmarked environmental taxes are excluded here, but included under Subsidies/Transfers. Payments of general environmental or green taxes (such as energy taxes) are completely <u>excluded</u> .
◆ <b>Revenues</b>	<u>Revenues</u> are the payments public sector and specialised producers receive for bought PAC and other EP services.

## INTERPRETATION, USE AND LIMITS

PAC expenditure is the first-order, out-of-pocket expenditure of those economic entities that implement control measures and undertake compliance activities. As such, PAC expenditure does not provide any more, or any less information than, for example, health or education expenditure.

Total PAC expenditure provides a general indication of a country's financial efforts directed at pollution abatement and control. However, as absolute figures, the relevance of these data for policy purposes is limited; PAC expenditure has to be related to other variables. A common way of comparing PAC expenditure data across countries is to relate them to GDP or to total gross fixed capital formation (see Summary Tables).

### Measuring economic effects

PAC expenditure is not the same as the cost of pollution abatement and control, but the cost can be calculated from PAC expenditure data. Capital goods are used over a number of years and their cost is spread over their service life. Expenditure data, on the other hand, shows the total value of the capital goods in the year of acquisition and does not, therefore, reflect accurately the economic effects over time. The calculation of the PAC cost requires appropriate assumptions about service lives, interest rates and several other parameters. For the purposes of assessing the economic impact of environmental policies, it would be preferable to look at cost rather than expenditure.

A different use of PAC expenditure data is to calculate PAC shares in total cost or total turnover for particular industries. Cost shares are a useful indicator for assessing the effects of environmental regulation on industry competitiveness. In industries where PAC cost shares are small, the impact of environmental policies will be felt less than in industry branches where these shares are high.

PAC expenditure data are also an important aid in identifying the positive economic effects of environmental policies. Measures to protect the environment create demand for abatement and clean production technologies and environmental consulting services, and spur environment-related R&D. National and international statistics on PAC expenditure provide the basic information needed to estimate the size and evolution of markets and potential for the environment industry.

### Caveats

The relationship between PAC expenditure and the state of the environment can be explored only as part of the overall context of a country, and with the aid of supplementary information. Out of context, high PAC expenditure can be associated both with low environmental quality (indicating that such levels of expenditure are necessary) and with high environmental quality (indicating improvement as a result of high PAC expenditure).

PAC expenditure measures the economic effort to control pollution; it does not measure the cost of environmental damage. As such, PAC data should not be generalised to wider cost-benefit analysis, or used to decide whether abatement is justified. In deciding whether to undertake abatement, damage costs should be used. These are often very different from control costs.

All significant changes in a country's PAC expenditure must be reviewed with care. PAC expenditure may increase because of improved sectoral coverage (e.g. local government expenditure was not included before) or the inclusion of investments in integrated technology (e.g. only investments in end-of-pipe technology were reported earlier).

### Data presented in this report

The remainder of this report presents the main results from the 2002 survey of Environmental Protection Expenditure and Revenues in OECD Member countries carried out by OECD in co-operation with Eurostat.

Thanks to the contributions and expertise of the OECD Working Group on Environmental Information and Outlooks (WGEIO), efforts were made to:

- ◆ harmonise the data presented as far as possible;
- ◆ document the data presented for each country with information about national data sources, definitions and surveying methodologies.

Whenever possible, results from earlier surveys have been added to give an indication of developments over time. It has however to be noted that due to changes in the methodologies and definitions applied to PAC expenditure statistics and to the recent revision of the OECD/Eurostat questionnaire, the coherence of the time series is not always guaranteed. Changes over time should thus be interpreted with caution and taking account of accompanying notes.

Over the past ten years, country coverage and the international comparability of data have improved. In many instances, however, definitions and methodologies remain diverse across Member countries. International comparisons should, therefore, be limited to orders of magnitude.

**Progress to be made**

More than for other environmental data, the establishment of reliable and internationally comparable data on environmental expenditure calls for continuous monitoring, analysis, treatment and checking. Despite important progress in the number of OECD countries that have launched work in this field and in the international harmonisation of definitions and compilation methods, much remains to be done to produce data of better quality. Continued efforts are needed to in particular to:

- ◆ promote the regular compilation of environmental expenditure data in all OECD countries and ensure continuity in existing activities;
- ◆ increase comparability among countries;
- ◆ ensure a better coherence of the data over time;
- ◆ better document the data provided so as to facilitate their interpretation and their use in policy analysis and indicator development.



Table 2: Environmental domains - CEPA 2000\*\*

<p><b>1 Protection of ambient air and climate</b></p> <p>Protection of ambient air and climate comprises measures and activities aimed at the reduction of emissions into the ambient air or ambient concentrations of air pollutants as well as to measures and activities aimed at the control of emissions of greenhouse gases and gases that adversely affect the stratospheric ozone layer.</p> <p>1.1 Prevention of pollution through in-process modifications for the protection of ambient air, and of climate and ozone layer.</p> <p>1.2 Treatment of exhaust gases and ventilation air for the protection of ambient air, and for the protection of climate and ozone layer.</p> <p>1.3 Measurement, control, laboratories and the like</p> <p>1.4 Other activities.</p> <p><u>Excluded</u> are measures undertaken for cost saving reasons (e.g. energy saving).</p> <p><b>2 Wastewater management (includes prevention of emission to surface water)</b></p> <p>Wastewater management comprises activities and measures aimed at the prevention of pollution of surface water through the reduction of the release of wastewater into inland surface water and seawater. It includes the collection and treatment of wastewater including monitoring and regulation activities. Septic tanks are also included.</p> <p>2.1 Prevention of pollution through in-process modifications</p> <p>2.2 Sewerage networks</p> <p>2.3 Waste water treatment</p> <p>2.4 Treatment of cooling water</p> <p>2.5 Measurement, control laboratories and the like</p> <p>2.6 Other activities.</p> <p><u>Excluded</u> are actions and activities aimed at the protection of groundwater from pollutant infiltration and the cleaning up of water bodies after pollution (see CEPA 4).</p> <p><b>3 Waste management</b></p> <p>Waste management refers to activities and measures aimed at the prevention of the generation of waste and the reduction of its harmful effect on the environment. Includes the collection and treatment of waste, including monitoring and regulation activities. It also includes recycling and composting, the collection and treatment of low level radioactive waste, street cleaning and the collection of public litter.</p> <p>3.1 Prevention of pollution through in-process modifications</p> <p>3.2 Collection and transport</p> <p>3.3 Treatment &amp; disposal of hazardous waste: thermal treatment, landfill, other</p> <p>3.4 Treatment &amp; disposal of non-hazardous waste: incineration, landfill, other</p> <p>3.5 Measurement, control, laboratories and the like</p> <p>3.6 Other activities</p> <p><u>Excluded</u> are activities related to the management of high-level radioactive waste (see CEPA 7).</p> <p><b>4 Protection and remediation of soil, groundwater and surface water (includes all cleaning-up activities)</b></p> <p>Protection and remediation of soil, groundwater and surface water refers to measures and activities aimed at the prevention of pollutant infiltration, cleaning up of soils and water bodies and the protection of soil from erosion and other physical degradation as well as from salinisation. Monitoring, control of soil and groundwater pollution is included.</p> <p>4.1 Prevention of pollutant infiltration</p> <p>4.2 Cleaning up of soil and water bodies</p> <p>4.3 Protection of soil from erosion and other physical degradation</p> <p>4.4 Prevention and remediation of soil salinity</p> <p>4.5 Measurement, control, laboratories and the like</p> <p>4.6 Other activities</p> <p><u>Excluded</u> are wastewater management activities (see CEPA 2), as well as activities aimed at the protection of biodiversity and landscape (see CEPA 6).</p> <p><b>5 Noise and vibration abatement (excluding workplace protection)</b></p> <p>Noise and vibration abatement refers to measures and activities aimed at the control, reduction and abatement of industrial and transport noise and vibration. Activities for the abatement of neighbourhood noise (soundproofing of dancing halls, etc.) as well as activities for the abatement of noise in places frequented by the public (swimming pools, etc.), in schools, etc., are included.</p> <p>5.1 Preventive in-process modifications at the source from: road and rail traffic, air traffic, industrial and other noise</p> <p>5.2 Construction of anti noise/vibration facilities for road and rail traffic, air traffic, industrial and other noise</p> <p>5.3 Measurement, control, laboratories and the like</p> <p>5.4 Other activities</p> <p><u>Excluded</u> is the abatement of noise and vibration for purposes of protection at the workplace.</p>
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Table 2 con't: Environmental domains - CEPA 2000

<p><b>6 <u>Protection of biodiversity and landscape</u></b></p> <p>Protection of biodiversity and landscape refers to measures and activities aimed at the protection and rehabilitation of fauna and flora species, ecosystems and habitats as well as the protection and rehabilitation of natural and semi-natural landscapes. The separation between 'biodiversity' and 'landscape' protection may not always be practical. For example, maintaining or establishing certain landscape types, biotopes, eco-zones and related issues (hedgerows, lines of trees to re-establish 'natural corridors') have a clear link to biodiversity preservation.</p> <p>6.1 Protection and rehabilitation of species and habitats</p> <p>6.2 Protection of natural and semi-natural Landscapes</p> <p>6.3 Measurement, control, laboratories and the like and other activities</p> <p><u>Excluded</u> is the protection and rehabilitation of historic monuments or predominantly built-up landscapes, the control of weed for agricultural purposes as well as the protection of forests against forests fire when this predominantly responds to economic reasons. The establishment and maintenance of green spaces along roads and recreational structures (e.g. golf courses, other sports facilities) are also excluded.</p> <p>Actions and expenditure related to urban parks and gardens would not normally be included but may be related in some cases to biodiversity – in such cases the activities and expenditure should be included.</p> <p><b>7 <u>Protection against radiation (excluding external safety)</u></b></p> <p>Protection against radiation refers to activities and measures aimed at the reduction or elimination of the negative consequences of radiation emitted from any source. Included is the handling, transportation and treatment of high level radioactive waste, i.e. waste that, because of its high radionuclide content, requires shielding during normal handling and transportation.</p> <p>7.1 Protection of ambient media</p> <p>7.2 Transport and treatment of high level radioactive waste</p> <p>7.3 Measurement, control, laboratories and the like and other activities</p> <p><u>Excluded</u> are activities and measures related to the prevention of technological hazards (e.g. external safety of nuclear power plants), as well as protection measures taken at workplaces. Also excluded are activities related to collection and treatment of low-level radioactive waste (see CEPA 3).</p> <p><b>8 <u>Research and Development</u></b></p> <p>Includes all research and development (R&amp;D) with an Environmental Protection objective both in the public and business sector: identification and analysis of sources of pollution, mechanisms of dispersion of pollutants in the environment as well as their effects on human beings, the species and the biosphere. This heading covers R&amp;D for the prevention and elimination of all forms of pollution, as well as R&amp;D oriented towards equipment and instruments of pollution measurement and analysis. When separable all R&amp;D activities even when referring to a specific class have to be classified under this position.</p> <p><u>Excluded</u> are R&amp;D activities related to the management of natural resources.</p> <p><b>9 <u>Other environmental protection activities</u></b></p> <p>Other environmental protection activities refers to all environmental protection activities which take the form of general environmental administration and management activities or training or teaching activities specifically oriented towards environmental protection or which consist of public information, when they are not classified elsewhere in CEPA. It also includes activities leading to indivisible expenditure, as well as activities not elsewhere classified.</p> <p>9.1 General environmental administration and management including: General administration, regulation and the like, Environmental management</p> <p>9.2 Education, training and information</p> <p>9.3 Activities leading to indivisible expenditure and Activities not elsewhere classified</p>
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\*\* For further details see <http://europa.eu.int/comm/eurostat/ramon> .

# PARTIE 1

## INTRODUCTION ET MÉTHODOLOGIE

## INTRODUCTION

### Mandat

Le travail réalisé depuis trente ans par l'OCDE sur les aspects économiques de l'environnement, vise à soutenir les pays membres dans l'élaboration, l'harmonisation et la mise en oeuvre de politiques environnementales efficaces et durables, fondées entre autres sur une intégration systématique des décisions dans le domaine de l'environnement et de l'économie. Cette demande a été réitérée à l'occasion de plusieurs sommets économiques du G7, ainsi que lors de plusieurs sessions du Comité des politiques d'environnement de l'OCDE au niveau ministériel et dans la stratégie de l'environnement de l'OCDE pour les dix premières années du XXIème siècle, adoptée en mai 2001 par les ministres de l'environnement de l'OCDE.

La recommandation du Conseil de l'OCDE de 1991 sur les indicateurs et les informations concernant l'environnement fait explicitement référence aux statistiques relatives aux dépenses de lutte contre la pollution (LCP) comme un moyen d'associer les informations environnementales et économiques. Cet objectif fut renforcé en avril 1998 à l'occasion de la réunion ministérielle du Comité des politiques d'Environnement de l'OCDE, où les gouvernements des Etats Membres ont convenu d'améliorer encore l'information environnementale et de fournir un accès approprié à cette information.

### Historique

Ce mandat a renforcé les travaux de l'OCDE sur les dépenses LCP menés depuis la fin des années 1970. Le premier questionnaire relatif à ces dépenses a été envoyé aux pays Membres en 1980 sous les auspices du Groupe de l'OCDE sur l'intégration des politiques économiques et de l'environnement. En 1991, ce Groupe a adopté un questionnaire révisé et les données ont ensuite été recueillies dans le cadre de la collecte biennale de données sur l'état de l'environnement sous les auspices du Groupe sur l'information et les perspectives environnementales\*. Depuis 1996, ce questionnaire est utilisé conjointement par l'OCDE et l'Office Statistique des Communautés Européennes (Eurostat). La version actuelle a été révisée conjointement par l'OCDE et Eurostat en 2000-2001 afin d'harmoniser les définitions et les classifications utilisées, d'améliorer la comparabilité entre pays et de minimiser les efforts de reporting par les pays Européens. Elle a été approuvée par les pays Membres en octobre 2001.

### Les publications de l'OCDE sur les dépenses de LCP

Les données sur les dépenses LCP dans les pays de l'OCDE sont publiées régulièrement depuis 1990. Elles complètent la publication biennale "Compendium de données OCDE sur l'environnement" et fournissent une base chiffrée pour le programme sur l'environnement et l'analyse politique de l'OCDE. Elles répondent en particulier au besoin d'informations dans les domaines de la comptabilité environnementale et des indicateurs d'environnement, et contribuent aux programmes sur les examens des performances environnementales des pays Membres et sur l'intégration des politiques économiques et environnementales.

### Structure du document

Ce document comprend trois parties : la partie 1 traite des concepts et principes méthodologiques applicables à la compilation et à l'interprétation des statistiques relatives aux dépenses LCP et autres dépenses de protection de l'environnement. La partie 2 et la partie 3 présentent les résultats de l'enquête 2002 : d'abord par des tableaux récapitulatifs regroupant les divers pays puis, par des tableaux plus détaillés par pays accompagnés de notes méthodologiques.

### Source des données

Ce rapport est basé sur des données et des informations transmises aux Secrétariat de l'OCDE avant janvier 2003. Les données sur les dépenses environnementales proviennent essentiellement des réponses des pays au "Questionnaire OCDE 2002 sur les dépenses et les revenus de protection de l'environnement (DRPE)" exploité conjointement avec l'Office Statistique des Communautés Européennes (Eurostat). Quand possible, des données provenant des réponses des pays à des version antérieures du questionnaire ont été ajoutées. Les données économiques et démographiques utilisés dans ce rapport proviennent d'autres sources internes de l'OCDE.

\*. ancien Groupe sur l'état de l'environnement.

## DÉPENSES DE LUTTE CONTRE LA POLLUTION : PRINCIPE ET MÉTHODOLOGIE

**DÉFINITIONS****Lutte contre la pollution et protection de l'environnement**

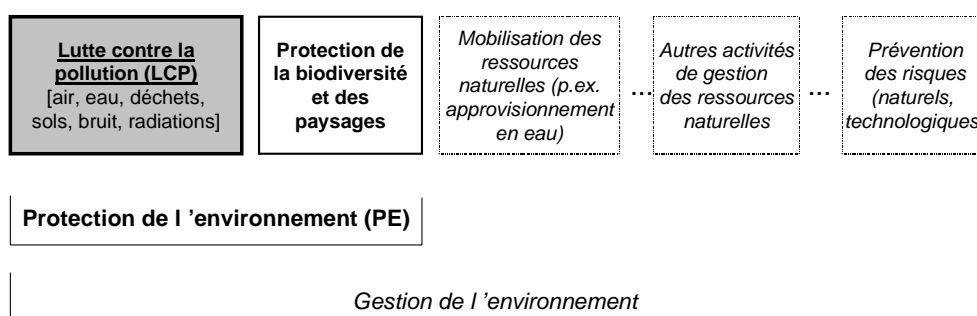
Le présent rapport porte sur les dépenses de « lutte contre la pollution » (LCP). Par LCP, on entend ici des activités axées directement sur la prévention, la réduction et l'élimination de la pollution ou des nuisances qui résultent des processus de production ou de la consommation de biens et services.

Cette définition exclut les dépenses de gestion des ressources naturelles et de prévention des risques<sup>4</sup>, les dépenses de protection de la nature (comme la protection des espèces menacées, ou l'aménagement de parcs naturels et de ceintures vertes), ainsi que les dépenses d'exploitation et de mobilisation de ressources naturelles (comme l'approvisionnement en eau potable). Elle exclut également les dépenses engagées principalement pour répondre à des exigences de santé et de sécurité (comme la protection du lieu de travail p.ex.) et celles portant sur l'amélioration du processus de production pour motif commercial ou technique, même si elles ont une incidence positive sur l'environnement.

Au total, les dépenses imputées à la LCP correspondent au flux de dépenses d'investissement, de dépenses courantes internes, de subventions et de redevances visant directement à lutter contre la pollution et supportées par le secteur public, le secteur des entreprises, les ménages et les entreprises spécialisées dans les services de LCP. Sont exclus:

- ◆ les postes de coût calculés tels que l'amortissement (consommation de capital fixe) ou le coût du capital (seules les dépenses réelles sont considérées) ;
- ◆ les paiements d'intérêts, d'amendes et de pénalités pour non-respect des réglementations environnementales ainsi que l'indemnisation de tiers, car ils ne sont pas directement liés à une activité de LCP.

Associées aux dépenses de protection de la biodiversité et des paysages (protection de la nature), les dépenses de LCP forment les dépenses de protection de l'environnement (PE). Par PE, on entend toutes les activités visant directement à la prévention, la réduction et l'élimination de la pollution ou de toute autre dégradation de l'environnement résultant de processus de production ou de l'utilisation de biens et services. Le champ couvert par la PE est défini conformément à la classification des activités de protection de l'environnement (CAPE) qui distingue neuf domaines environnementaux (tableau 2).



4. couverts sous d'autres cadres de référence comme SERIEE et SEEA 2000.

**PROBLÈMES CONCEPTUELS**

Le traitement statistique des dépenses LCP pose quatre problèmes conceptuels:

- ◆ définir des critères de base pour apprécier les dépenses LCP ;
- ◆ préciser le traitement appliqué aux technologies intégrées de LCP ;
- ◆ préciser le traitement appliqué aux prestataires spécialisés ;
- ◆ éviter le double comptage.

Ces différents points, examinés dans les sections suivantes, sont déterminants si l'on veut utiliser et interpréter correctement les données relatives aux dépenses LCP.

**Définition des critères de base**

Les dépenses des agents économiques peuvent avoir des effets positifs sur l'environnement sans être motivées par des considérations environnementales. Par exemple, les investissements en faveur des économies d'énergie réalisées suite à une hausse des prix de l'énergie. Ainsi, l'achat d'équipements respectueux de l'environnement peut s'inscrire dans le cadre d'un comportement classique de recherche du profit. Ces dépenses se distinguent de celles directement consacrées à la LCP (par exemple, suite à la mise en œuvre de réglementations environnementales des pouvoirs publics).

Il faut se demander si les dépenses de LCP doivent inclure exclusivement les activités entreprises à ce titre ou englober l'ensemble des dépenses qui entraînent des effets favorables sur l'environnement. La réponse provient de l'utilisation des données sur les dépenses de LCP :

- ◆ si ces données doivent contribuer à évaluer les conséquences financières des politiques d'environnement adoptées par les pouvoirs publics, seules les dépenses directement liées à la lutte contre la pollution sont à prendre en compte.
- ◆ si l'objectif de la collecte des données sur les dépenses de LCP est d'évaluer les relations entre la formation de capital et la charge polluante ou de déterminer la part des dépenses globales qui a des effets favorables pour l'environnement, il conviendrait de prendre en compte toutes les formes de dépenses LCP ayant un effet positif sur l'environnement.

Dans leurs méthodes statistiques, la plupart des pays Membres de l'OCDE ne prennent en compte que les dépenses directement destinées à protéger l'environnement. Le même principe a été retenu dans le questionnaire OCDE/Eurostat dans lequel les activités telles que les économies d'énergie et de matières ne sont prises en compte que dans la mesure où elles visent essentiellement la protection de l'environnement.

Dans la pratique, il demeure difficile de cerner ces dépenses, notamment dans le secteur des entreprises où la distinction entre les divers motifs d'investissement n'est pas aisée. Étant donné les problèmes rencontrés pour déterminer dans quels cas la réduction du gaspillage des matières premières entre dans le cadre de la lutte antipollution, la mesure des dépenses de lutte contre la pollution de l'air et de l'eau peut s'éloigner des critères de base.

**Technologies en bout de chaîne et intégrées**

On peut réduire et contrôler les résidus des processus de production, soit par des technologies installées en bout de chaîne liées à un processus de production donné, soit en modifiant le processus lui-même. Les investissements en bout de chaîne n'ont pas de répercussions sur le processus de production lui-même, ni sur le volume de pollution généré, mais ils servent à éliminer la pollution déjà existante. Lorsqu'il s'agit de technologies intégrées, le problème consiste à identifier la part de LCP dans l'investissement total. Lorsqu'un nouveau processus de production est mis au point, les dépenses LCP correspondent aux montants excédant ceux qui auraient été dépensés pour acheter un équipement moins cher, viable, mais plus dangereux pour l'environnement. Lorsqu'un site de production fait l'objet de travaux, les investissements de LCP sont égaux au total des sommes dépensées pour l'adaptation environnementale. Dans la pratique, il n'y a pas de solution simple à ce problème statistique. On peut poser explicitement la question dans les enquêtes menées auprès des entreprises. L'exemple d'un certain nombre de pays de l'OCDE montre que les déclarants ont souvent des difficultés à apporter des réponses précises.

Le problème de la comptabilisation des technologies intégrées a pris de l'importance au fur et à mesure que les politiques des pouvoirs publics et les stratégies des entreprises en matière d'environnement sont passées d'une approche curative à une approche préventive, se traduisant par un intérêt accru pour les technologies intégrées au détriment des solutions appliquées en bout de chaîne. Au Portugal, par exemple, les investissements dans les technologies intégrées représentaient 22% des investissements industriels de LCP en 1994, et 38% en 2000.

### Prestataires spécialisés

Les activités de LCP et de PE peuvent être réalisées soit directement par les entités économiques considérées, soit indirectement à travers l'acquisition de services de LCP et de PE auprès de prestataires spécialisés publics ou privés. Ces dernières années, ces prestataires spécialisés ont pris de l'importance principalement en raison de la tendance dans le secteur public de privatiser des services comme la collecte et le traitement des déchets ou le traitement des eaux usées, et de la tendance dans le secteur des entreprises de sous-traiter certaines activités à d'autres entreprises ou à des consultants extérieurs.

L'expérience montre qu'il y a des différences importantes entre pays quant à la façon dont les activités de LCP sont organisées et exécutées et quant au traitement statistique des dépenses afférentes. Dans la pratique, il n'est pas toujours aisé de distinguer les activités réalisées par l'intermédiaire de prestataires spécialisés de celles réalisées directement par le secteur public et le secteur des entreprises, ni de suivre les flux financiers entre les différentes entités. De plus, les enquêtes de conjoncture utilisées pour collecter des données sur les dépenses de LCP des entreprises, ne couvrent pas systématiquement les dépenses des prestataires spécialisés.

Ceci peut affecter le niveau affiché des dépenses totales dans des domaines comme la gestion des déchets et des eaux usées, et réduire la comparabilité des données rapportées. Des estimations ont montré que dans l'Union Européenne les prestataires spécialisés peuvent représenter jusqu'à un tiers des dépenses totales de protection de l'environnement selon le degré de privatisation de certains services publics et le degré de sous-traitance dans le secteur privé (voir aussi "éviter les doubles comptages" ci-après).

### Éviter les doubles comptages : cadre d'évaluation

Compte tenu des interactions entre les agents économiques, la même activité de LCP peut être imputée à plusieurs agents, d'où la possibilité d'un double comptage. Les dépenses effectuées par le secteur privé mais subventionnées par le secteur public en offrent un exemple. Si une distinction claire n'est pas faite entre l'exécution et le financement de l'activité de LCP, le secteur public comme les entreprises imputeront cette dépense à la LCP et un double comptage se produira. Aussi, il est important de distinguer l'exécution d'un service lié à l'environnement ("principe d'exécution") du financement du service en question ("principe de financement").

Le questionnaire OCDE/Eurostat, utilisé pour collecter les données sur les dépenses de protection de l'environnement auprès des pays Membres, est structuré de façon à distinguer et lier ces deux approches. Son cadre d'évaluation est basé sur un système de comptabilité en partie double, où chaque dépense pour chaque activité comporte un aspect exécution et un aspect financement. Tous les flux financiers doivent être enregistrés deux fois : par le secteur qui les verse et par le secteur qui les reçoit (voir tableau 1).

- ◆ Les dépenses ventilées selon le principe d'exécution (DÉP I) comprennent l'ensemble des sommes que le secteur dépense pour ses propres mesures. Tout bénéfice économique tiré directement d'activités de PE (recettes de sous-produits) est déduit afin de calculer le montant net dépensé par le secteur pour ses propres activités.
- ◆ Le principe du financement (DÉP II) mesure la contribution financière (directe) d'un secteur à l'ensemble des activités de PE, quel que soit leur lieu d'exécution. En d'autres termes, la fraction de DÉP I qui est directement financée par d'autres parties (à travers la perception de subventions, de redevances ou de paiements) doit être déduite, alors que la fraction de DÉP I versée à d'autres secteurs, que le secteur étudié finance directement (au moyen du versement de subventions ou de redevances), doit être prise en compte.

De plus en plus de pays Membres évaluent les dépenses de LCP selon les deux principes. On peut obtenir des résultats sensiblement différents pour les dépenses selon le principe d'imputation adopté. Ainsi, en France en 2000, la dépense de LCP du secteur public s'élevaient à 78172 millions de FRF selon le principe d'exécution et à 39389 millions de FRF selon le principe de financement.

Tableau 1 : Cadre d'évaluation des dépenses de protection de l'environnement

	SECTEUR PUBLIC	SECTEUR DES ENTREPRISES	MÉNAGES	PRESTATAIRES SPÉCIALISÉES	TOTAL DE L'ÉCONOMIE
	1	2	3	4	
<b>A</b>	Dépenses d'investissement --	Dépenses d'investissement <i>dont en bout de chaîne</i>	--	Dépenses d'investissement --	1+2+4
<b>B</b>	Dépenses courantes internes	Dépenses courantes internes	Produits connexes et adaptés	Dépenses courantes internes	1+2+3+4
<b>C</b>	Recettes de sous-produits	Recettes de sous-produits	--	Recettes de sous-produits	1+2+4
<b>Principe d'exécution</b>	<b>Dépenses I (A+B-C)</b>	<b>Dépenses I (A+B-C)</b>	<b>Dépenses I (B)</b>	<b>Dépenses I (A+B-C)</b>	<b>1+2+3+4</b>
<b>D</b>	Subventions, transferts (versés)	Subventions, transferts (reçus)	Subventions, transferts (reçus)	Subventions, transferts (reçus)	zéro*
<b>E</b>	Redevances, acquisitions (versées pour des services de PE)	Redevances, acquisitions (versées pour des services de PE) <i>dont versés au secteur public</i>	Redevances, acquisitions (versées pour des services de PE) <i>dont versés au secteur public</i>	Redevances, acquisitions (versées pour des services de PE) <i>dont versés au secteur public</i>	1+2+3+4
<b>F</b>	Recettes (de services de PE)	--	--	Recettes (de services de PE)	1+4
<b>Principe du financement</b>	<b>Dépenses II (DÉP I +D+E-F)</b>	<b>Dépenses II (DÉP I -D+E)</b>	<b>Dépenses II (DÉP I -D+E)</b>	<b>Dépenses II (DÉP I -D+E-F)</b>	<b>1+2+3+4 (=DÉP I)</b>

\* L'équilibre peut être rompu quand des transferts sont reçus du reste du monde ou versés à celui-ci, ou quand des services de PE sont exportés ou importés.

## STRUCTURE DES DÉPENSES DE LUTTE CONTRE LA POLLUTION

Les dépenses LCP peuvent être envisagées de différents points de vue; elles peuvent être détaillées :

- ◆ par domaine environnemental (p.ex. air, eau, déchets, bruit) ;
- ◆ par secteur économique (public, entreprises, ménages, prestataires spécialisés) ;
- ◆ par catégorie de dépenses (investissements, dépenses courantes internes, recettes de sous-produits, subventions, redevances et recettes) :

### Domaines environnementaux

La ventilation des dépenses totales LCP par domaine permet d'indiquer si les efforts visent la protection de l'air, de l'eau, la gestion de déchets ou la réduction du bruit. Les différents domaines de protection de l'environnement sont définis dans la classification européenne type des activités de protection de l'environnement qui comporte neuf domaines environnementaux (CAPE<sup>5</sup>, voir tableau 2).

Six des domaines CAPE concernent directement des activités LCP :

- ① protection de l'air ambiant et du climat; ② gestion des eaux usées; ③ gestion des déchets; ④ protection et assainissement du sol, des eaux souterraines et de surface; ⑤ lutte contre le bruit et les vibrations; ⑥ protection contre les rayonnements.

5. La CAPE a été préparée conjointement par la CEE-NU et Eurostat en 1994 et a été révisée en 2000 afin d'intégrer les développements récents aux plans national et international. La CAPE 1994 a été adoptée par la Conférence des Statisticiens Européens lors de sa 42<sup>ème</sup> réunion plénière (Paris, 13-17 juin 1994). La CAPE 2000 a été acceptée comme membre de la Famille des Classifications Internationales Economiques et Sociales par le Groupe d'Expert des Nations Unies sur les Classifications Internationales Economiques et Sociales lors de sa réunion à New York en juin 2001. Le détail de la CAPE ainsi que des notes explicatives peuvent être téléchargés à l'adresse suivante : <http://europa.eu.int/comm/eurostat/ramon>



Deux autres domaines, regroupant des activités transversales comme ③ la R&D, et ④ l'administration et la direction générale, comprenant les activités d'éducation et d'information, sont aussi pertinents, bien que pas limités à la LCP.

## Secteurs économiques

La répartition par secteur économique des dépenses LCP met en évidence les secteurs où les activités LCP s'effectuent (principe d'exécution). Lorsque les transferts financiers entre secteurs sont pris en compte, la répartition par secteur permet d'identifier les secteurs qui financent ces activités (principe de financement). On distingue le secteur public, les entreprises, les ménages et les prestataires spécialisés de services environnementaux.

### ◆ Secteur public

Le secteur public comprend les administrations publiques centrales, régionales et locales, les collectivités et les organismes publics (principalement CITI/NACE75 : administration publique et défense). Les données déclarées doivent être nettes de tous transferts entre ces organes. Il importe d'établir une distinction claire entre le secteur public et les prestataires spécialisés. L'ensemble des activités CITI/NACE 90 doit être intégré dans le tableau des prestataires spécialisés (tableau 4), y compris les entités liées au secteur public telles que les entreprises détenues par l'État et les services des déchets et des eaux usées des grandes villes (qui peuvent être identifiés séparément et, par conséquent, enregistrés dans le répertoire des entreprises sous la division CITI/NACE 90).

### ◆ Entreprises

Le secteur des entreprises comprend l'ensemble des activités de la CITI/NACE 01-99, à l'exclusion du secteur public (essentiellement CITI/NACE 75) et des prestataires spécialisés (principalement CITI/NACE 90)<sup>6</sup>.

Remarque : Les dépenses d'exécution (investissements et dépenses courantes internes) doivent se rapporter aux mesures prises pour traiter ou prévenir la pollution générée par l'activité opérationnelle de l'entreprise. Les mesures prises pour traiter la pollution générée par l'activité opérationnelle d'autres entreprises ne doivent pas être incluses dans le secteur des entreprises, mais dans les dépenses relatives aux activités secondaires de la CITI/NACE 90.

### ◆ Prestataires spécialisés

Les prestataires spécialisés dans la fourniture de services de protection de l'environnement comprennent les entreprises (publiques ou privées) et certains services municipaux des grandes villes dont les activités principales relèvent de la division 90 de la CITI/NACE (90.01 collecte et traitement des eaux usées ; 90.02 collecte et traitement des déchets solides ; 90.03 assainissement, remise en état et activités similaires). Les prestataires spécialisés peuvent aussi inclure les activités de gestion environnementale des consultants en environnement, les activités d'organisations environnementales bénévoles et les activités environnementales secondaires telles que celles de la division CITI/NACE 37 "Recyclage".

Les dépenses des entreprises pour produire des biens de marché environnementaux (équipements de protection de l'environnement, matériels et autres éléments de l'industrie de l'environnement) sont exclues.

Les dépenses enregistrées par les prestataires spécialisés (ainsi que leurs recettes) doivent coïncider avec les redevances/acquisitions dans d'autres secteurs.

### ◆ Ménages

Les dépenses de protection de l'environnement des ménages établies selon le principe d'exécution (DÉP I) ne comprennent que les achats de produits connexes et adaptés tels que :

- ◆ achat, gestion et entretien de dispositifs de contrôle de la pollution de l'air destinés aux véhicules automobiles, frais supplémentaires liés à l'utilisation de produits moins polluants (tels que l'essence sans plomb) et frais liés au réglage des moteurs ;
- ◆ achat d'installations de traitement des eaux usées telles que les fosses septiques ;
- ◆ achat de biens utilisés dans le cadre de la gestion des déchets, p.e.x poubelles, sacs poubelle, compost.

Aucune distinction n'est faite entre les investissements et les dépenses courantes. Les acquisitions des ménages sont considérées comme des acquisitions courantes, conformément aux comptes nationaux, et elles s'inscrivent directement sous la rubrique "Dépenses I

Les dépenses des ménages ventilées d'après le principe du financement comprennent l'ensemble des redevances se rapportant aux services achetés auprès des municipalités et des

6. pour plus de détails voir : <http://unstats.un.org/unsd/cr/registry/>

producteurs publics ou privés spécialisés dans les services de protection de l'environnement. Il s'agit essentiellement des paiements au titre de la collecte et du traitement des déchets et des eaux usées.

<b>Catégories de dépenses</b>	La distinction entre dépenses courantes et dépenses d'investissement permet de dégager les tendances des mesures de lutte contre la pollution au fil des ans. En règle générale, au moment de l'instauration de mesures de ce type, les dépenses d'investissement représentent une large part des dépenses totales LCP. La part des dépenses courantes augmente ensuite progressivement.
◆ <b>Dépenses d'investissement</b>	Les <u>dépenses d'investissement</u> comprennent toutes les dépenses d'une année donnée (acquisitions et production pour compte propre) pour des machines, des équipements et des terres utilisés à des fins de LCP. L'investissement total dans un secteur ou une industrie est la somme des investissements en bout de chaîne et des investissements intégrés. Ils comprennent les achats de biens d'équipement connexes et adaptés tels que des fosses septiques (en bout de chaîne) et les convertisseurs catalytiques (intégrés).
◆ <b>Dépenses courantes internes</b>	Les <u>dépenses courantes internes</u> comprennent l'utilisation d'énergie, de matières, d'entretien et de personnel propre pour des mesures prises par le secteur concerné pour protéger l'environnement. Une grande partie des dépenses internes se rapporte à l'exploitation des équipements de protection de l'environnement. D'autres dépenses internes concernent l'administration générale, l'éducation, l'information, la gestion et la certification environnementales ainsi que la recherche et le développement. Les dépenses courantes internes comprennent les acquisitions de biens de consommation connexes et adaptés tels que les frais supplémentaires pour des combustibles à faible teneur en soufre et excluent les acquisitions de services de protection de l'environnement auprès du secteur public ou de prestataires spécialisés tels que la collecte des déchets, le traitement des eaux usées, le conseil en environnement ou les redevances de surveillance environnementale. Ces acquisitions sont reportées sous la rubrique "Redevances/acquisitions", car ils financent la DÉP I dans d'autres secteurs.
◆ <b>Recettes des sous-produits</b>	Les activités de protection de l'environnement produisent parfois des <u>sous-produits</u> ayant une valeur économique. Ces produits peuvent être vendus et générer des recettes ou être utilisés en interne et déboucher sur une réduction des coûts. On peut citer la production d'énergie ou la récupération de matières résultant du traitement des déchets. Ces recettes doivent toujours provenir d'une activité (et d'une dépense) de LCP spécifique. Les recettes des sous-produits correspondent à la somme de la valeur des ventes et de la valeur des économies réalisées (si ces sous-produits sont utilisés en interne). Les économies d'énergie ou de matières dues à des processus plus efficaces ou à d'autres gains de productivité résultant d'activités de LCP ne sont pas incluses dans les recettes des sous-produits.
◆ <b>Subventions et transferts</b>	Les <u>subventions et transferts</u> , incluent tous les transferts finançant des activités de LCP dans d'autres secteurs, y compris les transferts en provenance ou à destination d'autres pays. Ils font partie intégrante des dépenses de financement du secteur payeur et réduisent le financement de la DÉP I dans le secteur bénéficiaire. Sont compris, les paiements de taxes environnementales préaffectées (par exemple, taxe de pollution générale) qui ne servent pas à acheter un service, mais dont les recettes sont prédestinées à financer des mesures de protection de l'environnement. Les taxes environnementales générales - ou taxes vertes (comme les taxes énergétiques) - dont les recettes ne sont pas destinées au financement de mesures de protection de l'environnement sont exclues.
◆ <b>Redevances/acquisitions</b>	Les <u>redevances/acquisitions</u> comprennent l'ensemble des achats de services de LCP auprès des producteurs publics et privés. Ces paiements sont clairement liés à une activité de protection de l'environnement réalisée en dehors de l'entreprise et doivent exclure les amendes et pénalités. Ils incluent : <ul style="list-style-type: none"> <li>◆ les sommes versées à des prestataires spécialisés (entreprises) pour la collecte et le traitement des déchets et des eaux usées ainsi que les sommes versées à des consultants en environnement, notamment pour la gestion et l'éducation environnementale;</li> <li>◆ les sommes versées au secteur public pour la collecte et le traitement de déchets et d'eaux usées (quel que soit le libellé de ces versements : redevances, charges, etc.) ainsi que les redevances pour l'obtention de permis et les frais de surveillance.</li> </ul> <p>Les paiements de taxes directement utilisées pour financer des dépenses de protection de</p>

l'environnement (taxes environnementales préaffectées) sont exclus ici, mais sont rapportés comme "subventions/transferts". Les paiements de taxes environnementales générales ou taxes vertes (telles que les taxes sur l'énergie) sont totalement exclus.

#### ◆ Recettes

Les recettes correspondent aux sommes reçues par le secteur public et les prestataires spécialisés en échange de services de protection de l'environnement.

## INTERPRÉTATION ET LIMITES

Les dépenses LCP sont supportées en premier lieu directement par les entités économiques qui mettent en oeuvre des mesures antipollution et entreprennent des activités de mise en conformité. Par elles-mêmes, ces dépenses ne donnent ni plus ni moins d'informations que les autres types de dépenses, consacrées par exemple à la santé ou à l'éducation.

Le total des dépenses LCP donne une **indication générale des efforts financiers déployés en la matière par les pays considérés**. Exprimées en valeur absolue, ces données ne présentent toutefois qu'un intérêt limité pour l'action des pouvoirs publics et doivent être reliées à d'autres paramètres. Pour effectuer des comparaisons entre pays, on rapporte fréquemment les dépenses LCP au PIB ou à la formation brute de capital fixe (voir tableaux récapitulatifs).

#### Mesure des effets économiques

Les dépenses LPC doivent être distinguées des coûts LPC, mais les données sur les dépenses LCP peuvent servir à calculer les coûts correspondants. L'utilisation des biens d'équipement se prolonge pendant plusieurs années et leur coût est réparti sur l'ensemble de cette période. En revanche, les dépenses d'investissement sont comptabilisées uniquement pour l'année à laquelle est effectué l'achat des biens d'équipement considérés ; les effets économiques dans le temps ne sont donc pas pris en compte comme il convient. Il importe de retenir des hypothèses satisfaisantes sur la durée de vie des équipements, les taux d'intérêt et plusieurs autres paramètres pour calculer les coûts LPC. Pour évaluer l'incidence économique des politiques d'environnement, mieux vaut se référer aux coûts qu'aux dépenses.

On peut aussi employer les données sur les dépenses LCP pour calculer leur part dans le coût total ou dans le chiffre d'affaires pour telle ou telle activité. La part des coûts LPC est un indicateur utile pour apprécier les effets des réglementations d'environnement sur la compétitivité industrielle. Dans les branches d'activité où cette part est faible, l'effet des politiques d'environnement sera moindre que dans celles où elle est élevée.

Les données sur les dépenses LCP peuvent aussi aider à identifier les effets économiques favorables des politiques d'environnement. Les mesures de protection de l'environnement suscitent une demande de techniques antipollution, de technologies propres et de services de conseil en environnement, tout en stimulant les activités de R&D liées à l'environnement. Les statistiques nationales et internationales sur les dépenses LPC fournissent les informations indispensables pour estimer la taille et l'évolution des marchés, ainsi que les perspectives qui s'offrent aux éco-industries.

#### Précautions à prendre

Le lien entre les dépenses LCP et l'état de l'environnement ne peut être examiné qu'en fonction de la situation générale du pays considéré et à l'aide d'informations supplémentaires. Hors contexte, des dépenses élevées peuvent aussi bien signifier une qualité de l'environnement médiocre (qui rendrait ces dépenses indispensables) qu'une qualité de l'environnement satisfaisante (améliorée grâce aux dépenses LCP).

Les dépenses LCP mesurent les efforts économiques déployés pour maîtriser la pollution, mais non les coûts des dommages. Aussi, les données sur les dépenses ne devraient-elles pas être utilisées dans le cadre d'une analyse coûts-avantages ou pour déterminer si une lutte antipollution se justifie. Pour décider s'il y a lieu s'entreprendre cette lutte, il convient de se référer aux coûts des dommages. Ceux-ci sont souvent très différents des coûts de la lutte antipollution.

Tout changement significatif des dépenses LCP d'un pays doit être interprété avec prudence. Ces dépenses peuvent augmenter avec l'amélioration de la couverture d'un secteur (par exemple si les dépenses des administrations locales n'étaient pas couvertes auparavant) ou

avec l'inclusion des technologies intégrées (si seuls les investissements en bout de chaîne étaient rapportés lors de l'évaluation précédente).

#### Données présentées dans ce rapport

On trouvera ci-après les principaux résultats de l'enquête sur les dépenses et revenus de protection de l'environnement dans les pays de l'OCDE réalisée en 2002 par l'OCDE en collaboration avec Eurostat.

Grâce aux contributions et à l'expertise du Sous-Groupe de l'OCDE sur l'information et les perspectives environnementales, un effort a été fait pour :

- ◆ harmoniser autant que possible les données présentées dans ce rapport ; et
- ◆ accompagner les données présentées pour chaque pays de notes méthodologiques et d'informations sur les sources nationales et les définitions utilisées.

Quand possible, des données provenant des réponses des pays à des versions antérieures du questionnaire ont été ajoutées pour donner une indication des évolutions dans le temps. Il faut cependant noter qu'en raison de l'évolution des méthodologies et définitions qui s'appliquent aux statistiques sur les dépenses LCP et de la révision récente du questionnaire OCDE/Eurostat, la cohérence des séries temporelles n'est pas toujours garantie. Tout changement dans le temps doit donc être interprété avec prudence et en tenant compte des notes d'accompagnement.

Ces dix dernières années, le nombre de pays et les domaines et types de dépenses couverts par les données ont progressé. Dans bien des cas, cependant, les définitions et les méthodes demeurent disparates d'un pays Membre à l'autre. Les comparaisons internationales devraient par conséquent porter uniquement sur des ordres de grandeur.

#### Progrès à faire

Plus encore que pour d'autres données environnementales, l'établissement de données fiables et comparables sur le plan international sur les dépenses environnementales exige un travail continu de suivi, d'analyse, de traitement et de vérification. Malgré d'importants progrès quant au nombre de pays de l'OCDE qui entreprennent des travaux dans ce domaine et quant à l'harmonisation internationale des définitions et méthodes de collecte de ces données, beaucoup reste à faire pour aboutir à des données de meilleure qualité. Il faut en particulier intensifier les efforts pour :

- ◆ promouvoir et assurer la compilation régulière de données sur les dépenses environnementales dans tous les pays Membres de l'OCDE;
- ◆ augmenter la comparabilité entre pays;
- ◆ assurer une meilleure cohérence des données dans le temps;
- ◆ renforcer la documentation des données de façon à faciliter leur interprétation et leur utilisation dans l'analyse des politiques et l'élaboration d'indicateurs.

Tableau 2 : Domaines environnementaux - CAPE 2000\*\*

**1 Protection de l'air ambiant et du climat**

La protection de l'air ambiant et du climat englobe les mesures et activités qui ont pour but la réduction des rejets dans l'air ambiant ou des concentrations ambiantes de polluants atmosphériques ainsi que les mesures et activités qui ont pour but le contrôle des émissions de gaz à effet de serre et de gaz ayant un effet négatif sur la couche d'ozone stratosphérique.

1.1 Prévention de la pollution par des modifications au stade de la production (pour la protection de l'air ambiant, du climat et de la couche d'ozone)

1.2 Traitement des gaz rejetés et de l'air de ventilation (pour la protection de l'air ambiant, du climat et de la couche d'ozone)

1.3 Mesure, contrôle, laboratoires, etc. et autres activités

Sont exclues : les mesures prises dans le but de réduire les coûts (par exemple économies d'énergie).

**2 Gestion des eaux usées (y compris prévention de l'émission de polluants dans les eaux de surface)**

La gestion des eaux usées comprend les activités et mesures visant à prévenir la pollution des eaux de surface grâce à la réduction des rejets d'eaux usées dans les eaux de surface intérieures et la mer. Elle comprend le captage et le traitement des eaux usées, y compris les activités de contrôle et de réglementation. Les fosses septiques sont également incluses.

2.1 Prévention de la pollution grâce à des modifications au stade de la production

2.2 Réseau d'assainissement

2.3 Traitement des eaux usées

2.4 Traitement de l'eau de refroidissement

2.5 Mesure, contrôle, laboratoires, etc. et autres activités

Sont exclues : les actions et activités ayant pour but la protection des eaux souterraines contre l'infiltration de polluants et la décontamination des eaux polluées (voir CAPE 4).

**3 Gestion des déchets**

La gestion des déchets désigne les activités et mesures visant à prévenir la production de déchets et à réduire son incidence dommageable sur l'environnement. Elle comprend la collecte et le traitement des déchets, y compris les activités de contrôle et réglementation. Elle inclut également le recyclage et le compostage, la collecte et le traitement des déchets radioactifs de faible activité, le nettoyage des voiries et la collecte des débris.

3.1 Prévention de la pollution à travers des modifications de procédés

3.2 Collecte et transport des déchets

3.3 Traitement et élimination des déchets dangereux : traitement thermique, mise en décharge et autres méthodes

3.4 Traitement et élimination des déchets non dangereux : incinération, mise en décharge et autres méthodes

3.5 Mesure, contrôle, laboratoires, etc.

3.6 Autres activités

Sont exclues : les activités de gestion des déchets fortement radioactifs (voir CAPE 7)

**4 Protection et assainissement du sol, des eaux souterraines et des eaux de surface (y compris activités de nettoyage)**

La protection et l'assainissement du sol, des eaux souterraines et des eaux de surface englobent les mesures et activités ayant pour objectif la prévention des infiltrations polluantes, la décontamination des sols et des eaux et la protection du sol contre l'érosion et toute autre dégradation physique ainsi que contre la salinisation. La surveillance et le contrôle de la pollution du sol et des eaux souterraines sont inclus.

4.1 Prévention des infiltrations polluantes

4.2 Décontamination des sols et des eaux

4.3 Protection du sol contre l'érosion et toute autre dégradation physique

4.4 Prévention et assainissement de la salinité du sol

4.5 Mesure, contrôle, laboratoires, etc.

4.6 Autres activités

Sont exclues : les activités de gestion des eaux usées (voir CAPE 2), de même que les activités visant à protéger la biodiversité et le paysage (voir CAPE 6).

**5 Lutte contre le bruit et les vibrations (à l'exclusion de la protection des lieux de travail)**

La lutte contre le bruit et les vibrations désigne les mesures et activités qui ont pour objectif le contrôle, la réduction et la suppression des bruits et vibrations dus à l'activité industrielle et aux transports. Sont incluses les activités relatives à la lutte contre les bruits de voisinage (insonorisation de dancings, etc.) et les activités relatives à la lutte contre le bruit dans les lieux publics (piscines, etc.), les écoles, etc.

5.1 Modifications préventives à la source, au stade de la production : trafic routier, ferroviaire, aérien, bruit industriels et autres

5.2 Construction de dispositifs anti-bruit/vibrations: trafic routier, ferroviaire, aérien, bruit industriels et autres

5.3 Mesure, contrôle, laboratoires, etc.

5.4 Autres activités

Est exclue : la lutte contre le bruit et les vibrations motivée par la protection du lieu de travail.

Tableau 2 suite: Domaines environnementaux - CAPE 2000\*\*

**6 Protection de la biodiversité et du paysage**

La protection de la biodiversité et du paysage désigne les mesures et activités visant à protéger et à régénérer les espèces animales et végétales, les écosystèmes et les habitats ainsi qu'à protéger et à régénérer les paysages naturels et semi-naturels. Il n'est pas toujours possible de distinguer la protection de la "biodiversité" de celle du "paysage". Par exemple, l'entretien ou la création de certains types de paysage, de biotopes, d'écozones et d'autres aspects s'y rapportant (haies, rangées d'arbres destinées à reconstituer des "couloirs naturels") ont un lien évident avec la préservation de la biodiversité.

6.1 Protection et régénération des espèces et des habitats

6.2 Protection des paysages naturels et semi-naturels

6.3 Mesure, contrôle, laboratoires, etc.

6.4 Autres activités

**Sont exclus** : la protection et la restauration de monuments historiques ou de paysages fortement construits, la lutte des mauvaises herbes à des fins agricoles de même que la protection des forêts contre les incendies lorsque celle-ci répond surtout à des considérations économiques. La création et l'entretien d'espaces verts le long des routes et équipements de loisir (tels que les golfs et les autres infrastructures sportives) sont également exclus.

Les actions et dépenses afférentes aux parcs et jardins urbains sont normalement exclues, mais peuvent, dans certains cas, avoir un rapport avec la biodiversité et doivent alors être incluses.

**7 Protection contre les radiations (à l'exclusion de la sécurité extérieure)**

La protection contre les radiations désigne les activités et mesures qui visent à réduire ou à éliminer les conséquences négatives des radiations, quelle qu'en soit la source. Sont inclus : la manutention, le transport et le traitement des déchets fortement radioactifs, à savoir les déchets qui, en raison de leur forte concentration de radionucléides requièrent un bouclier au cours des opérations normales de manutention et de transport.

7.1 Protection du milieu ambiant

7.2 Transport et traitement des déchets fortement radioactifs

7.3 Mesure, contrôle, laboratoires, etc.

7.4 Autres activités

**Sont exclus** : les activités et mesures relatives à la prévention des risques technologiques (par exemple : sécurité externe des centrales nucléaires) ainsi que les mesures de protection prises sur le lieu de travail. Sont également exclues : les activités relatives à la collecte et au traitement de déchets radioactifs de faible activité (voir CAPE 3).

**8 Recherche et développement**

Comprend toute activité de recherche et de développement (R&D) dans les secteurs public et privé visant à la protection de l'environnement: identification et analyse des sources de pollution, mécanismes de dispersion des polluants dans l'environnement ainsi que leurs effets sur les êtres humains, les espèces et la biosphère. Cette catégorie comprend les activités de R&D relatives à la prévention et à l'élimination de toute forme de pollution ainsi que celles relatives aux équipements et instruments de mesure et d'analyse de la pollution. Lorsqu'elles sont isolables, toutes les activités de R&D, même si elles se rapportent à une autre catégorie particulière, doivent être classées dans cette catégorie.

**Sont exclus** : les activités de R&D qui ont trait à la gestion des ressources naturelles.

**9 Autres activités de protection de l'environnement**

Les autres activités de protection de l'environnement englobent toutes les activités de protection de l'environnement qui prennent la forme d'activités d'administration et de gestion générales de l'environnement ou d'activités de formation ou d'éducation spécifiquement orientées vers la protection de l'environnement ou l'information du public, lorsqu'elles ne sont pas classées dans une autre catégorie de la CAPE. Elles incluent également les activités entraînant des dépenses indivisibles ainsi que les activités qui ne sont classées nulle part ailleurs.

9.1 Administration et gestion générales de l'environnement, y compris : administration générale, réglementation, gestion

9.2 Éducation, formation et information

9.3 Activités se traduisant par des dépenses indivisibles

9.4 Activités non classées ailleurs

\*\* Pour plus de détails voir : <http://europa.eu.int/comm/eurostat/ramon>

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English version only. As definitions and methodologies remain diverse across Member countries and have changed over time, comparisons across countries and over time should be limited to orders of magnitude.

In Summary Tables 1-3 expenditure is allocated to the various sectors according to the abater principle and does not include financial transfers. Any conclusions about the sharing of the financial burden among sectors must therefore be drawn with great caution.

Table 1: Total PAC expenditure as a % of GDP<sup>a,b</sup>  
selected countries

TOTAL PAC c)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Canada ♦	..	..	..	..	1.2	1.2	1.2	1.2	1.1	..	..
United States	1.4	1.5	1.5	1.5	1.6	..	..	..	..	..	..
Japan ♦	..	..	1.2	..	1.3	1.3	1.4	1.3	1.3	1.4	..
Korea	..	..	1.5	1.5	1.5	1.6	1.6	1.7	1.6	1.6	1.5
Australia	..	0.6	0.8	0.9	0.8	0.8	0.8	..	..	..	..
Austria ♦	2.1	2.1	..	..	1.8	2.0	1.9	2.6	2.6	2.4	..
Belgium	..	..	..	..	..	..	1.3	1.4	1.4	1.4	1.5
Czech Republic ♦	1.0	1.1	1.9	1.9	2.4	2.3	2.3	2.9	2.4	2.0	1.7
Finland ♦	..	..	..	1.3	1.0	1.0	1.2	1.1	1.0	0.8	..
France	1.2	1.2	1.2	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.6
Germany ♦	..	1.4	1.5	1.4	1.4	1.3	2.0	1.8	1.8	1.6	..
Hungary ♦	..	0.4	0.6	0.5	0.7	..	..	0.4	0.8	..	..
Ireland	..	..	..	..	..	..	..	..	0.6	..	..
Italy ♦	..	..	..	..	..	..	..	0.8	..	..	..
Netherlands ♦	1.6	1.8	1.9	..	..	1.8	..	2.3	2.0	..	..
Norway ♦	1.2	..	..	..	..	..	..	..	..	..	..
Poland ♦	0.7	1.0	1.0	1.0	0.9	1.0	2.5	2.4	2.8	2.5	2.0
Portugal	0.8	0.7	..	..	0.7	..	0.9	0.9	0.7	0.7	0.8
Slovak Republic	..	..	..	..	..	..	..	..	..	2.1	0.8
Sweden	..	1.1	..	..	..	..	..	..	..	0.8	..
Switzerland ♦	..	..	..	1.6	..	..	..	..	..	..	..
Turkey	..	..	..	..	..	..	..	1.1	..	..	..
United Kingdom ♦	0.7	..	..	..	..	..	..	0.8	..	0.7	0.7

Notes (Table 1):

- a) All significant changes in PAC expenditure must be reviewed with care, as PAC expenditure may also increase because of improved sectoral coverage and data availability. Inter-country comparisons should be limited to orders of magnitude.
- b) Total PAC: public sector, business sector, and public and private specialised producers of EP services. Based on the abater principle (Expenditure 1). This includes for some countries receipts from by-products, but does not include financial transfers.

*N.B.: Figures in italics were derived from earlier surveys, and may not be fully comparable to more recent data.*

♦ Country notes:

- CAN) From 1995 onwards: includes Secretariat estimates for the business sector.
- JPN) Includes Secretariat estimates for current expenditure by the business sector (cf. OECD Environmental Performance Review of Japan, 2002)
- AUT) Break in time series between 1996 and 1997. 1990-1996: data do not include private specialised producers. As of 1997, data include Secretariat estimates.
- CZE) Partial totals. 1990 to 1995 data include public and business sector investment expenditure only. As of 1996, investment expenditure by public and private specialised producers are included. As of 1997, current expenditure by private specialised producers are included.
- FIN) Data include payments for bought services. Private specialised producers are not included.
- DEU) Partial total: data do not include investments in integrated technologies and expenditure by private specialised producers. As of 1996, expenditure by public specialised producers are included.
- HUN) Partial total: data refer to investment expenditure only.
- ITA) Partial total: does not include specialised producers and business sector investments in integrated technologies.
- NLD) 1990-1995 data do not include private specialised producers.
- NOR) 1990 data refer to Secretariat estimates (cf. OECD Environmental Performance Review of Norway 1993).
- POL) Data for 1990 to 1997 refer to partial totals: 1990 to 1995 data do not include business and public sector current expenditure. 1996 and 1997 data do not include public sector current expenditure.
- CHE) Partial total. Figure derived from earlier surveys and based on 1992 data for the public sector and 1993 data for the business sector. Does not include specialised producers.
- UKD) Partial totals: do not include private specialised producers. Data are not fully comparable over time since derived from different sources.



Table 1a: PAC expenditure by the public sector as a % of GDP<sup>a,b</sup>

PUBLIC SECTOR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<i>(including public specialised producers of EP services)</i>											
Canada	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	..
Mexico	♦	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2
United States		0.6	0.6	0.6	0.6	0.7	..	..	..	..	..
Japan		0.3	..	0.3	..	0.5	0.5	0.5	0.5	0.6	..
Korea		..	..	0.8	0.8	0.8	0.8	0.8	1.0	0.9	0.9
Australia	♦	..	0.4	0.4	0.5	0.5	0.5	..	..	..	0.2
New Zealand		..	..	..	..	..	..	..	..	..	..
Austria		1.1	1.2	1.1	1.2	1.0	1.4	1.3	1.4	1.5	1.3
Belgium	♦	..	..	..	..	0.4	0.4	0.6	0.7	0.7	0.7
Czech Republic	♦	..	..	..	0.5	0.8	0.8	0.7	0.6	0.6	0.5
Denmark		..	1.3	1.3	1.4	1.3	1.4	1.4	1.5	1.4	1.4
Finland		..	..	..	0.7	0.6	0.5	0.6	0.6	0.5	0.5
France		0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9
Germany	♦	..	0.9	0.9	0.9	0.8	0.8	1.5	1.4	1.4	1.3
Greece		..	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	..
Hungary		..	..	..	..	..	..	0.2	0.5	..	..
Iceland	♦	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.3
Ireland		..	..	..	..	..	..	..	0.4	..	..
Italy	♦	0.2	0.2	0.2	..	..	0.7	0.7	0.7	0.7	0.7
Luxembourg		..	..	..	..	..	..	0.6	..	..	..
Netherlands		0.9	1.1	1.1	..	..	1.3	..	1.1	1.1	..
Norway	♦	0.4	0.4	0.3	0.5	0.6	0.5	0.5	0.3	0.3	0.3
Poland	♦	0.2	0.2	0.4	0.4	0.3	0.3	0.6	0.6	0.9	0.9
Portugal		0.7	0.6	0.7	0.7	0.6	..	0.7	0.7	0.5	0.5
Slovak Republic		4.2	2.4	1.9	1.4	0.9	0.5	..	..	0.5	0.1
Spain		0.6	0.6	0.4	0.5	0.6	0.6	0.5	0.6	0.6	0.6
Sweden	♦	..	0.8	..	..	..	0.2	0.2	0.2	0.2	0.2
Switzerland	♦	..	..	1.0	..	..	..	0.9	0.8	0.8	0.8
Turkey	♦	..	..	..	..	..	..	0.2	0.9	..	..
United Kingdom		0.4	..	..	..	..	..	..	0.4	0.4	0.4

Notes (Table 1a):

- a) All significant changes in PAC expenditure must be reviewed with care, as PAC expenditure may also increase because of improved sectoral coverage and data availability. Inter-country comparisons should be limited to orders of magnitude.
- b) Based on the abater principle (Expenditure 1). This includes for some countries receipts from by-products, but does not include financial transfers.

*N.B.: Figures in italics were derived from earlier surveys, and may not be fully comparable to more recent data.*

♦ Country notes:

- MEX) Public sector: Data refer to expenditure by the federal government, the capital city government, and two public enterprises.
- AUS) Public sector: 1991 to 1996 data cover central, local government and commonwealth whereas in 2000 they cover only local government.
- BEL) Public sector 1994 and 1995 data do not include public specialised producers.
- CZE) Partial totals including public sector investment expenditure only. 1993 to 1995 data do not include public specialised producers.
- DEU) Public sector: Partial total not including investments in integrated technologies. 1991 to 1995 data do not include expenditure by public specialised producers.
- HUN) Investment expenditure only.
- ISL) Data include expenditure on wastewater and waste only.
- ITA) Public sector: Breaks in time series in 1995 and 1996. 1990-1995 data include expenditure by ministries only. 1996-2000 data refer to Eurostat estimates derived from National accounts data reported under the COFOG category 05 "Environmental protection". 1990-1992 data include expenditure estimates for municipalities, but remain incomplete.
- NOR) Public sector: Partial data covering only public specialised producers (i.e. municipal departments) active in the field of wastewater management. 1993-1996 data cover both wastewater and waste management activities.
- POL) Public sector: Before 1998 only investment expenditures.
- SWE) Public sector: 1991 and 1995-2000 data stem from different sources. 1996-2000 data refer to Eurostat estimates derived from National accounts data reported under the COFOG category 05 "Environmental protection".
- CHE) As of 1996: provisional data.

Table 1b: PAC expenditure by the business sector as a % of GDP<sup>a,b</sup>

BUSINESS SECTOR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<i>(not including private specialised producers of EP services)</i>											
Canada	♦	..	..	..	0.5	0.5	0.6	0.5	0.5	..	0.5
Mexico	..	..	..	..	..	..	..	..	..	..	..
United States	♦	0.8	0.8	0.9	0.9	0.9	..	..	..	0.2	..
Japan	♦	..	0.8	0.9	1.0	0.9	0.8	0.9	0.8	0.8	..
Korea	..	..	0.7	0.7	0.7	0.8	0.8	0.8	0.6	0.7	0.7
Australia	..	0.2	0.3	0.3	0.3	0.3	0.3	..	..	..	..
New Zealand	..	..	..	..	..	..	..	..	..	..	..
Austria	<i>0.9</i>	<i>1.0</i>	..	..	0.8	0.6	0.6	0.6	0.5	0.5	..
Belgium	..	..	..	..	..	..	0.4	0.4	0.4	0.3	0.3
Czech Republic	♦	..	..	..	1.4	1.6	1.5	1.6	1.2	0.9	0.5
Denmark	..	..	..	..	..	..	..	..	..	..	..
Finland	♦	..	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.3	..
France	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Germany	♦	..	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.3
Greece	..	..	..	..	..	..	..	..	..	..	..
Hungary	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	..	..
Iceland	..	..	..	..	..	..	..	..	..	..	..
Ireland	..	..	..	..	..	..	..	..	0.2	..	..
Italy	♦	..	..	..	..	..	..	0.1	..	..	..
Luxembourg	..	..	..	..	..	..	..	..	..	..	..
Netherlands	0.7	0.7	0.7	..	..	0.5	..	0.6	0.5	..	..
Norway	..	..	..	..	..	..	..	..	..	..	..
Poland	♦	0.5	0.8	0.6	0.6	0.7	2.0	1.9	1.9	1.6	1.2
Portugal	..	..	..	..	0.1	0.2	0.2	0.2	0.2	0.2	0.3
Slovak Republic	..	..	..	..	..	..	..	..	2.6	1.6	0.7
Spain	..	..	..	..	..	..	..	..	..	..	..
Sweden	♦	..	0.3	..	..	..	..	..	..	0.2	0.1
Switzerland	..	..	..	0.6	..	..	..	..	..	..	..
Turkey	..	..	..	..	..	..	..	0.2	..	..	..
United Kingdom	♦	0.3	..	..	0.3	..	..	0.3	..	0.3	0.3

## Notes:

- a) All significant changes in PAC expenditure must be reviewed with care, as PAC expenditure may also increase because of improved sectoral coverage and data availability. Inter-country comparisons should be limited to orders of magnitude.
- b) Based on the abater principle (Expenditure 1). This includes for some countries receipts from by-products, but does not include financial transfers.

*N.B.: Figures in italics were derived from earlier surveys, and may not be fully comparable to more recent data.*

## ♦ Country notes:

- CAN) Excludes construction, agriculture, aquaculture, fishing and trapping, education services, health and social services; includes expenditure on pollution abatement and control and pollution prevention, environmental monitoring, environmental assessment and audits, reclamation and decommissioning, purchased waste management and sewerage service and other; from 1995 onwards: includes Secretariat estimates for other manufacturing industries.
- USA) Break in time series. data for 1990-1994 and for 1999 stem from surveys that differ in scope and methodology.
- JPN) Data include a Secretariat estimate for current expenditure (cf. OECD Environmental Performance Review of Japan, 2002)
- CZE) Data refer to investment expenditure only.
- FIN) Data include payments for bought services.
- DEU) Data do not include investments in integrated technologies.
- HUN) Data refer to investment expenditure only.
- ITA) Data refer to enterprises with 20 employees or more and do not include investments in integrated technologies.
- POL) 1990-1995 data refer to investment expenditure only.
- SWE) Data refer to enterprises with 20 employees or more within ISIC/NACE 10-41 only. 2000 data refer to investments only.
- UKD) Data refer to enterprises within ISIC/NACE 10-41 only.

Memorandum item (1.c): **PAC expenditure by specialised producers as a % of GDP<sup>a,b</sup>**  
selected countries

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>Public and private specialised producers</b>											
Austria	♦	..	..	..	..	..	..	1.9	1.9	1.8	..
Belgium	..	..	..	..	..	..	0.5	0.6	0.6	0.6	0.7
Czech Republic	..	..	..	..	..	..	..	0.6	0.6	0.5	0.7
Denmark	..	1.2	1.1	1.2	1.1	1.2	1.2	1.4	1.3	1.3	1.2
Poland	..	..	..	..	..	..	..	..	..	..	-
Portugal	..	..	..	..	..	..	-	0.1	0.1	..	..
Slovak Republic	..	..	..	..	..	..	..	..	-	-	-
Spain	..	..	..	..	..	..	-	-	-	0.6	..
Sweden	..	..	..	..	..	..	..	0.4	0.4	0.4	..
<b>Public specialised producers</b>											
Austria	..	..	..	..	..	..	..	1.2	1.3	1.2	..
Belgium	..	..	..	..	..	..	0.2	0.3	0.2	0.2	0.3
Denmark	..	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3
Finland	..	..	..	..	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Germany	..	..	..	..	..	..	0.8	0.8	0.9	0.8	..
Norway	♦	0.4	0.4	0.3	0.5	0.6	0.5	0.3	0.3	0.3	0.3
<b>Private specialised producers</b>											
Austria	♦	..	..	..	..	..	..	0.6	0.6	0.6	..
Belgium	..	..	..	..	..	..	0.3	0.4	0.4	0.4	0.4
Czech Republic	..	..	..	..	..	..	-	0.6	0.6	0.5	0.7
Denmark	..	1.0	1.0	1.0	0.9	0.9	0.9	1.0	1.0	1.0	0.9
France	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Netherlands	..	..	..	..	..	..	..	0.6	0.4	0.4	0.4

## Notes:

- a) All significant changes in PAC expenditure must be reviewed with care, as PAC expenditure may also increase because of improved sectoral coverage and data availability.
- b) Based on the abater principle (Expenditure 1). This includes for some countries receipts from by-products. Data refer to specialised producers in the wastewater and waste management sectors.

## ♦ Country notes:

AUT) Data on private specialised producers refer to Secretariat estimates.

NOR) 1990-1992 and 1997-2000: public specialised producers (i.e. municipal departments) active in the field of wastewater management only. 1993-1996 data cover both wastewater and waste management activities.

Table 2: PAC investment expenditure as a % of Total Gross Fixed Capital Formation<sup>a</sup>  
selected countries

PAC investment expenditure		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Canada	Public PAC	1.1	1.1	1.1	1.0	1.0	1.3	1.2	1.0	..	..	..
	Business PAC	◆ 0.9	1.0	1.0	0.9	1.1	1.5	1.3	1.0	1.0	..	1.1
	Specialised producers PAC	..	..	..	..	..	..	..	..	..	..	..
	All PAC investment	2.0	2.0	2.1	1.9	2.1	2.8	2.5	2.0	..	..	..
Mexico	◆ Public PAC	0.9	0.5	0.5	0.6	0.5	0.5	0.4	0.2	0.3	0.4	0.3
United States	Public PAC	1.1	1.1	1.1	1.0	1.0	..	..	..	..	..	..
	Business PAC	1.7	2.0	2.1	2.1	2.2	..	..	..	..	0.3	..
	Specialised producers PAC	..	..	..	..	..	..	..	..	..	..	..
	All PAC investment	2.8	3.1	3.1	3.1	3.2	..	..	..	..	..	..
Japan	Business PAC	..	0.6	0.8	1.3	0.8	0.6	0.8	0.7	0.6	0.6	..
Korea	Public PAC	..	..	1.3	1.4	1.3	1.3	1.3	1.7	1.8	1.9	1.5
	Business PAC	..	..	1.0	0.8	0.9	1.0	1.0	1.0	0.8	0.8	0.6
	Specialised producers PAC	..	..	..	..	..	..	..	..	..	..	..
	All PAC investment	..	..	2.3	2.2	2.2	2.3	2.3	2.7	2.5	2.7	2.1
Australia	Public PAC	◆ ..	1.2	1.2	1.3	1.0	1.2	1.1	..	..	..	0.4
	Business PAC	..	0.5	0.7	0.6	0.3	0.3	0.5	..	..	..	..
	Specialised producers PAC	..	..	..	..	..	..	..	..	..	..	..
	All PAC investment	..	1.7	1.9	1.8	1.3	1.5	1.6	..	..	..	..
Austria	Public PAC	2.1	2.0	2.4	2.5	2.2	2.7	2.3	0.1	0.1	0.1	..
	Business PAC	2.5	2.4	..	..	1.4	0.7	0.8	1.0	0.7	0.5	..
	Specialised producers PAC	..	..	..	..	..	..	..	2.6	2.5	2.1	..
	All PAC investment	4.7	4.4	..	..	3.6	3.4	3.1	3.6	3.3	2.7	..
Belgium	Public PAC	..	..	..	..	..	..	0.7	0.3	0.5	0.5	0.5
	Business PAC	..	..	..	..	..	..	0.8	0.8	0.8	0.5	0.4
	Specialised producers PAC	..	..	..	..	..	..	0.8	1.0	0.7	0.8	0.9
	All PAC investment	..	..	..	..	..	..	2.2	2.1	2.0	1.9	1.9
Czech Republic	Public PAC	..	..	..	2.0	2.8	2.5	2.4	2.3	2.0	2.1	1.9
	Business PAC	..	..	..	5.3	5.4	4.7	4.7	5.1	4.2	3.5	1.9
	Specialised producers PAC	..	..	..	..	..	..	0.2	0.3	0.4	0.1	0.1
	All PAC investment	3.8	5.1	7.2	7.3	8.3	7.2	7.3	7.7	6.6	5.7	3.8
Denmark	Public PAC	..	2.0	2.0	2.2	2.1	1.8	1.6	1.5	1.4	1.4	1.3
	Business PAC	..	..	..	..	..	..	..	..	..	..	..
	Specialised producers PAC	..	2.0	2.2	2.0	1.9	1.6	1.8	1.9	1.6	1.3	0.9
	All PAC investment	..	..	..	..	..	..	..	..	..	..	..
Finland	Public PAC	..	..	..	..	1.1	0.6	0.8	0.8	0.6	0.3	0.4
	Business PAC	..	..	1.9	2.0	1.3	1.7	1.7	1.2	0.9	0.6	..
	Specialised producers PAC	..	..	..	..	..	..	0.2	0.3	0.3	0.3	0.3
	All PAC investment	..	..	..	..	2.4	2.3	2.8	2.3	1.7	1.2	..
France	Public PAC	◆ 1.1	1.2	1.1	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.4
	Business PAC	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.6	0.5	0.5	0.5
	Specialised producers PAC	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1
	All PAC investment	1.7	1.8	1.7	1.8	1.9	1.9	2.0	2.0	2.0	1.9	2.1
Germany	Public PAC	◆ ..	1.9	2.1	1.9	1.7	1.5	1.2	1.1	0.9	0.8	..
	Business PAC	..	0.8	0.8	0.8	0.8	0.6	0.6	0.5	0.4	0.4	0.4
	Specialised producers PAC	..	..	..	..	..	..	1.3	1.3	1.6	1.2	..
	All PAC investment	..	2.7	2.9	2.8	2.5	2.2	3.2	2.9	2.9	2.4	..
Greece	Public PAC	1.1	1.4	1.0	0.9	0.8	0.7	0.7	0.6	0.7	0.6	..
Hungary	Public PAC	..	..	..	..	..	..	..	0.9	2.2	..	..
	Business PAC	..	1.3	1.7	0.9	1.0	0.9	1.1	1.1	1.3	..	..
	Specialised producers PAC	..	..	..	..	..	..	..	..	..	..	..
	All PAC investment	..	..	..	..	..	..	..	2.0	3.5	..	..

PAC investment expenditure		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
<b>Iceland</b>	Public PAC	♦	0.3	0.3	0.4	0.5	0.5	0.4	0.3	0.3	0.2	0.4	0.2
<b>Ireland</b>	Public PAC		..	..	..	..	..	..	..	..	0.8	..	..
	Business PAC		..	..	..	..	..	..	..	..	0.6	..	..
	Specialised producers PAC		..	..	..	..	..	..	..	..	..	..	..
	All PAC investment		..	..	..	..	..	..	..	..	1.4	..	..
<b>Italy</b>	Public PAC	♦	0.7	0.9	0.7	..	..	0.2	0.8	0.7	0.7	0.7	0.6
	Business PAC	♦	..	..	..	..	..	..	..	0.4	..	..	..
	Specialised producers PAC		..	..	..	..	..	..	..	..	..	..	..
	All PAC investment		..	..	..	..	..	..	..	1.2	..	..	..
<b>Luxembourg</b>	Public PAC		..	..	..	..	..	..	..	1.2	..	..	..
<b>Netherlands</b>	Public PAC		0.8	1.0	1.3	..	..	1.1	..	0.8	1.0	..	..
	Business PAC		1.7	1.4	1.5	..	..	1.1	..	1.4	1.0	..	..
	Specialised producers PAC		..	..	..	..	..	..	..	1.5	0.4	0.3	..
	All PAC investment		2.5	2.5	2.8	..	..	2.2	..	3.7	2.4	..	..
<b>Norway</b>	Public PAC	♦	0.7	0.7	0.7	0.9	1.0	0.8	0.7	0.6	0.7	0.7	0.6
	Business PAC		..	..	..	..	..	..	..	..	..	..	0.3
	Specialised producers PAC		..	..	..	..	..	..	0.7	0.6	0.7	0.7	0.7
	All PAC investment		..	..	..	..	..	..	..	..	..	..	1.6
<b>Poland</b>	Public PAC		1.0	1.3	2.4	2.2	1.8	1.7	2.8	2.5	2.1	2.1	1.7
	Business PAC		2.5	4.1	3.8	3.9	3.5	3.8	4.8	4.1	4.3	3.4	1.9
	Specialised producers PAC		..	..	..	..	..	..	..	..	..	..	0.1
	All PAC investment		3.5	5.3	6.2	6.1	5.3	5.5	7.6	6.6	6.5	5.5	3.7
<b>Portugal</b>	Public PAC		..	..	..	..	..	..	1.4	1.4	0.9	0.9	0.9
	Business PAC		..	..	..	..	0.6	0.7	0.8	0.5	0.7	0.6	0.8
	Specialised producers PAC		..	..	..	..	..	..	0.0	0.1	0.1	0.0	0.0
	All PAC investment		..	..	..	..	..	..	2.2	1.9	1.7	1.6	1.8
<b>Slovak Republic</b>	Public PAC		10.7	6.2	4.0	2.8	2.3	2.0	..	..	..	0.9	0.3
	Business PAC		..	..	..	..	..	..	..	..	5.5	3.7	1.0
	Specialised producers PAC		..	..	..	..	..	..	..	..	0.0	0.0	0.1
	All PAC investment		..	..	..	..	..	..	..	..	..	4.6	1.5
<b>Spain</b>	Public PAC		..	..	..	..	0.9	0.8	0.8	1.4	1.4	1.4	..
	Business PAC		..	..	..	..	..	..	..	..	..	..	..
	Specialised producers PAC		..	..	..	..	..	..	0.2	0.2	0.2	0.4	..
	All PAC investment		..	..	..	..	..	..	..	..	..	..	..
<b>Sweden</b>	Public PAC	♦	..	0.9	..	..	..	..	0.1	0.1	0.1	0.1	0.2
	Business PAC	♦	..	0.7	..	..	..	..	..	..	..	0.1	0.7
	Specialised producers PAC		..	..	..	..	..	..	..	0.5	0.3	0.4	..
	All PAC investment		..	1.7	..	..	..	..	..	..	..	0.5	0.9
<b>Switzerland</b>	Public PAC	♦	..	..	1.6	..	..	..	1.9	1.6	1.7	1.6	..
	Business PAC		..	..	..	1.6	..	..	..	..	..	..	..
<b>Turkey</b>	Public PAC		..	..	..	..	..	..	..	1.4	..	..	..
	Business PAC		..	..	..	..	..	..	..	0.4	..	..	..
	Specialised producers PAC		..	..	..	..	..	..	..	..	..	..	..
	All PAC investment		..	..	..	..	..	..	0.7	1.7	..	..	..
<b>United Kingdom</b>	Public PAC		0.2	..	..	..	..	..	..	0.2	0.1	0.1	0.1
	Business PAC		0.7	..	..	..	1.1	..	..	0.9	..	0.8	0.8
	Specialised producers PAC		..	..	..	..	..	..	..	..	..	..	..
	All PAC investment		0.9	..	..	..	..	..	..	1.0	..	0.9	0.9

## Notes:

a) All significant changes in PAC expenditure must be reviewed with care, as PAC expenditure may also increase because of improved sectoral coverage and data availability.

Public sector does not include public specialised producers of EP services, unless otherwise specified.

Specialised producers include both public and private specialised producers, unless otherwise specified.

♦ Country notes: see next page

## ◆ Country notes:

- CAN) Business sector: excludes construction, agriculture, aquaculture, fishing and trapping, education services, health and social services; includes expenditure on pollution abatement and control and pollution prevention, environmental monitoring, environmental assessment and audits, reclamation and decommissioning; from 1995 onwards: includes Secretariat estimates for other manufacturing industries; 1990-93 investment data come from Capital and Repairs Expenditure Survey.
- MEX) Public sector: Federal government, capital city government, and two public enterprises are included.
- AUS) Public sector: Before 1995 figures cover central, local government and commonwealth whereas in 2000 they cover only local government.
- ISL) Wastewater, waste and environmental supervision on plants and wild animals.
- ITA) Public sector: Break in time series in 1995 and 1996; 1990-1995 data include expenditure by ministries only. 1990-1992 data include expenditure estimates for municipalities, but remain incomplete; 1996-2000 data refer to Eurostat estimates derived from National accounts data reported under the COFOG category 05 "Environmental protection". Business sector: data refer to enterprises with 20 employees or more and do not include investments in integrated technologies.
- FRA) Public sector includes public specialised producers. Specialised producers include private specialised producers only.
- DEU) Public and business sectors: only end-of-pipe investments. Specialised producers include public specialised producers only.
- NLD) Public sector includes public specialised producers.
- NOR) Public sector: 1990-1992 and 1997-1999 Only wastewater 1993-1996 wastewater and waste Only covers municipal departments.
- SWE) Public sector: 1991 and 1996/1999 data are from different sources. From 1996 data are an Eurostat estimates from National accounts COFOG. Business sector: Only covers enterprises with 20 employees or more within ISIC/NACE 10-41.
- CHE) From 1996: Preliminary data

Table 3: **PAC investment and current expenditure by environmental domain**  
latest year available, selected countries

### 3a. EXPENDITURE ON WASTEWATER

		Public Sector <sup>d</sup>				Business Sector				Specialised producers <sup>e</sup>			
		Year	Per capita <sup>a</sup>	% GDP <sup>b</sup>	% GFCF <sup>c</sup>	Year	Per capita <sup>a</sup>	% GDP <sup>b</sup>	% GFCF <sup>c</sup>	Year	Per capita <sup>a</sup>	% GDP <sup>b</sup>	% GFCF <sup>c</sup>
Canada	◆	1999	67.7	2.5	..	1998	..	..	1.6	..	..	..	..
Mexico	◆	2000	1.8	0.2	0.3	..	..	..	..	..	..	..	..
United States		1994	105.0	3.9	10.2	1999	23.4	0.7	0.9	..	..	..	..
Japan		1999	84.1	3.3	..	..	..	..	..	..	..	..	..
Korea		2000	80.8	4.6	12.4	2000	35.5	2.0	1.7	..	..	..	..
Australia		2000	36.7	1.4	2.6	..	..	..	..	..	..	..	..
Austria		1999	100.8	4.1	8.1	1999	31.6	1.3	1.7	1999	140.1	5.7	9.5
Belgium		2000	74.3	2.8	8.9	2000	29.6	1.1	1.8	2000	47.1	1.8	4.9
Czech Republic		2000	..	..	10.0	2000	..	..	6.5	..	..	..	..
Denmark		2000	123.0	4.3	7.6	..	..	..	..	2000	136.3	4.8	6.8
Finland		2000	58.4	2.4	5.6	1999	30.6	1.3	3.0	2000	27.6	1.1	2.7
France		2000	100.7	4.2	11.6	2000	40.9	1.7	1.2	2000	53.9	2.3	0.7
Germany	◆	1999	168.7	7.2	16.8	2000	28.0	1.1	1.3	1999	104.2	4.4	10.0
Greece		1999	14.3	1.0	3.8	..	..	..	..	..	..	..	..
Hungary		1998	..	..	18.7	1998	..	..	2.3	..	..	..	..
Iceland		2000	17.2	0.6	2.1	..	..	..	..	..	..	..	..
Ireland		1998	58.7	2.5	7.9	1998	14.9	0.6	2.2	..	..	..	..
Italy	◆	1996	3.2	0.2	0.1	1997	6.3	0.3	0.9	..	..	..	..
Luxembourg		1997	96.8	2.7	7.9	..	..	..	..	..	..	..	..
Netherlands	◆	1998	113.5	4.7	9.2	1998	26.6	1.1	1.0	2000	12.7	0.5	0.2
Norway	◆	2000	162.4	5.6	12.9	2000	..	..	0.4	2000	81.3	2.8	6.5
Poland		2000	42.0	4.5	14.7	2000	20.3	2.2	3.9	2000	..	..	0.5
Portugal		2000	40.0	2.3	6.7	2000	14.9	0.9	2.3	1998	10.0	0.6	1.0
Slovak Republic		1994	38.3	4.9	12.7	..	..	..	..	..	..	..	..
Spain		1999	46.4	2.5	8.1	1993	0.4	0.0	0.1	1999	..	..	2.3
Sweden	◆	1991	63.5	3.6	7.8	2000	..	..	2.6	1999	7.8	0.3	0.8
Switzerland	◆	1999	131.6	4.8	13.2	1993	30.2	1.3	3.2	..	..	..	..
Turkey		1997	8.7	1.4	4.5	1997	1.8	0.3	0.6	..	..	..	..
United Kingdom		2000	4.7	0.2	0.0	2000	13.0	0.5	1.3	..	..	..	..

Notes: see at the end of the table.

## 3b. EXPENDITURE ON WASTE

		Public Sector <sup>d</sup>			Business Sector			Specialised producers				
		Year	Per capita <sup>a</sup>	% GDP <sup>b</sup>	% GFCF <sup>c</sup>	Year	Per capita <sup>a</sup>	% GDP <sup>b</sup>	% GFCF <sup>c</sup>	Year	Per capita <sup>a</sup>	% GDP <sup>b</sup>
Canada	◆ 1999	44.7	1.7	..	1998	..	..	1.6	..	..	..	..
Mexico	◆ 2000	3.2	0.3	0.2	..	..	..	..	..	..	..	..
United States	1994	58.9	2.2	..	1999	8.7	0.3	0.2	..	..	..	..
Japan	1999	10.6	0.4	..	..	..	..	..	..	..	..	..
Korea	2000	55.6	3.2	2.0	2000	39.8	2.3	1.4	..	..	..	..
Australia	2000	18.7	0.7	0.6	..	..	..	..	..	..	..	..
Austria	1999	205.9	8.3	5.8	1999	37.6	1.5	0.3	1999	329.9	13.4	8.9
Belgium	2000	101.9	3.9	2.5	2000	21.6	0.8	0.6	2000	144.4	5.5	4.4
Czech Republic	◆ 2000	..	..	0.8	2000	..	..	2.9	2000	..	..	0.8
Denmark	2000	160.4	5.6	1.8	..	..	..	..	2000	214.8	7.5	2.4
Finland	2000	18.5	0.7	0.7	1999	9.4	0.4	0.7	2000	2.1	0.1	0.0
France	2000	86.2	3.6	0.8	2000	16.6	0.7	0.5	2000	40.4	1.7	0.5
Germany	◆ 1999	144.0	6.1	2.6	2000	14.5	0.6	0.5	1999	91.2	3.9	2.0
Greece	1999	51.9	3.5	2.4	..	..	..	..	..	..	..	..
Hungary	1998	..	..	1.5	1998	..	..	2.6	..	..	..	..
Iceland	2000	72.3	2.7	0.0	..	..	..	..	..	..	..	..
Ireland	1998	20.2	0.9	..	1998	4.8	0.2	0.3	..	..	..	..
Italy	◆ 1996	0.7	0.0	..	1997	3.0	0.1	0.3	..	..	..	..
Luxembourg	1997	89.5	2.5	3.5	..	..	..	..	..	..	..	..
Netherlands	◆ 1998	54.0	2.2	1.1	1998	7.2	0.3	0.7	2000	125.0	4.5	3.7
Norway	◆ 1996	59.5	2.3	0.9	2000	..	..	0.3	1996	59.5	2.3	0.9
Poland	2000	6.8	0.7	1.6	2000	17.4	1.9	1.5	2000	..	..	0.3
Portugal	2000	41.7	2.4	2.2	2000	13.0	0.7	0.8	..	..	..	..
Slovak Republic	1994	11.3	1.4	3.8	..	..	..	..	..	..	..	..
Spain	1999	40.5	2.2	2.8	1993	0.2	0.0	0.0	1999	92.8	5.1	1.2
Sweden	◆ 1991	45.5	2.6	1.3	..	..	..	..	1999	83.6	3.6	2.9
Switzerland	◆ 1999	73.1	2.6	1.8	1993	32.4	1.4	2.9	..	..	..	..
Turkey	1997	15.9	2.5	0.8	1997	3.3	0.5	0.3	..	..	..	..
United Kingdom	2000	84.5	3.5	0.3	2000	12.7	0.5	1.1	..	..	..	..

Notes: see next page.



## 3b. EXPENDITURE ON AIR

		Public Sector <sup>d</sup>			Business Sector				
		Year	Per capita <sup>a</sup>	% GDP <sup>b</sup>	% GFCF <sup>c</sup>	Year	Per capita <sup>a</sup>	% GDP <sup>b</sup>	% GFCF <sup>c</sup>
Canada	♦	..	..	..	1998	..	..	4.2	
Mexico	♦	2000	0.2	0.0	0.0	..	..	..	
United States	♦	1994	8.9	0.3	0.2	1999	31.3	0.9	1.8
Japan		1999	42.2	1.7	..	..	..	..	
Korea		2000	2.7	0.2	0.3	2000	37.5	2.1	2.8
Australia		1994	0.3	0.0	0.0	..	..	..	
Austria		1999	2.1	0.1	0.1	1999	27.2	1.1	1.5
Belgium		2000	1.0	0.0	0.0	2000	19.8	0.8	1.7
Czech Republic		2000	..	..	7.5	2000	..	..	8.7
Denmark		2000	31.2	1.1	4.3	..	..	..	
Finland		1998	8.8	0.4	0.9	1999	20.0	0.9	1.8
France		..	..	..	..	2000	26.6	1.1	1.8
Germany	♦	1999	0.4	0.0	0.0	2000	26.1	1.0	1.6
Greece		1999	..	..	0.0	..	..	..	
Hungary		1998	..	..	0.6	1998	..	..	5.5
Ireland		..	..	..	..	1998	11.0	0.5	1.4
Italy	♦	1996	0.0	0.0	0.0	1997	10.6	0.5	2.5
Luxembourg		1997	0.4	0.0	0.0	..	..	..	
Netherlands	♦	1998	1.7	0.1	..	1998	51.1	2.1	4.8
Norway	♦	..	..	..	..	2000	..	..	1.0
Poland		2000	9.8	1.1	1.2	2000	65.7	7.1	12.4
Portugal		2000	0.5	0.0	0.1	2000	23.0	1.3	4.5
Slovak Republic		1994	21.3	2.7	7.0	..	..	..	
Spain		1999	0.9	0.0	0.1	1993	0.2	0.0	0.0
Sweden	♦	..	..	..	..	2000	..	..	3.5
Switzerland		1992	5.4	0.2	0.2	1993	45.0	1.9	7.5
Turkey		1997	0.0	0.0	0.0	1998	3.4	0.5	0.1
United Kingdom		2000	2.6	0.1	0.0	2000	25.8	1.1	4.0

## Notes:

- a) Per capita - the sum of investment and current expenditure, expressed in US\$ per person at current purchasing power parities.  
b) % GDP - the sum of investment and current expenditure per 1 000 units of Gross Domestic Product.  
c) % GFCF - investment expenditure per 1 000 units of Total Gross Fixed Capital Formation.  
d) Public sector includes public specialised producers of EP services, unless otherwise specified.  
Specialised producers include public and private specialised producers, unless otherwise specified.

## ♦ Country notes:

- CAN) Business sector: excludes construction, agriculture, aquaculture, fishing and trapping, education services, health and social services; investments include only capital expenditures on Pollution Abatement and Control and pollution prevention; excludes capital expenditure on environmental monitoring, environmental assessment and audits and reclamation and decommissioning.  
MEX) Public sector: Federal government, capital city government, and two public enterprises are included.  
USA) Public sector data on waste do not include investments.  
CZE) Waste data for specialised producers also include waste water management.  
FIN) Specialised producers: Includes only Public sector authorities.  
ITA) Business sector - Investments: only end-of-pipe. Only covers enterprises with 20 employees or more.  
FRA) Specialised producers: data include private specialised producers only.  
DEU) Public and business sector: only end-of-pipe investments, except for specialised producers.  
NLD) Specialised producers: data include private specialised producers only.  
NOR) Public sector: Only covers municipal departments. Business sector: Only ISIC/NACE C & D; Only end-of-pipe investments.  
SWE) Business sector: Only covers enterprises with 20 employees or more within NACE 10-41.  
CHE) Public sector 1999: provisional data.



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English version only. As definitions and methodologies remain diverse across Member countries, comparisons across countries should be limited to orders of magnitude.

Focus is given to pollution abatement and control expenditure. Whenever available, data on other environmental protection expenditure, i.e. those related to biodiversity and landscapes, are shown for information.

Due to changes in the definitions and methodology applied to the compilation of expenditure data, data for recent years may not be fully comparable to data for earlier years.

## CANADA

**SOURCES AND DEFINITION**

Statistics Canada<sup>7</sup> regularly publishes updated time series for public and business sector PAC expenditure. Public expenditure data are based on public accounts and a survey of local government expenditure. Data refer to total consolidated government expenditure associated with PAC, including subsidies to the private sector (hence a risk of double counting when adding data on business and public sector expenditure). Fees paid by the private sector are, in principle, subtracted. In addition, a time series of government capital expenditure is available based on the Capital and Repairs Expenditure Survey.

Until 1993, data on business sector PAC expenditure only covered investments estimated on the basis of the Capital and Repairs Expenditure Survey and of additional data from electric power utilities. From 1994 onwards the Environmental Protection Expenditure Survey<sup>8</sup> has been collecting information on capital (end-of-pipe and process- integrated) and current expenditure made by businesses to comply with environmental regulations or voluntary agreements. It also collects information on environmental management practices and the use of clean technologies. Since 1998, the survey is being conducted every two years.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

Public sector expenditure covers the following domains: water i.e. expenditure for sewage collection and disposal (water supply and purification are excluded); waste i.e. collection, treatment and disposal of waste; "other" i.e. expenditure for the construction, installation and operation of cleanup equipment other than waste and sewage treatment facilities; management of PAC programmes for air, water (including underground water) and soil, and assistance and research grants; expenditures for services such as environmental assessments, administration of the environment department, education, and wildlife and habitat protection.

Until 1993, business sector data included investment expenditure broken down by: general PAC construction and equipment, sewage engineering construction, waste disposal facilities, mine tailing disposal systems and settling ponds, and sanitation equipment. From 1994, data have been covering air, waste disposal, surface water, soil and groundwater (changed to "on-site contained solid and liquid waste" in 1997), and "other" including noise, radiation and vibration. No breakdown by domain is available for current expenditure, even though data exist by type of activity.

Business sector data presented in the summary tables 1 and 2 have been estimated to cover expenditure on environmental monitoring, environmental assessment and audits, reclamation and decommissioning, purchased waste management and sewerage service and other expenditures for administration or training.

**ECONOMIC SECTORS**

Public sector expenditure includes outlays by federal, provincial, territorial and local governments

Business sector data from the 2000 Environmental Protection Expenditure Survey cover the following industries: Logging, Mining, Oil and Gas Extraction, Food, Beverage and Tobacco Products, Wood Products, Pulp, Paper and Paperboard Mills, Primary Metals, Transportation Equipment, Non-Metallic Mineral Products, Petroleum and Coal Products, Chemicals, Electric Power Generation, Transmission and Distribution, Pipeline Transportation, Natural Gas Distribution and Fabricated Metal Products.

Business sector data presented in the summary tables 1 and 2 have been estimated to cover expenditure incurred by other manufacturing industries.

Data on expenditure by firms specialised in PAC services have been the object of specific surveys such as the Waste Management Industry Survey<sup>9</sup> (not included in data presented here).

<sup>7</sup> Statistics Canada (1997, 2001): *Econnections: Linking the Environment and the Economy, Indicators and Detailed Statistics (1997, 2000)*, 16-200-XKE, Ottawa. (Statistique Canada (1997, 2001): *Éconnexions: Pour lier l'environnement et l'économie, Indicateurs et statistiques détaillées (1997, 2000)*, 16-200-XKF, Ottawa).

<sup>8</sup> Statistics Canada (1996, 1998, 2000, 2001): *Environmental Protection Expenditures in the Business Sector (1994, 1995, 1996 and 1997 (revised), 1998)*, 16F0006X1E, Ottawa. (Statistique Canada (1996, 1998, 2000, 2001): *Dépenses de protection de l'environnement du secteur des entreprises (1994, 1995, 1996 et 1997 (données révisées), 1998)*, 16F0006X1F, Ottawa).

<sup>9</sup> Statistics Canada (1999, 2000): *Waste Management Industry Survey: Business and Government Sectors (1996, 1998)*, 16F0023X1E, Ottawa. (Statistique Canada (1999, 2000): *Enquête de l'industrie de la gestion des déchets secteur des entreprises et des administrations publiques (1996, 1998)*, 16F0023X1F, Ottawa).

## CANADA

Million Canadian dollars at 1995 prices

CAN, million CAD	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1990</b>	Investment expenditure	..	..	..	..	1 580	..
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2 236	1 363	..	1 669	5 268	..
<b>1995</b>	Investment expenditure	..	..	..	..	1 769	..
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2 742	1 366	..	1 543	5 652	..
<b>1996</b>	Investment expenditure	..	..	..	..	1 688	..
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2 531	1 335	..	1 451	5 317	..
<b>1997</b>	Investment expenditure	..	..	..	..	1 612	..
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2 646	1 372	..	1 507	5 525	..
<b>1998</b>	Investment expenditure	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2 366	1 422	..	1 509	5 296	..
<b>1999</b>	Investment expenditure	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2 328	1 535	..	1 670	5 532	..
<b>BUSINESS SECTOR</b>							
<b>1995</b>	Investment expenditure	804	118	523	28	1 472	..
	Of which end-of-pipe	..	..	..	..	1 204	..
	+ Internal current expenditure	..	..	..	..	793	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	2 266	..
<b>1996</b>	Investment expenditure	533	136	803	24	1 496	..
	Of which end-of-pipe	..	..	..	..	818	..
	+ Internal current expenditure	..	..	..	..	1 075	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	2 571	..
<b>1997</b>	Investment expenditure (a)	395	234	718	37	1 383	..
	Of which end-of-pipe	..	..	..	..	679	..
	+ Internal current expenditure	..	..	..	..	1 661	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	3 044	..
<b>1998</b>	Investment expenditure (a)	276	270	705	40	1 292	..
	Of which end-of-pipe	..	..	..	..	664	..
	+ Internal current expenditure	..	..	..	..	1 583	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	2 876	..
<b>2000</b>	Investment expenditure	..	..	..	..	1 760	..
	Of which end-of-pipe	..	..	..	..	850	..
	+ Internal current expenditure	..	..	..	..	1 726	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	3 486	..

Note:

a) From 1997 data on waste cover waste disposal installations as well as "on-site contained liquid and solid waste" previously covered under waste water.

## MEXICO

**SOURCES AND DEFINITION**

Data on public sector expenditure have been collected annually since 1985, in the framework of the system of economic and ecological accounts of Mexico (SCEEM: Sistema de Cuentas Económicas y Ecológicas de México) elaborated by the National Institute of Statistics, Geography and Informatics (INEGI). PAC expenditures are defined as expenses incurred to avoid environmental degradation or eliminate the effects after degradation takes place.

Breakdown by type of expenditure and environmental domain is based on the analysis of different official sources such as Accounts of the Federal Treasury and Public Finance (Cuenta de la Hacienda Pública Federal), Public Accounts of the Federal District (Cuenta Pública del Departamento Distrito Federal) and Federal Budget Appropriations (Presupuesto de Egresos de la Federación). If details by type of expenditure are reliable, expenditure by domain should be considered as approximated amounts.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

For the public sector, PAC expenditure data are available for the environmental domains wastewater and soil, waste, air and other.

Expenditure on water includes wastewater collection and treatment, regulation of water use and prevention of water pollution. Expenditure on soil includes the prevention of degradation and pollution of soil, this expenditure is included in the water category. Expenditure on waste includes collection and treatment of all types of wastes. Expenditure on air includes air pollution prevention and regulation programmes. "Other" includes expenditure on various programmes and activities, such as environmental education and research, ecological programmes, regulation of human settlements and regulation and control of environmental health. Expenditure on noise cannot be identified.

**ECONOMIC SECTORS**

Only public sector expenditure figures are available at present. It covers expenditure by major governmental agencies, including the federal government, the capital city government and public enterprises such as PEMEX and CFE.

## MEXICO

Thousand Mexican pesos at 1995 prices

MEX, thousand MXN	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR (a)</b>							
<b>1990</b>	Investment expenditure	158 432	892 569	45 817	1 659 854	2 756 673	..
	+ Internal current expenditure	18 439	34 542	1 644	3 855 990	3 910 615	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	176 871	927 112	47 460	5 515 845	6 667 288	..
<b>1996</b>	Investment expenditure	714 048	133 186	18 208	674 321	1 539 763	..
	+ Internal current expenditure	650 610	726 148	39 235	2 637 495	4 053 487	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1 364 658	859 334	57 443	3 311 816	5 593 250	..
<b>1997</b>	Investment expenditure	373 884	215 720	11 783	553 859	1 155 246	..
	+ Internal current expenditure	496 710	827 406	47 694	2 511 423	3 883 233	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	870 594	1 043 127	59 477	3 065 281	5 038 479	..
<b>1998</b>	Investment expenditure	298 537	243 316	15 536	764 041	1 321 431	..
	+ Internal current expenditure	379 606	616 389	39 358	2 146 681	3 182 034	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	678 143	859 705	54 895	2 910 722	4 503 465	..
<b>1999</b>	Investment expenditure	146 951	129 613	10 636	1 452 576	1 739 776	..
	+ Internal current expenditure	212 009	658 477	45 045	1 817 311	2 732 842	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	358 960	788 090	55 681	3 269 888	4 472 618	..
<b>2000</b>	Investment expenditure	133 679	123 367	8 603	1 165 262	1 430 911	..
	+ Internal current expenditure	279 294	573 065	39 966	2 183 079	3 075 403	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	412 973	696 431	48 569	3 348 341	4 506 314	..

Notes:

a) Data refer to expenditure by major governmental agencies, including federal government and public enterprises such as PEMEX and CFE.

## UNITED STATES

**SOURCES AND DEFINITION**

In the United States, PAC expenditure data have been collected since 1972. Statistics are developed by the Bureau of Economic Analysis and published regularly in the *Survey of Current Business*<sup>10</sup>. Data on PAC expenditure for individual manufacturing industries are published by the Bureau of the Census. About two-thirds of the data come directly from a number of primary sources, such as the Pollution Abatement Costs and Expenditure Survey (for capital and operating spending by manufacturing establishments), surveys of government finances (for government spending to operate sewer systems and for solid waste disposal), and surveys of new construction put in place (for government spending to construct sewer systems).

These efforts were suspended in 1995 because of budget cuts. In the *Survey of Current Business* (March 2000), a panel recommended to reinstate and improve the design of the collection of data on PAC expenditures. Subsequently a new survey covering 1999 data was published in November 2002<sup>11</sup>. Due to changes in definitions and methodology, results from this survey can however not be compared to results from earlier surveys.

PAC expenditure is defined as expenditure for goods and services that are used to produce cleaner air and water and to dispose of solid waste. This covers most, but not all, PAC activities, which are defined as those resulting from rules and regulations restricting the release of pollutants into common property domains such as air and water.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

PAC data comprise two basic types of activities: pollution abatement, and regulation and monitoring. Business investment expenditure includes expenditure for end-of-pipe technologies, as well as additional cost incurred for integrated, environmentally benign technology.

PAC statistics classify expenditure according to the sector performing the activity and thus, adhere to the abater principle. This implies that expenditure, e.g. for the removal of solid waste by municipalities, is classified according to the abater incurring them (i.e. the municipality), although revenues from payments by consumers may cover most of the operating expenses.

Characteristic activities are cross-classified by environmental domains. The principal areas are air, water, and solid waste. Solid waste includes the collection, and disposal of solid waste, as well as the alteration of production processes to generate less solid waste. "Other and unallocated" refers to expenditure for abatement and control of noise, radiation and pesticide pollution, along with business expenditure not assigned to domains.

**ECONOMIC SECTORS**

Public sector expenditure includes expenditure at the federal, state, and local levels. It is noted that, in this report, the current and investment expenditure of government enterprises are included in the public sector expenditure.

The business sector comprises manufacturing and non-manufacturing establishments, including farm-related activities. Business sector PAC expenditure statistics show costs recovered from the sale of by-products of pollution control. Business is the only sector that recovers materials (e.g. metal filings) and energy (e.g. heat) during PAC activity. As such, it has by-product revenues from PAC activity.

<sup>10</sup> Vogan, C.R. (1996): *Pollution Abatement and Control Expenditures, 1972-94, Survey of Current Business, September 1996*.

<sup>11</sup> US Census Bureau (2002): *Pollution Abatement Costs and Expenditures: 1999*



## UNITED STATES

Million dollars at 1995 prices

USA, million USD	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1990</b>	Investment expenditure	12390	..	212	..	12602	..
	+ Internal current expenditure	14147	12312	1176	461	28098	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	26537	..	1389	..	40701	..
<b>1991</b>	Investment expenditure	11898	..	191	..	12089	..
	+ Internal current expenditure	14795	13235	1488	685	30206	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	26693	..	1680	..	42295	..
<b>1992</b>	Investment expenditure	11999	..	163	..	12162	..
	+ Internal current expenditure	15102	13952	1791	728	31574	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	27101	..	1954	..	43737	..
<b>1993</b>	Investment expenditure	12174	..	180	..	12354	..
	+ Internal current expenditure	14760	14785	1913	736	32196	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	26935	..	2094	..	44551	..
<b>1994</b>	Investment expenditure	13026	..	265	..	13292	..
	+ Internal current expenditure	14952	15801	2122	1021	33897	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	27978	..	2387	..	47189	..
<b>BUSINESS SECTOR</b>							
<b>1990</b>	Investment expenditure	6157	2598	10277	..	19034	..
	+ Internal current expenditure	8182	19749	8195	..	36127	..
	- Receipts from by-products	450	533	1215	..	2199	..
	= Expenditure 1	13889	21814	17258	..	52962	..
<b>1991</b>	Investment expenditure	6319	2764	11794	..	20878	..
	+ Internal current expenditure	7645	19860	6991	..	34497	..
	- Receipts from by-products	334	440	953	..	1728	..
	= Expenditure 1	13630	22185	17832	..	53647	..
<b>1992</b>	Investment expenditure	6433	3637	12990	..	23061	..
	+ Internal current expenditure	7835	21431	7395	..	36663	..
	- Receipts from by-products	363	728	997	..	2089	..
	= Expenditure 1	13905	24340	19388	..	57634	..
<b>1993</b>	Investment expenditure	6216	3786	14847	..	24850	..
	+ Internal current expenditure	7692	21355	7220	..	36267	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	13908	25142	22067	..	61118	..
<b>1994</b>	Investment expenditure	6922	3841	17393	..	28157	..
	+ Internal current expenditure	8156	22849	7829	..	38836	..
	- Receipts from by-products	300	710	760	..	1771	..
	= Expenditure 1	14778	25980	24463	..	65222	..
<b>1999</b>	Investment expenditure	1812	364	3484	183	5844	..
	+ Internal current expenditure	4299	1887	4751	183	11121	..
	= Expenditure 1	6111	2251	8235	366	16965	..
♦ <u>Mining and quarrying</u>							
<b>1999</b>	Investment expenditure	158	37	79	3	278	..
	+ Internal current expenditure	195	62	169	2	430	..
	= Expenditure 1	354	100	248	5	708	..
♦ <u>Manufacturing</u>							
<b>1999</b>	Investment expenditure	1598	309	2327	178	4413	..
	+ Internal current expenditure	4009	1704	3728	156	9598	..
	= Expenditure 1	5607	2014	6055	334	14012	..
♦ <u>Electricity, gas and water supply</u>							
<b>1999</b>	Investment expenditure	55	17	1077	1	1151	..
	+ Internal current expenditure	93	119	853	25	1090	..
	= Expenditure 1	149	136	1930	26	2242	..

Note: Due to changes in definitions and methodology, 1999 data cannot be compared to data for earlier years.

## JAPAN

**SOURCES AND DEFINITION**

There are several regular surveys on PAC expenditure in Japan. In these surveys, PAC is defined as activities that contribute directly to pollution control.

Public sector surveys are conducted annually, since 1967 for expenditure by the central government and since 1971 for expenditure by local governments.

For the business sector, figures on PAC investment expenditure by large companies (i.e., enterprises with assets of 100 million ¥ or more) have been collected since 1965 for most manufacturing industries, along with the energy and mining sectors. So far, there are no surveys on business sector current expenditure.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

PAC expenditure covers the following environmental domains:

-- air, water, solid waste, as well as soil, noise and vibration, and odours grouped under "other".

A breakdown by type of expenditure is not available for the public sector.

**ECONOMIC SECTORS**

Public sector figures include expenditure by both the central and local governments. These have been adjusted to avoid double counting, particularly with respect to the flow of subsidies from the central government to the local governments.

PAC statistics for the business sector include outlays by companies in energy, mining and most manufacturing industries. Data on business sector expenditure in 1999 are estimates by the OECD Secretariat from the OECD Environmental Performance Review of Japan.

At present, there are no surveys on household expenditure.

## JAPAN

Billion yens at 1995 prices

JPN, billion JPY		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SECTOR</b>							
1990	Expenditure 1	..	..	..	..	1290	161
1992	Expenditure 1	..	..	..	..	1403	182
1994	Expenditure 1	1397	158	512	187	2255	307
1995	Expenditure 1	1399	176	525	192	2293	328
1996	Expenditure 1	1470	194	550	205	2420	353
1997	Expenditure 1	1516	201	565	205	2488	371
1998	Expenditure 1	1408	194	566	195	2365	404
1999	Expenditure 1	1711	215	858	194	2979	635
<b>BUSINESS SECTOR</b>							
1991	Investment expenditure	..	..	..	..	901	..
	+ Internal current expenditure	..	..	..	..	3142	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4043	..
1992	Investment expenditure	..	..	..	..	1221	..
	+ Internal current expenditure	..	..	..	..	3171	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4392	..
1993	Investment expenditure	..	..	..	..	1756	..
	+ Internal current expenditure	..	..	..	..	3184	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4940	..
1994	Investment expenditure	..	..	..	..	1139	..
	+ Internal current expenditure	..	..	..	..	3216	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4355	..
1995	Investment expenditure	..	..	..	..	847	..
	+ Internal current expenditure	..	..	..	..	3266	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4113	..
1996	Investment expenditure	..	..	..	..	1177	..
	+ Internal current expenditure	..	..	..	..	3380	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4557	..
1997	Investment expenditure	..	..	..	..	988	..
	+ Internal current expenditure	..	..	..	..	3440	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4428	..
1998	Investment expenditure	..	..	..	..	917	..
	+ Internal current expenditure	..	..	..	..	3403	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4320	..
1999	Investment expenditure	..	..	..	..	880	..
	+ Internal current expenditure	..	..	..	..	3430	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4310	..

## KOREA

<b>SOURCES AND DEFINITION</b>	The Bank of Korea published estimates of total public and private pollution abatement and control expenditure for the first time in a 1996 report.
<b>VARIABLES AND ENVIRONMENTAL DOMAINS</b>	PAC expenditure covers the following characteristic activities: wastewater collection and treatment; waste collection and treatment; abatement of air pollution; as well as soil and groundwater; noise reduction and other grouped under "other" in this report.
<b>ECONOMIC SECTORS</b>	<p><u>Public sector</u> expenditure includes investment and current expenditure by the central government, five largest metropolitan areas and provinces, small cities and counties.</p> <p><u>Business sector</u> expenditure includes investment and current expenditure by the manufacturing industry, transport and livestock production. The selection criteria for the sample included the importance measured by sales and the representativeness of a particular branch of activity.</p>

## KOREA

100 million won at 1995 prices

KOR, 100 million KRW		Pollution Abatement and Control (PAC)				TOTAL	Biodiversity & Landscape
		Waste water	Waste	Air	Other		
<b>PUBLIC SECTOR a)</b>							
<b>1995</b>	Investment expenditure	13393	3554	42	326	17315	..
	+ Internal current expenditure b)	3823	7395	262	560	12040	..
	- Receipts from by-products	..	75	..	..	75	..
	= Expenditure 1	17216	10874	304	886	29280	..
<b>1996</b>	Investment expenditure	14980	3703	91	287	19063	..
	+ Internal current expenditure b)	3969	8189	251	547	12958	..
	- Receipts from by-products	..	50	..	..	50	..
	= Expenditure 1	18949	11843	343	834	31971	..
<b>1997</b>	Investment expenditure	20503	3862	90	311	24767	..
	+ Internal current expenditure b)	4200	9162	246	565	14175	..
	- Receipts from by-products	..	50	..	..	50	..
	= Expenditure 1	24703	12974	337	876	38892	..
<b>1998</b>	Investment expenditure	15219	4613	96	253	20182	..
	+ Internal current expenditure b)	3951	9211	238	548	13949	..
	- Receipts from by-products	..	63	..	..	63	..
	= Expenditure 1	19170	13760	334	802	34067	..
<b>1999</b>	Investment expenditure	17214	4919	88	230	22453	..
	+ Internal current expenditure b)	4178	10025	236	543	14984	..
	- Receipts from by-products	..	71	..	..	71	..
	= Expenditure 1	21393	14872	325	774	37365	..
<b>2000</b>	Investment expenditure	16427	2588	451	156	19623	..
	+ Internal current expenditure b)	3938	10301	212	551	15003	..
	- Receipts from by-products	..	72	..	..	72	..
	= Expenditure 1	20365	12816	663	708	34554	..
<b>BUSINESS SECTOR</b>							
<b>1995</b>	Investment expenditure	4760	2685	5403	1141	13989	..
	+ Internal current expenditure b)	5543	5653	3766	830	15792	..
	- Receipts from by-products	..	117	..	..	117	..
	= Expenditure 1	10303	8221	9169	1971	29664	..
<b>1996</b>	Investment expenditure	5285	3336	5097	1060	14779	..
	+ Internal current expenditure b)	5912	6533	4128	840	17414	..
	- Receipts from by-products	..	115	..	..	115	..
	= Expenditure 1	11197	9755	9225	1900	32079	..
<b>1997</b>	Investment expenditure	3645	2344	7356	624	13971	..
	+ Internal current expenditure b)	5981	7408	4462	878	18730	..
	- Receipts from by-products	..	146	..	..	146	..
	= Expenditure 1	9627	9606	11819	1502	32555	..
<b>1998</b>	Investment expenditure	2483	1564	4258	572	8878	..
	+ Internal current expenditure b)	5353	6296	3993	819	16462	..
	- Receipts from by-products	..	138	..	..	138	..
	= Expenditure 1	7836	7722	8251	1391	25201	..
<b>1999</b>	Investment expenditure	2094	1488	5959	572	10114	..
	+ Internal current expenditure b)	6422	7365	4839	1109	19736	..
	- Receipts from by-products	..	171	..	..	171	..
	= Expenditure 1	8516	8682	10798	1682	29680	..
<b>2000</b>	Investment expenditure	2189	1833	3652	554	8230	..
	+ Internal current expenditure b)	7265	8807	6282	1166	23522	..
	- Receipts from by-products	..	190	..	..	190	..
	= Expenditure 1	9455	10450	9935	1721	31562	..

KOR, 100 million KRW		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>◆ Agriculture, fishing, forestry</b>							
<b>2000</b>	Investment expenditure	13	..	22	..	35	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure b)	841	23	0	..	866	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	854	..	23	..	901	..
<b>◆ Manufacturing</b>							
<b>2000</b>	Investment expenditure	1162	966	2084	425	4639	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure b)	5553	5416	5272	858	17100	..
-	Receipts from by-products	..	154	..	..	154	..
=	Expenditure 1	6716	6228	7356	1284	21585	..
<b>◆ Electricity, gas and water supply</b>							
<b>2000</b>	Investment expenditure	30	6	993	3	1034	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure b)	64	100	716	1	883	..
-	Receipts from by-products	..	34	..	..	34	..
=	Expenditure 1	95	72	1710	5	1883	..

## Notes:

a) Including expenditure of public specialised producers.

b) Including all payments for bought services.

## AUSTRALIA

### SOURCES AND DEFINITION

The Australian Bureau of Statistics (ABS) collects and publishes data on pollution abatement expenditure since 1994<sup>12</sup>. The data cover PAC expenditure incurred by the manufacturing and mining industries and the public sector by financial year<sup>13</sup>. In 1995 the coverage was extended to the agriculture, retail, wholesale and household sectors, and in 1997 to waste handling expenses in a range of additional sectors including construction, community services, and transport industries<sup>14</sup>. Data are disaggregated by domain for both current and capital expenditures incurred by business sector, and ABS is undertaking an industry survey to value expenditure incurred by private firms specialising in PAC services. The Environment Management Survey (EMS) collects physical and financial information on environment management in the manufacturing and mining industries, including eco-efficiency indicators

Public sector data are mainly based on public sector accounts held by the ABS. Government transactions are classified according to the Government Purpose Classification (GPC). Current outlays refer to the sum of net current expenditure on goods and services and net current transfer payments. Capital outlays refer to the sum of expenditure on new fixed assets, net purchases of other capital assets (*i.e.*, buildings and land), increases in stocks and net transfer payments to other bodies to fund capital expenditure.

For the business sector, capital expenditures were defined as expenditures on abatement and control facilities, processes to reduce or eliminate the generation of pollutants by employing material substitution, improved catalysts and equipment alteration and equipment converted to use fuels that generate less pollution. Current expenditures on pollution abatement and control is defined as expenditure to operate or maintain plant and equipment to abate pollution; additional energy, wage and salary costs incurred to operate abatement processes; payment for waste removal; related research and development expenditure and outlays on either environmental impact assessment or audits. Capital expenditure for mining industry included expenditures on any element of the production process specifically attributable to protecting the environment through the reduction or elimination of pollutants and waste emitted by the establishment's operations.

### VARIABLES AND ENVIRONMENTAL DOMAINS

PAC expenditure for the public sector is grouped in to the following categories: household garbage, other sanitation, sewerage, urban storm water drainage and protection of the environment not elsewhere classified. The environmental component could not be singled out for a number of public sector expenditure items and, consequently, public sector PAC expenditure is underestimated. From 1995, the split for expenditure by domain except for air, is no longer available due to changes in the Government Purpose Classification.

Business sector PAC expenditure data relate both to end-of-pipe installations and process integrated technology<sup>15</sup>. PAC expenditure for total manufacturing includes the use of more environmentally friendly materials and fuels.

Household PAC expenditure includes purchase operation and maintenance of air pollution control devices for motor vehicles and septic systems costs.

### ECONOMIC SECTORS

Both public and private sectors are covered. The public sector is defined (before 1994) as all entities majority-owned and/or controlled by the Commonwealth, State or local governments. In 2000, figures for public sector only cover local government.

<sup>12</sup> ABS (Australian Bureau of Statistics) (1994): *Cost of Environment Protection, Australia, Selected Industries 1990-91, A Research Project of the Australian Bureau of Statistics, Catalogue No. 4603.0.*

<sup>13</sup> Financial year run from 1 July to 30 June; by convention data are affected to the end of the range.

<sup>14</sup> ABS (Australian Bureau of Statistics) (1995): *Cost of Environment Protection, Australia, Selected Industries 1991-92, Catalogue No. 4603.0.*

ABS (Australian Bureau of Statistics) (1997): *Environment Protection Expenditure, Australia, 1992-93 and 1993-94, Catalogue No. 4603.0.*

<sup>15</sup> To estimate the expenditure on change-in-production technologies, firms were asked to identify the primary reason for obtaining the equipment. If the equipment was purchased for PAC purposes (e.g. to accommodate new regulations), then the entire outlay was attributed to pollution abatement and control.

## AUSTRALIA

Million Australian dollars at 1995 prices

AUS, million AUD		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SECTOR</b>							
<b>1991</b>	Investment expenditure	938	44	..	85	1069	..
	+ Internal current expenditure	132	271	..	208	613	..
	= Expenditure 1	1071	315	..	294	1682	..
<b>1992</b>	Investment expenditure	974	88	..	50	1113	..
	+ Internal current expenditure	105	251	..	455	812	..
	= Expenditure 1	1079	340	..	506	1925	..
<b>1993</b>	Investment expenditure	617	68	1	510	1198	..
	+ Internal current expenditure	280	249	5	660	1196	..
	= Expenditure 1	897	318	7	1171	2395	..
<b>1994</b>	Investment expenditure	679	36	0	341	1057	..
	+ Internal current expenditure	328	190	6	703	1228	..
	= Expenditure 1	1007	226	6	1045	2286	..
<b>2000 a)</b>	Investment expenditure	387	94	..	51	532	48
	+ Internal current expenditure	468	329	..	38	836	60
	- Receipts from by-products	133	33	..	1	168	5
	= Expenditure 1	721	390	..	88	1201	104
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	103	593	..	24	721	25
	- Revenues	766	960	..	40	1767	22
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR</b>							
<b>1991</b>	Investment expenditure	..	..	..	..	441	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	352	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	793	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1992</b>	Investment expenditure	..	..	..	..	605	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	893	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	1499	..
	- Subsidies, transfers	..	..	..	..	38	..
	+ Fees, purchases	..	..	..	..	1	..
	= Expenditure 2	..	..	..	..	1462	..
<b>1993</b>	Investment expenditure	..	..	..	..	544	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	949	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	1494	..
	- Subsidies, transfers	..	..	..	..	71	..
	+ Fees, purchases	..	..	..	..	232	..
	= Expenditure 2	..	..	..	..	1655	..
<b>1994</b>	Investment expenditure	..	..	..	..	316	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	1007	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	1323	..
	- Subsidies, transfers	..	..	..	..	66	..
	+ Fees, purchases	..	..	..	..	174	..
	= Expenditure 2	..	..	..	..	1431	..



AUS, million AUD	Pollution Abatement and Control (PAC)					Biodiversity & Landscape		
	Waste water	Waste	Air	Other	TOTAL			
<b>◆ Mining and quarrying</b>								
<b>2001</b>	b)	Investment expenditure	16	52	22	4	95	7
		Of which end-of-pipe	..	..	..	..	..	..
	+	Internal current expenditure	11	22	24	48	107	33
	-	Receipts from by-products	..	..	..	..	..	..
	=	Expenditure 1	28	74	46	53	202	40
	-	Subsidies, transfers	..	..	..	..	..	..
	+	Fees, purchases	10	25	11	10	57	52
	=	Expenditure 2	..	..	..	..	..	..
<b>◆ Manufacturing</b>								
<b>2001</b>	c)	Investment expenditure	169	86	119	45	420	..
		Of which end-of-pipe	..	..	..	..	..	..
	+	Internal current expenditure	..	..	..	..	..	..
	-	Receipts from by-products	..	..	..	..	..	..
	=	Expenditure 1	..	..	..	..	..	..
	-	Subsidies, transfers	..	..	..	..	..	..
	+	Fees, purchases	162	251	30	147	590	..
	=	Expenditure 2	..	..	..	..	..	..

## Notes:

- a) Public sector: The category "Other" includes expenditure related to Air and Noise.  
b) Mining: The category "Other" includes expenditure related to Soil & Groundwater and Noise.  
c) Manufacturing: The category "Other" includes expenditure related to Soil & Groundwater, Noise and Biodiversity & Landscape.

## AUSTRIA

**SOURCES AND DEFINITION**

Data on environmental protection expenditure by the public sector have been compiled by the Austrian Central Statistical Office since the early 1980s based on an analysis of budget accounts and results from random samples.

Data on environmental protection expenditure by industry have been collected by the Austrian Chamber of Commerce since 1974; since 1983 these surveys are carried out every three years and cover a major part, but not all relevant firms.

Since the mid-1990s, definitions and methodology have been changed and the scope of the surveys expanded to adapt to the SERIEE framework and to the revised OECD/Eurostat questionnaire.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

PAC activities include direct pollution abatement and control, planning, monitoring and regulatory activity. The following environmental domains are covered: wastewater, waste, air, soil and groundwater, noise, biodiversity & landscape and other.

Subsidies and transfers: data do not refer to net amounts and may include double-counting.

Data on fees or purchases of EP services are available, but information about the sector receiving the payment is often missing, making the link to the revenues from EP services difficult. Some double counting occurs due to the addition of waste water fees and waste fees in both the business sector and the public sector expenditure. Estimates were made to minimise double counting in the summary tables. Also financial flows between specialised and non-specialised public sector are generally difficult to identify.

**ECONOMIC SECTORS**

Public sector: expenditure by all levels of government (federal, provincial, municipal), special institutions such as the ecofund, net subsidies to private sector, and NPISHs. 1990 and 1996 data also include publicly owned enterprises providing EP services as well as public waste and wastewater departments. As of 1997, data for public specialised producers are presented separately, and no longer included under public sector.

Business sector: covers the ISIC/NACE categories C, D (DA to DN) and E, i.e. 10-41 mining and quarrying, manufacturing and electricity, gas and water supply.

Public specialised producers of EP services: include publicly owned enterprises providing EP services as well as public waste and wastewater departments (associations of municipalities).

Private specialised producers of EP services: include privately owned enterprises that are part of ISIC/NACE 90, as well as enterprises of ISIC/NACE 37, 45.11-00, 45.32-00, 51.57, 73, 74.11, 74.20, 74.30, 74.70-02 and 92.53, which could be "identified" as being specialised in environmental protection services. NPISHs are not included. Some double counting in ISIC/NACE 90 exists, particularly in the waste sector, as there is a lot of subcontracting between municipalities and private enterprises and even among private companies providing environmental services.

Households: data include not only purchases of connected and adapted products, but also final consumption of environmental services. Included are for example expenditure on: waste and wastewater management (fees and purchases from municipalities and public or private specialised producers); catalytic converters; services for proper adjustments on heating systems; purchase of goods used in connection with sewage treatment or waste management (bins, bags, composts, environmentally correct treatment of refrigerators, etc.); biologically produced food; noise reduction (windows).

## AUSTRIA

Million schillings at 1995 prices

AUT, million ATS	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR a)</b>							
<b>1990 (b)</b>	Investment expenditure	7855	778	1038	1399	11071	..
+	Internal current expenditure	7121	5774	24	2008	14928	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	14976	6552	1062	3408	26000	..
+	Subsidies, transfers	378	240	261	2883	3763	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	9134	4421	..	..	13555	..
=	Expenditure 2	..	..	..	..	..	..
<b>1996 (b)</b>	Investment expenditure	11081	1409	40	236	12768	21
+	Internal current expenditure	5719	9503	156	2821	18200	1035
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	16800	10913	197	3057	30969	1057
+	Subsidies, transfers	2724	857	1725	2042	7349	6495
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	12209	8998	0	812	22021	162
=	Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	91	2	43	212	350	74
+	Internal current expenditure	536	93	260	2176	3067	1338
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	628	95	304	2389	3417	1413
+	Subsidies, transfers	3137	1472	1843	1805	8259	560
+	Fees, purchases	3	0	1	1	6	0
-	Revenues	175	532	110	326	1145	1324
=	Expenditure 2	3594	1035	2038	3870	10538	649
<b>1998</b>	Investment expenditure	91	1	41	230	365	83
+	Internal current expenditure	375	92	181	4059	4708	1323
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	467	94	222	4289	5074	1406
+	Subsidies, transfers	3115	1620	2026	1978	8741	796
+	Fees, purchases	3	0	1	2	7	1
-	Revenues	176	633	118	325	1253	1340
=	Expenditure 2	3409	1082	2131	5945	12569	863
<b>1999</b>	Investment expenditure	95	1	47	243	388	61
+	Internal current expenditure	368	71	168	2267	2875	1289
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	463	72	216	2511	3264	1351
+	Subsidies, transfers	2759	1705	2311	1563	8339	542
+	Fees, purchases	3	0	1	6	11	0
-	Revenues	197	56	106	303	663	1195
=	Expenditure 2	3028	1722	2422	3777	10951	698
<b>BUSINESS SECTOR c)</b>							
<b>1990</b>	Investment expenditure	5970	609	4853	869	12301	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	2761	1281	3355	3204	10603	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	8731	1891	8208	4073	22905	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1996</b>	Investment expenditure	1599	332	1883	940	4756	100
	Of which end-of-pipe	1029	220	1094	553	2897	74
+	Internal current expenditure	2295	3683	1892	1899	9770	143
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	3895	4016	3775	2839	14526	243
-	Subsidies, transfers	5	1	1	1	11	0
+	Fees, purchases	765	454	29	284	1533	3
=	Expenditure 2	4655	4468	3803	3121	16048	247

AUT, million ATS		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>1997</b>	Investment expenditure	1709	793	1591	1642	5736	154
	Of which end-of-pipe	1368	669	969	1311	4318	142
	+ Internal current expenditure	2270	3799	1929	2048	10047	152
	- Receipts from by-products	65	78	149	64	359	..
	= Expenditure 1	3914	4513	3370	3627	15425	307
	- Subsidies, transfers	21	25	4	11	63	0
	+ Fees, purchases	814	513	32	324	1685	4
	= Expenditure 2	4707	5001	3398	3940	17047	312
<b>1998</b>	Investment expenditure	1012	288	1879	960	4141	118
	Of which end-of-pipe	596	188	1306	619	2710	98
	+ Internal current expenditure	2295	3707	1941	2137	10081	200
	- Receipts from by-products	72	80	163	72	387	..
	= Expenditure 1	3235	3915	3657	3025	13835	319
	- Subsidies, transfers	22	2	1	5	32	0
	+ Fees, purchases	838	491	36	339	1706	5
	= Expenditure 2	4051	4404	3693	3359	15508	325
<b>1999</b>	Investment expenditure	1032	207	917	1112	3269	47
	Of which end-of-pipe	792	171	526	522	2013	40
	+ Internal current expenditure	2315	3774	1964	1971	10027	127
	- Receipts from by-products	71	75	162	68	377	0
	= Expenditure 1	3276	3906	2720	3016	12919	175
	- Subsidies, transfers	15	2	1	0	19	0
	+ Fees, purchases	883	517	32	239	1674	6
	= Expenditure 2	4144	4422	2751	3255	14574	180
<b>♦ Mining and quarrying c)</b>							
<b>1999</b>	Investment expenditure	26	16	35	59	136	6
	Of which end-of-pipe	19	11	28	41	101	5
	+ Internal current expenditure	149	109	61	162	483	14
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	176	125	96	221	619	21
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	3	2	-	4	11	5
	= Expenditure 2	..	..	..	..	..	..
<b>♦ Manufacturing c)</b>							
<b>1999</b>	Investment expenditure	983	179	813	1051	3027	30
	Of which end-of-pipe	752	149	442	478	1823	23
	+ Internal current expenditure	2141	3239	1615	1792	8789	112
	- Receipts from by-products	71	75	162	68	377	0
	= Expenditure 1	3053	3343	2266	2775	11439	142
	- Subsidies, transfers	15	2	-	-	18	-
	+ Fees, purchases	867	512	26	234	1641	1
	= Expenditure 2	3905	3854	2292	3009	13061	143
<b>♦ Electricity, gas and water supply c)</b>							
<b>1999</b>	Investment expenditure	22	11	68	2	105	10
	Of which end-of-pipe	20	10	55	1	88	10
	+ Internal current expenditure	23	425	287	17	754	-
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	46	437	356	20	860	11
	- Subsidies, transfers	-	-	-	-	-	-
	+ Fees, purchases	12	2	5	-	21	-
	= Expenditure 2	59	439	361	20	880	11

AUT, million ATS	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SPECIALISED PRODUCERS OF EP SERVICES</b>							
<b>1999</b>	Investment expenditure	4911	3588	..	..	8500	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	5271	18145	..	..	23416	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	10182	21733	..	..	31916	..
-	Subsidies, transfers	2218	1537	..	..	3755	..
+	Fees, purchases	1364	3094	..	..	4459	..
-	Revenues	12270	16037	..	..	28308	..
=	Expenditure 2	-2941	7252	..	..	4312	..
<b>PRIVATE SPECIALISED PRODUCERS OF EP SERVICES d)</b>							
<b>1999</b>	Investment expenditure	930	1893	..	1380	4203	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	3697	11320	..	11487	26505	..
-	Receipts from by-products	332	498	..	..	830	..
=	Expenditure 1	4295	12715	..	12867	29878	..
-	Subsidies, transfers	521	165	..	4138	4825	..
+	Fees, purchases	552	868	..	..	1421	..
-	Revenues	5878	8299	..	..	14178	..
=	Expenditure 2	-1552	5118	..	..	12296	..
<b>HOUSEHOLDS</b>							
<b>1999</b>	Expenditure 1	352	975	3974	1309	6611	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..

## Notes:

- a) Public sector: "other" includes soil and groundwater, noise and other PAC expenditure.
- b) Includes public specialised producers of EP services. Break in time series in 1997.
- c) Business sector: Only covers ISIC/NACE categories C, D & E; i.e 10-41. "Biodiversity" also includes soil and groundwater.
- d) Private specialised producers: "other" refers to expenditure on "soil and groundwater" and expenditure by enterprises that are part of ISIC/NACE NACE 37, 45.11-00, 45.32-00, 51.57, 73, 74.11, 74.20, 74.30, 74.70-02 and 92.53, which could be "identified" as being specialised in environmental protection services. For reasons of comparability with other countries, expenditure by private specialised producers recorded under "other" have not been included in the summary tables in Part 2 of this document.

## BELGIUM

**SOURCES AND  
DEFINITION**

The figures on public environmental expenditure, gathered by the National Statistics Institute, are based on public accounts, budget appropriations or outlays.

**VARIABLES AND  
ENVIRONMENTAL  
DOMAINS**

PAC activities include direct pollution abatement and control, planning, monitoring and regulatory activity. The following environmental domains are covered: wastewater, waste, air, soil and groundwater, noise, biodiversity & landscape and other.

**ECONOMIC  
SECTORS**

Public sector consists of the expenditure by the regional administrations, the federal administration and the local administrative levels (municipalities and provinces).

Business sector includes ISIC/NACE excluding agriculture, ISIC/NACE 37, ISIC/NACE 90 and financial services.

Data on specialised producers of EP services are available from 1996.

## BELGIUM

Million Belgian francs at 1995 prices

BEL, million BEF		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SECTOR</b>							
<b>1996</b>	Investment expenditure	4767	749	3	363	5883	3638
	+ Internal current expenditure	3104	17214	357	897	21573	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	7871	17963	360	1261	27457	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	1423	10886	0	2250	14560	1
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	6476	-1340	21	674	5833	704
	+ Internal current expenditure	3361	17999	437	6074	27872	3756
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	9838	16659	459	6748	33706	4461
	+ Subsidies, transfers	-6982	4060	0	1763	-1158	335
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	1392	13158	0	2765	17316	41
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	7994	1256	5	609	9865	672
	+ Internal current expenditure	3533	19597	361	6704	30197	3676
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	11528	20853	366	7314	40063	4349
	+ Subsidies, transfers	-4863	3807	0	2462	1407	459
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	1379	13160	2	2734	17277	23
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	7650	962	3	1193	9809	582
	+ Internal current expenditure	3584	19059	351	5731	28727	2906
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	11235	20021	355	6925	38537	3489
	+ Subsidies, transfers	-4131	3192	0	4103	3165	1052
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	1407	13101	3	2465	16977	174
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	8284	1061	3	1109	10458	794
	+ Internal current expenditure	3692	20804	357	6588	31442	3768
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	11976	21866	360	7698	41901	4562
	+ Subsidies, transfers	-3110	4692	0	7532	9116	972
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	1391	12773	7	2368	16541	150
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR</b>							
<b>1996</b>	Investment expenditure	4470	2007	5527	428	12434	..
	Of which end-of-pipe	2215	1177	2259	220	5872	..
	+ Internal current expenditure	6096	5656	3206	5764	20722	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	10566	7664	8733	6192	33156	..
	- Subsidies, transfers	-4415	-583	..	-1521	-6518	..
	+ Fees, purchases	2751	9762	93	2346	14953	0
	= Expenditure 2	17732	18009	..	10058	54626	..
<b>1997</b>	Investment expenditure	5890	1505	5577	551	13524	..
	Of which end-of-pipe	2044	784	2676	326	5831	..
	+ Internal current expenditure	6056	5618	3185	5726	20586	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	11946	7124	8762	6277	34110	..
	- Subsidies, transfers	-3177	-613	..	-1996	-5785	..
	+ Fees, purchases	2733	9697	92	2331	14854	0
	= Expenditure 2	17855	17434	..	10604	54749	..

BEL, million BEF		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>1998</b>	Investment expenditure	4529	2094	7354	364	14343	..
	Of which end-of-pipe	2030	1104	2866	197	6198	..
+	Internal current expenditure	6000	5567	3156	5673	20398	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	10530	7662	10510	6038	34742	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	2708	9609	91	2309	14719	0
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	4122	1397	3946	299	9764	..
	Of which end-of-pipe	1729	624	1823	197	4375	..
+	Internal current expenditure	6046	5606	3180	5716	20549	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	10168	7003	7126	6016	30314	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	2728	9682	92	2327	14830	0
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	3437	1165	3290	249	8143	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	6987	6482	3674	6606	23751	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	10424	7648	6965	6855	31895	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	3153	11189	106	2689	17138	0
=	Expenditure 2	..	..	..	..	..	..

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<b>1996</b>	Investment expenditure	6538	2038	..	..	8577	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	3787	5491	..	..	9278	..
-	Receipts from by-products	74	1757	..	..	1831	..
=	Expenditure 1	10251	5772	..	..	16024	..
-	Subsidies, transfers	9456	7467	..	..	16924	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	1877	5859	..	..	7737	..
=	Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	8461	4613	..	..	13074	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	4021	6546	..	..	10568	..
-	Receipts from by-products	71	1862	..	..	1934	..
=	Expenditure 1	12411	9297	..	..	21708	..
-	Subsidies, transfers	11255	5495	..	780	17532	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	2101	7110	..	..	9211	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	7240	495	..	..	7736	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	3791	7332	..	..	11124	..
-	Receipts from by-products	182	1853	..	..	2036	..
=	Expenditure 1	10849	5974	..	..	16824	..
-	Subsidies, transfers	10572	4851	..	..	15424	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	2174	7719	..	..	9894	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	6592	3918	..	..	10511	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	3991	9327	..	..	13318	..
-	Receipts from by-products	159	2103	..	..	2263	..
=	Expenditure 1	10424	11141	..	..	21566	..
-	Subsidies, transfers	10105	4543	..	465	15113	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	2525	9765	..	..	12290	..
=	Expenditure 2	..	..	..	..	..	..



BEL, million BEF		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>2000</b>	Investment expenditure	9064	3846	..	..	12910	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	4797	9668	..	..	14465	..
-	Receipts from by-products	133	1882	..	..	2016	..
=	Expenditure 1	13727	11631	..	..	25359	..
-	Subsidies, transfers	13122	4418	..	453	17994	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	3379	10179	..	..	13559	..
=	Expenditure 2	..	..	..	..	..	..
<b>PRIVATE SPECIALISED PRODUCERS OF EP SERVICES</b>							
<b>1996</b>	Investment expenditure	333	4712	..	..	5046	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	1749	22083	..	..	23832	..
-	Receipts from by-products	4	559	..	..	564	..
=	Expenditure 1	2077	26236	..	..	28314	..
-	Subsidies, transfers	1306	-1204	..	..	102	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	436	3844	..	..	4280	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	2424	24875	..	..	27299	..
-	Receipts from by-products	7	701	..	..	709	..
=	Expenditure 1	2852	28017	..	..	30870	..
-	Subsidies, transfers	815	-716	..	..	99	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	1769	32202	..	..	33971	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	321	5567	..	..	5888	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	2141	26180	..	..	28321	..
-	Receipts from by-products	86	799	..	..	886	..
=	Expenditure 1	2377	30947	..	..	33324	..
-	Subsidies, transfers	674	-569	..	..	105	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	332	5023	..	..	5355	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	2398	29341	..	..	31740	..
-	Receipts from by-products	36	921	..	..	957	..
=	Expenditure 1	2695	33443	..	..	36138	..
-	Subsidies, transfers	610	-490	..	..	120	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	521	4649	..	..	5171	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	2124	32834	..	..	34959	..
-	Receipts from by-products	42	1040	..	..	1083	..
=	Expenditure 1	2603	36444	..	..	39048	..
-	Subsidies, transfers	763	-618	..	..	145	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..

BEL, million BEF		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>HOUSEHOLDS</b>							
<b>1996</b>	Expenditure 1	..	..	..	..	..	..
-	Subsidies, transfers	-5732	-4318	..	..	-10050	..
+	Fees, purchases	..	6907	..	..	6907	..
=	Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Expenditure 1	..	..	..	..	..	..
-	Subsidies, transfers	-8387	-4908	..	..	-13295	..
+	Fees, purchases	..	6783	..	..	6783	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Expenditure 1	..	..	..	..	..	..
-	Subsidies, transfers	-8263	-3831	..	..	-12093	..
+	Fees, purchases	..	6739	..	..	6739	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Expenditure 1	..	..	..	..	..	..
-	Subsidies, transfers	-8204	-3998	..	..	-12201	..
+	Fees, purchases	..	4835	..	..	4835	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Expenditure 1	..	..	..	..	..	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	3868	..	..	3868	..
=	Expenditure 2	..	..	..	..	..	..

## CZECH REPUBLIC

### SOURCES AND DEFINITION

Data on environmental investments are collected within the framework of general construction investment statistics by the Czech Statistical Office according to the national methodology. Environmental investments are defined as investments in buildings, equipment or any other measure aimed at environmental protection. Since 1992, environmental investments have been broken down by environmental medium. The figures include integrated investments. Figures on current expenditure are not yet available.

High levels of PAC investments are due to the mitigation of environmental damage from earlier periods as well as to the implementation, after 1990, of new stringent legislation concerning the environmental protection.

### VARIABLES AND ENVIRONMENTAL DOMAINS

The following environmental domains are covered: wastewater, waste, air, soil and groundwater, noise and biodiversity & landscape. The other category in the monograph includes soil and groundwater and noise.

### ECONOMIC SECTORS

Public and business sector investment expenditure data are reported here.

Data on specialised producers of EP services are available from 1996.

No surveys on household PAC expenditure have been carried out.

## CZECH REPUBLIC

Million koruny at 1995 prices

CZE, million CZK	Pollution Abatement and Control (PAC)					TOTAL	Biodiversity & Landscape
	Waste water	Waste	Air	Other			
<b>PUBLIC SECTOR</b>							
1993	Investment expenditure	3593	726	1953	16	6289	20
1994	Investment expenditure	5793	1045	3449	222	10510	88
1995	Investment expenditure	6078	710	3866	229	10883	93
1996	Investment expenditure	6307	771	4140	469	11688	323
1997	Investment expenditure	5685	993	3690	192	10562	604
1998	Investment expenditure	4520	884	3288	183	8876	735
1999	Investment expenditure	4738	586	3496	243	9065	576
2000	Investment expenditure	4513	332	3363	218	8428	873
<b>BUSINESS SECTOR</b>							
1993	Investment expenditure	6589	2672	7211	314	16788	98
1994	Investment expenditure	5989	2352	11209	484	20036	88
1995	Investment expenditure	4168	2063	14020	744	20995	281
1996	Investment expenditure	2905	2180	16367	901	22355	303
1997	Investment expenditure	4128	2419	16450	746	23744	357
1998	Investment expenditure	2583	1509	14058	554	18705	251
1999	Investment expenditure	2986	1365	10325	339	15016	370
2000	Investment expenditure	2921	1293	3933	304	8451	457
♦	<u>Mining and quarrying</u>						
1999	Investment expenditure	88	10	46	57	202	0
♦	<u>Manufacturing</u>						
1999	Investment expenditure	1120	555	3787	234	5698	84
♦	<u>Electricity, gas and water supply</u>						
1999	Investment expenditure	1389	709	5875	12	7986	252
<b>PUBLIC SPECIALISED PRODUCERS OF EP SERVICES</b>							
1996	Investment expenditure	10	106	..	16	133	..
1997	Investment expenditure	2	55	..	17	74	..
1998	Investment expenditure	6	63	..	20	90	..
1999	Investment expenditure	15	9	..	11	36	..
2000	Investment expenditure	6	21	..	10	38	..
<b>PRIVATE SPECIALISED PRODUCERS OF EP SERVICES</b>							
1996	Investment expenditure	345	238	..	13	597	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	..	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	..	..
1997	Investment expenditure	367	836	..	37	1240	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	7182	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	8423	..
1998	Investment expenditure	8	1513	..	5	1526	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	6975	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	8502	..
1999	Investment expenditure	11	316	..	5	334	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	6955	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	7289	..
2000	Investment expenditure	0	324	..	13	338	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	9058	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	9396	..

## DENMARK

<b>SOURCES AND DEFINITION</b>	Data on PAC expenditure are collected by the Danish Environmental Protection Agency and Danmarks Statistik <sup>16</sup> . Expenditure figures pertain to activities that are directed at the prevention, reduction, and elimination of pollution or other environmental nuisances.
<b>VARIABLES AND ENVIRONMENTAL DOMAINS</b>	PAC activities include direct pollution abatement and control, planning, monitoring and regulatory activity. The following environmental domains are covered: wastewater, waste, air, soil and groundwater noise, biodiversity & landscape and other. The other category in the monograph includes soil and groundwater, noise and other.
<b>ECONOMIC SECTORS</b>	All <u>public sector</u> levels (central government, counties, municipalities and inter municipal corporations) are included in the Database for Integrated Public Accounts (DIPA), from where the aggregate figures for environmental protection were obtained.  Data on <u>specialised producers</u> of EP services are available from 1991.  There is no data on <u>business and household</u> PAC expenditure at present.

<sup>16</sup> Etwil P. and Vesselbo E. (1993): *Collection of data on expenditure on the environment by the General Government Sector, Danmarks Statistik, in Contributions of Member States and EFTA countries to the SERIEE system, Eurostat F3, Luxembourg, 1994.*

## DENMARK

Million kroner at 1995 prices

DNK, million DKK	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1991</b>	Investment expenditure	2434	391	105	305	3237	292
+	Internal current expenditure	1986	2712	158	2037	6894	1061
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4420	3104	264	2342	10131	1354
+	Subsidies, transfers	0	0	18	474	493	275
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	4395	2994	0	265	7656	89
=	Expenditure 2	..	..	..	..	..	..
<b>1996</b>	Investment expenditure	1823	161	803	397	3186	537
+	Internal current expenditure	2510	2894	174	2453	8032	1327
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4333	3055	978	2850	11218	1865
+	Subsidies, transfers	0	82	905	1398	2387	157
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	3685	2849	1	277	6812	60
=	Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	1808	215	818	416	3259	488
+	Internal current expenditure	2622	3131	203	2545	8504	1309
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4430	3347	1022	2962	11763	1798
+	Subsidies, transfers	0	91	1126	1534	2753	157
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	3785	3032	4	297	7119	63
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	1838	133	856	475	3304	506
+	Internal current expenditure	2657	3134	241	2704	8737	1303
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4495	3268	1097	3180	12042	1810
+	Subsidies, transfers	2	76	1265	1837	3182	162
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	3906	3199	3	328	7439	56
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	1921	175	866	383	3345	557
+	Internal current expenditure	2739	3397	240	2795	9172	1376
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4660	3572	1107	3178	12518	1934
+	Subsidies, transfers	8	74	1266	2030	3380	258
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	4075	3424	2	358	7861	63
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	1835	201	1119	338	3495	492
+	Internal current expenditure	2746	3449	221	2802	9219	1429
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4581	3651	1340	3141	12714	1921
+	Subsidies, transfers	6	108	801	2099	3016	343
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	4120	3690	9	362	8182	66
=	Expenditure 2	..	..	..	..	..	..

DNK, million DKK		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SPECIALISED PRODUCERS OF EP SERVICES A)</b>							
<b>1991</b>	Investment expenditure	25	514	..	..	539	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	28	994	..	..	1023	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	53	1509	..	..	1562	..
-	Subsidies, transfers	6	72	..	..	79	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	19	1389	..	..	1409	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	475	1025	..	..	1500	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	346	1829	..	..	2176	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	822	2854	..	..	3677	..
-	Subsidies, transfers	8	77	..	..	85	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	459	2116	..	..	2576	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	234	723	..	..	958	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	366	2491	..	..	2858	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	601	3215	..	..	3816	..
-	Subsidies, transfers	3	76	..	..	80	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	509	2748	..	..	3258	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	162	272	..	..	435	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	368	2606	..	..	2975	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	530	2879	..	..	3410	..
-	Subsidies, transfers	4	76	..	..	80	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	495	2883	..	..	3379	..
=	Expenditure 2	..	..	..	..	..	..
<b>PRIVATE SPECIALISED PRODUCERS OF EP SERVICES</b>							
<b>1991</b>	Investment expenditure	2511	331	..	..	2842	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	2287	3816	..	..	6104	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4799	4148	..	..	8947	..
-	Subsidies, transfers	2	21	..	..	24	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	4602	4567	..	..	9170	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	1800	583	..	..	2384	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	3258	5639	..	..	8897	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	5059	6223	..	..	11282	..
-	Subsidies, transfers	4	42	..	..	46	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	4321	6109	..	..	10431	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	1778	433	..	..	2211	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	3393	5582	..	..	8975	..
-	Receipts from by-products	..	..	..	..	..	..

DNK, million DKK	Pollution Abatement and Control (PAC)					Biodiversity & Landscape
	Waste water	Waste	Air	Other	TOTAL	
= Expenditure 1	5172	6015	..	..	11187	..
- Subsidies, transfers	3	17	..	..	21	..
+ Fees, purchases	..	..	..	..	..	..
- Revenues	4555	6133	..	..	10689	..
= Expenditure 2	..	..	..	..	..	..
<b>2000</b> Investment expenditure	1618	362	..	..	1981	..
Of which end-of-pipe	..	..	..	..	..	..
+ Internal current expenditure	3520	5551	..	..	9072	..
- Receipts from by-products	..	..	..	..	..	..
= Expenditure 1	5139	5914	..	..	11053	..
- Subsidies, transfers	64	50	..	..	115	..
+ Fees, purchases	..	..	..	..	..	..
- Revenues	4680	6041	..	..	10722	..
= Expenditure 2	..	..	..	..	..	..

## Notes:

- a) *Public specialised producers: excludes expenditure by publicly owned enterprises (within the waste and wastewater treatment sectors) whose accounting is part of the public sector's budgets; includes expenditure by those enterprises whose accounting is not part of the public sector's budgets.*



## FINLAND

**SOURCES AND DEFINITION**

The collection of PAC expenditure data on business sector began in 1992 as a joint project between the Ministry of Environment and Statistics Finland. Statistics on the business sector are compiled on the basis of an annual survey. Data on public sector are drawn up from Statistics Finland's data sources on national accounts as well as additional estimates. The statistics have been drawn up in accordance with the Eurostat SERIEE guidelines.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

Environmental domains included are air, wastewater, waste and "other". The category "other" includes noise abatement, biodiversity & landscape, and some items of expenditure for which breakdown is not available.

**ECONOMIC SECTORS**

The public sector includes central and local government as well the municipal business firms.

The calculation method for the business sector expenditures has changed between 1998 and 1999. Payments for bought services are not included in 1999 data. Data on business sector expenditures refer to mining and quarrying, manufacturing industry and energy supply (ISIC/NACE categories 10-40 excl.37).

The data on specialised producers include only public sector authorities.

Data on non-industrial business sector (e.g. agriculture, services) as well as household expenditure are not available.

## FINLAND

Million markka at 1995 prices

FIN, million FIM		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SECTOR</b>							
<b>1996</b>	Investment expenditure	527	46	85 <sup>(a)</sup>	164 <sup>(b)</sup>	825	93 <sup>(c)</sup>
	+ Internal current expenditure	549	378	136 <sup>(a)</sup>	962 <sup>(b)</sup>	2027	78 <sup>(c)</sup>
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1076	425	222 <sup>(a)</sup>	1127 <sup>(b)</sup>	2852	172 <sup>(c)</sup>
	+ Subsidies, transfers	611	12	..	838 <sup>(b)</sup>	1463	181 <sup>(c)</sup>
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	1022	481	..	74 <sup>(b)</sup>	1579	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	409	78	217 <sup>(a)</sup>	177 <sup>(b)</sup>	883	88 <sup>(c)</sup>
	+ Internal current expenditure	522	324	125 <sup>(a)</sup>	1030 <sup>(b)</sup>	2003	83 <sup>(c)</sup>
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	932	403	343 <sup>(a)</sup>	1208 <sup>(b)</sup>	2887	172 <sup>(c)</sup>
	+ Subsidies, transfers	563	8	..	799 <sup>(b)</sup>	1371	182 <sup>(c)</sup>
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	936	468	..	102 <sup>(b)</sup>	1507	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	336	65	114 <sup>(a)</sup>	203 <sup>(b)</sup>	720	73 <sup>(c)</sup>
	+ Internal current expenditure	510	344	147 <sup>(a)</sup>	1037 <sup>(b)</sup>	2040	84 <sup>(c)</sup>
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	846	410	262 <sup>(a)</sup>	1241 <sup>(b)</sup>	2760	158 <sup>(c)</sup>
	+ Subsidies, transfers	536	2	..	811 <sup>(b)</sup>	1350	205 <sup>(c)</sup>
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	929	513	..	129 <sup>(b)</sup>	1572	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	298	59	..	60 <sup>(b)</sup>	418	64 <sup>(c)</sup>
	+ Internal current expenditure	497	346	..	1213 <sup>(b)</sup>	2057	87 <sup>(c)</sup>
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	795	406	..	1273 <sup>(b)</sup>	2475	151 <sup>(c)</sup>
	+ Subsidies, transfers	466	3	..	757 <sup>(b)</sup>	1227	228 <sup>(c)</sup>
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	929	504	..	119 <sup>(b)</sup>	1553	..
	= Expenditure 2	..	..	..	..	..	..

FIN, million FIM		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>BUSINESS SECTOR</b>							
<b>1996</b>	Investment expenditure	823	133	700	56	1713	..
	Of which end-of-pipe	448	47	360	50	907	..
+	Internal current expenditure	718d)	429d)	352	154d)	1655	143
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	1542	562	1052	211	3369	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	324	130	853	56	1364	..
	Of which end-of-pipe	194	54	362	48	660	..
+	Internal current expenditure	793d)	480d)	389	164d)	1828	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	1117	610	1242	221	3192	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	426	146	377	105	1055	..
	Of which end-of-pipe	187	135	234	86	643	..
+	Internal current expenditure	793d)	506d)	313	290d)	1904	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	1220	653	690	395	2959	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	375	88	231	77	771	..
	Of which end-of-pipe	128	73	144	67	413	..
+	Internal current expenditure e)	533	191	361	87	1174	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	908	280	593	164	1946	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	207	400	..	204	812	..
=	Expenditure 2	..	..	..	..	..	..
♦ <u>Mining and quarrying</u>							
<b>1999</b>	Investment expenditure	3	5	3	2	14	..
	Of which end-of-pipe	3	5	3	2	14	..
+	Internal current expenditure	19	1	5	3	29	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	22	6	8	6	43	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	0	3	..	10	14	..
=	Expenditure 2	..	..	..	..	..	..
♦ <u>Manufacturing</u>							
<b>1999</b>	Investment expenditure	367	81	203	67	719	..
	Of which end-of-pipe	121	66	124	57	369	..
+	Internal current expenditure	508	181	295	56	1041	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	875	262	499	123	1761	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	199	378	..	135	714	..
=	Expenditure 2	..	..	..	..	..	..
♦ <u>Electricity, gas and water supply</u>							
<b>1999</b>	Investment expenditure	4	1	24	7	37	..
	Of which end-of-pipe	3	1	16	7	29	..
+	Internal current expenditure	6	9	61	26	103	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	10	10	85	34	141	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	7	18	..	58	83	..
=	Expenditure 2	..	..	..	..	..	..

FIN, million FIM		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SPECIALISED PRODUCERS OF EP SERVICES</b>							
<b>1994</b>	Investment expenditure	29	0	..	..	30	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	64	4	..	..	69	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	94	4	..	..	99	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	139	5	..	..	145	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	322	15	..	..	338	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	354	44	..	..	398	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	677	60	..	..	737	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	802	76	..	..	879	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	321	14	..	..	336	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	382	61	..	..	443	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	704	75	..	..	780	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	843	95	..	..	938	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	352	3	..	..	355	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	436	57	..	..	493	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	788	60	..	..	848	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	838	101	..	..	940	..
=	Expenditure 2	..	..	..	..	..	..

## Notes:

- Public sector: expenditure on "air" are estimated; include local government only.
- Public sector: "other" PAC expenditure include administration of the government, protection against radiation and multi-functional PAC activity.
- Public sector: expenditure on "biodiversity" include central and state government only.
- Business sector: 1996, 1997 and 1998 data on internal current expenditure include payments for bought services.
- Business sector: break in time series in 1999 due to change in calculation method for internal current expenditure.

## FRANCE

**SOURCES AND DEFINITION**

Data on PAC expenditure form an integral part of regular analysis of economic aspects of the environment. Data have been published regularly since 1982<sup>17</sup> by the Ministry of the Environment. Since 1992, the Statistical Offices of the Ministries of Industry and Agriculture have carried out annual surveys on industrial PAC expenditure. Since 1994, IFEN has been developing environmental protection expenditure accounts for waste water management, waste and air according to SERIEE methodology and recently for noise and biodiversity; revised figures are available from 1990 onwards.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

PAC activities include direct pollution abatement and control, planning, monitoring and regulatory activity. The following environmental domains are covered: wastewater (including soil and groundwater), waste, air, noise, biodiversity & landscape and other. The category "other" presented here includes noise and other.

The market of measurement and control of air quality reach 47 millions Euro in 2000. The turnover of French eco-industries in environmental monitoring (i.e. Measurement, control, laboratories and the like) is estimated to represent approximately 112 million Euro in 2000 (i.e. 0.5% of the total PAC expenditure on air, water and waste). It should be noted that these figures may include exports.

**ECONOMIC SECTORS**

Public sector expenditure on general administration of the environment includes capital and current expenditure by the Ministry of the Environment, by national and subnational entities under Ministry's supervision, and environmental expenditure of others ministries. Expenditure for research and development are excluded. Public specialised producers of EP services are included in public sector.

Data on private specialised producers of EP services are available from 1990.

Household expenditure includes septic tanks, anti-pollution expenditure for motor vehicles, protection against noise, and expenditure for waste (waste bags).

<sup>17</sup> Latest edition: Ministère de l'écologie et du développement durable – Institut français de l'environnement (2002): *Données économiques de l'environnement – Rapport à la Commission des comptes et de l'économie de l'environnement, Édition 2002, Lavoisier Tec&Doc, Paris.*

## FRANCE

Million French francs at 1995 prices

FRA, million FRF	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1990</b>	Investment expenditure	14554	1241	..	1679	17476	..
+	Internal current expenditure	7960	16420	..	2866	27247	..
-	Receipts from by-products	-	-	..	-	-	..
=	Expenditure 1	22515	17662	..	4545	44723	..
+	Subsidies, transfers	-	-	1314	451	1765	..
+	Fees, purchases	-	-	..	-	-	..
-	Revenues	9429	9890	..	-	19320	..
=	Expenditure 2	13086	7772	..	4996	27168	..
<b>1996</b>	Investment expenditure	14176	2080	..	2627	18884	322
+	Internal current expenditure	14045	25281	..	4428	43756	1535
-	Receipts from by-products	-	1415	..	-	1415	-
=	Expenditure 1	28222	25947	..	7056	61225	1857
+	Subsidies, transfers	-	-	3396	318	3715	64
+	Fees, purchases	-	-	..	-	-	-
-	Revenues	17470	18484	..	-	35955	-
=	Expenditure 2	10752	7463	..	7374	28985	1921
<b>1997</b>	Investment expenditure	15438	1412	..	2639	19490	366
+	Internal current expenditure	15104	26325	..	4426	45857	1694
-	Receipts from by-products	-	1473	..	-	1473	-
=	Expenditure 1	30543	26264	..	7066	63874	2061
+	Subsidies, transfers	-	-	3676	313	3990	69
+	Fees, purchases	-	-	..	-	-	-
-	Revenues	18443	19563	..	-	38007	-
=	Expenditure 2	12100	6701	..	7379	29857	2130
<b>1998</b>	Investment expenditure	16341	1165	..	2667	20174	331
+	Internal current expenditure	15706	27302	..	4485	47494	1769
-	Receipts from by-products	-	1565	..	-	1565	-
=	Expenditure 1	32048	26902	..	7152	66103	2100
+	Subsidies, transfers	-	-	3573	309	3883	71
+	Fees, purchases	-	-	..	-	-	-
-	Revenues	19459	20277	..	-	39736	-
=	Expenditure 2	12589	6625	..	7461	30250	2171
<b>1999</b>	Investment expenditure	17455	1188	..	2728	21372	384
+	Internal current expenditure	16361	28644	..	4689	49694	1925
-	Receipts from by-products	-	1753	..	-	1753	-
=	Expenditure 1	33816	28079	..	7417	69314	2309
+	Subsidies, transfers	-	-	4622	306	4928	77
+	Fees, purchases	-	-	..	-	-	-
-	Revenues	20132	21293	..	-	41425	-
=	Expenditure 2	13684	6786	..	7723	32817	2386
<b>2000</b>	Investment expenditure	20411	1423	..	2918	24753	357
+	Internal current expenditure	16771	29821	..	4821	51414	2040
-	Receipts from by-products	-	1946	..	-	1946	-
=	Expenditure 1	37183	29298	..	7739	74221	2398
+	Subsidies, transfers	-	-	5406	396	5802	70
+	Fees, purchases	-	-	..	-	-	-
-	Revenues	20555	22148	..	-	42703	-
=	Expenditure 2	16628	7150	..	8135	37320	2468

FRA, million FRF		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>BUSINESS SECTOR</b>							
<b>1990</b>	Investment expenditure b)	2479	741	2496	2757	8474	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	6299	3079	6417	1290	17086	..
-	Receipts from by-products	-	-	-	-	-	..
=	Expenditure 1	8778	3820	8913	4047	25560	..
-	Subsidies, transfers	4811	45	479	1806	7142	..
+	Fees, purchases	903	-	-	-	903	..
=	Expenditure 2	4870	3775	8434	2241	19321	..
<b>1996</b>	Investment expenditure b)	2126	833	2325	2677	7963	2082
	Of which end-of-pipe	1655	576	1592	138	3962	-
+	Internal current expenditure	6498	3682	6058	1326	17566	169
-	Receipts from by-products	-	-	-	-	-	-
=	Expenditure 1	8625	4515	8384	4004	25530	2252
-	Subsidies, transfers	437	-	380	1636	2455	64
+	Fees, purchases	16279	11310	-	-	27590	-
=	Expenditure 2	24467	15825	8004	2368	50665	2188
<b>1997</b>	Investment expenditure b)	1952	904	2902	2703	8462	2257
	Of which end-of-pipe	1436	579	1820	135	3971	-
+	Internal current expenditure	6323	3828	6845	1305	18303	170
-	Receipts from by-products	-	-	-	-	-	-
=	Expenditure 1	8275	4733	9748	4008	26765	2427
-	Subsidies, transfers	247	-	829	1592	2669	68
+	Fees, purchases	17199	11787	-	-	28986	-
=	Expenditure 2	25227	16520	8919	2416	53082	2359
<b>1998</b>	Investment expenditure b)	1997	1312	2466	2685	8462	2411
	Of which end-of-pipe	1444	813	1465	120	3844	-
+	Internal current expenditure	6060	4079	6925	1313	18379	211
-	Receipts from by-products	-	-	-	-	-	-
=	Expenditure 1	8058	5392	9391	3999	26841	2623
-	Subsidies, transfers	693	-	832	1584	3110	70
+	Fees, purchases	18275	12585	-	-	30860	-
=	Expenditure 2	25640	17977	8559	2415	54592	2553
<b>1999</b>	Investment expenditure b)	1999	819	2873	2742	8434	1875
	Of which end-of-pipe	1497	551	1843	121	4014	-
+	Internal current expenditure	6336	4541	6439	1354	18672	222
-	Receipts from by-products	-	-	-	-	-	-
=	Expenditure 1	8336	5360	9312	4097	27106	2097
-	Subsidies, transfers	796	-	1172	1575	3544	77
+	Fees, purchases	19652	13975	-	-	33627	-
=	Expenditure 2	27191	19335	8140	2522	57189	2020
<b>2000</b>	Investment expenditure b)	2120	890	3164	2968	9144	1900
	Of which end-of-pipe	1655	545	1290	128	3620	-
+	Internal current expenditure	6483	5249	6699	1368	19801	202
-	Receipts from by-products	-	-	-	-	-	-
=	Expenditure 1	8603	6140	9864	4337	28946	2102
-	Subsidies, transfers	863	-	1895	1707	4466	70
+	Fees, purchases	20822	14795	-	-	35618	-
=	Expenditure 2	28562	20935	7969	2630	60097	2032

FRA, million FRF		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PRIVATE SPECIALISED PRODUCERS OF EP SERVICES</b>							
<b>1990</b>	Investment expenditure	..	633	..	..	633	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	8216	6019	..	..	14236	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	6652	..	..	14869	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1996</b>	Investment expenditure	823	781	..	..	1605	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	14366	10999	..	..	25366	..
-	Receipts from by-products	-	-	..	..	-	..
=	Expenditure 1	15190	11781	..	..	26971	..
-	Subsidies, transfers	-	-	..	..	-	..
+	Fees, purchases	-	-	..	..	-	..
-	Revenues	14305	9678	..	..	23983	..
=	Expenditure 2	885	2103	..	..	2988	..
<b>1999</b>	Investment expenditure	991	919	..	..	1910	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	17482	12674	..	..	30156	..
-	Receipts from by-products	-	-	..	..	-	..
=	Expenditure 1	18473	13593	..	..	32067	..
-	Subsidies, transfers	-	-	..	..	-	..
+	Fees, purchases	-	-	..	..	-	..
-	Revenues	17459	12277	..	..	29736	..
=	Expenditure 2	1014	1316	..	..	2331	..
<b>2000</b>	Investment expenditure	1159	956	..	..	2115	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	18715	13935	..	..	32650	..
-	Receipts from by-products	-	-	..	..	-	..
=	Expenditure 1	19875	14891	..	..	34766	..
-	Subsidies, transfers	-	-	..	..	-	..
+	Fees, purchases	-	-	..	..	-	..
-	Revenues	18617	12790	..	..	31408	..
=	Expenditure 2	1258	2101	..	..	3358	..
<b>HOUSEHOLDS</b>							
<b>1990</b>	Expenditure 1	725	1664	1622	580	4593	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Expenditure 1	5199	1913	1448	568	9130	..
-	Subsidies, transfers	-	-	2895	-	2895	..
+	Fees, purchases	19262	19615	-	1282	40161	..
=	Expenditure 2	24461	21528	-1447	1850	46396	..
<b>2000</b>	Expenditure 1	5198	2214	678	584	8675	..
-	Subsidies, transfers	-	-	3372	-	3372	..
+	Fees, purchases	19788	20220	-	1326	41335	..
=	Expenditure 2	24986	22434	-2694	1910	46639	..

## Notes:

a) Public sector: Includes expenditure by public specialised producers.

b) Business sector: data on "waste" are provisional estimates.



## GERMANY

**SOURCES AND DEFINITION**

Annual business surveys evaluating PAC investment expenditure have been conducted since 1975 by the Federal Statistical Office. In 1996, the scope of the business surveys was expanded to cover also industrial current expenditure. Data on current and investment expenditure by the public sector are derived from financial statistics. In addition, estimates of expenditure by specialised producers of environmental protection services are carried out for enterprises that are mainly in public ownership (more than 50% of joint stock). Specialised producers that are mainly in private ownership are not yet included. (Statistisches Bundesamt, 2001<sup>18</sup>).

By way of integrating the data from the different sources to environmental- economic accounting the results follow the definitions and methodologies of SNA.

German expenditure statistics cover expenditure for direct pollution abatement and control.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

The following environmental domains are covered: water, air, treatment and removal of waste, and protection against noise. In line with the OECD/Eurostat definition, expenditure on workplace protection is excluded. In this report "other" refers to expenditure on noise abatement only. Biodiversity and nature protection activities are not covered.

The following variables are covered:

- ◆ PAC investment expenditure, defined as expenditure for capital goods to protect from environmental damage and nuisance caused by the production process; it covers end-of-pipe investments only.
- ◆ PAC internal current expenditure, defined as expenditure directly related to the operation of environmental protection facilities (i.e. wages).

For the public sector, data are available according to the abater principle only (Expenditure 1).

**ECONOMIC SECTORS**

Public sector PAC expenditure includes the different levels of government.

Business sector PAC expenditure covers quarrying and mining, manufacturing, electricity, gas, water supply (ISIC/NACE C, D, E).

Specialised producers of EP services are partially covered. Data on expenditure by private specialised producers are not available (see sources and definitions above).

Data on expenditure by households are not available.

<sup>18</sup> Statistisches Bundesamt (2001): *Umweltökonomische Gesamtrechnungen - Ausgaben und Anlagevermögen für Umweltschutz - 2001, Fachserie 19, Reihe 6, Metzler-Poeschel, Stuttgart.*

## GERMANY

Million deutsche Mark at 1995 prices

DEU, million DEM		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SECTOR</b>							
<b>1991</b>	Investment expenditure a)	11874	2229	43	395	14543	..
+	Internal current expenditure	5616	8362	34	..	14013	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	17491	10592	78	..	28556	..
+	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1996</b>	Investment expenditure a)	8245	1195	40	301	9782	..
+	Internal current expenditure	5581	9376	39	..	14997	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	13827	10571	79	..	24780	..
+	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure a)	7174	844	50	331	8400	..
+	Internal current expenditure	5260	8390	40	..	13691	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	12435	9235	90	..	22092	..
+	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure a)	6238	644	30	432	7345	..
+	Internal current expenditure	4980	8115	39	..	13135	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	11219	8759	70	..	20481	..
+	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure a)	5694	..	30	416	6140	..
+	Internal current expenditure	4941	8080	39	..	13060	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	10635	8607	70	..	19201	..
+	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR b)</b>							
<b>1991</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	1647	944	3548	230	6371	..
+	Internal current expenditure	4200	2208	4906	147	11463	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	5848	3153	8454	378	17834	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1996</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	1305	632	2882	180	5001	..
+	Internal current expenditure	4335	2860	5117	178	12491	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	5641	3493	8000	358	17493	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..

DEU, million DEM		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>1997</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	1235	512	1627	190	3567	..
+	Internal current expenditure	4041	2645	4837	176	11701	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	5277	3157	6465	367	15268	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	1907	3628	629	68	6234	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	1207	472	1338	191	3210	..
+	Internal current expenditure	3491	2139	2946	145	8723	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4698	2612	4285	337	11933	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	1604	3238	437	77	5358	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	1207	659	1441	182	3491	..
+	Internal current expenditure	3087	2129	2555	154	7927	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4295	2789	3996	337	11419	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	1752	3233	425	300	5711	309
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	1086	414	1381	177	3060	..
+	Internal current expenditure	3288	1843	2718	133	7983	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4374	2258	4100	310	11044	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Mining and quarrying</b>							
<b>1997</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	50	10	30	..	90	..
+	Internal current expenditure	147	88	167	9	412	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	197	98	197	..	503	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	78	58	9	..	147	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	39	0	39	20	98	..
+	Internal current expenditure	95	57	133	0	285	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	134	57	172	20	384	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Manufacturing</b>							
<b>1997</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	1125	492	1055	160	2833	..
+	Internal current expenditure	3471	2241	2753	147	8613	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4596	2734	3808	308	11447	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	1671	3205	412	49	5339	..
=	Expenditure 2	..	..	..	..	..	..

DEU, million DEM		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>2000</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	1006	394	1243	157	2801	..
+	Internal current expenditure	3193	1786	2585	133	7698	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4199	2180	3828	290	10499	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Electricity, gas and water supply</b>							
<b>1997</b>	Investment expenditure	..	..	..	..	..	..
	Of which end-of-pipe	60	10	542	30	643	..
+	Internal current expenditure	422	324	1907	19	2674	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	483	334	2450	49	3317	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	157	373	196	9	737	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Of which end-of-pipe	59	39	98	0	197	..
<b>PUBLIC SPECIALISED PRODUCERS OF EP SERVICES</b>							
<b>1996</b>	Investment expenditure	7161	3294	..	..	10455	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	5958	11096	..	..	17055	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	13119	14390	..	..	27510	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	7516	3004	..	..	10521	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	7168	11111	..	..	18280	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	14684	14116	..	..	28801	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	10877	2274	..	..	13152	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	8071	12137	..	..	20208	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	18949	14411	..	..	33360	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	8404	1684	..	..	10089	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	8566	12893	..	..	21459	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	16970	14578	..	..	31549	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
-	Revenues	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..

## Notes:

- a) Public sector: Investment expenditure include end-of-pipe investments only.  
b) Business sector: Including NACE C, D and E; i.e. 10-41, only.

## GREECE

### SOURCES AND DEFINITION

The National Statistical Service of Greece has been carried out specific surveys on environmental expenditure incurred by the Business sector and the municipalities. Data concerning Central State result from a survey among ministries about current expenditure and transfers and the exploitation of the Program of Public Investments.

These studies have been carried out following the SERIEE definition of environmental expenditure. Expenditure on energy saving have been explicitly excluded.

### VARIABLES AND ENVIRONMENTAL DOMAINS

The environmental domains include wastewater, soil and groundwater, waste, air, noise, biodiversity & landscape and other (expenditure which can not be affected to the preceding categories). The category "other" presented here includes soil and groundwater, noise and other.

### ECONOMIC SECTORS

Public sector covers expenditure by central government, regions and municipalities.

Business sector includes manufacturing industries and electricity, gas and water supply.

No surveys on household PAC expenditure have been carried out.

## GREECE

Million drachmas at 1995 prices

GRC, million GRD		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SECTOR</b>							
<b>1990</b>	Investment expenditure	13120	31294	809	9736	54960	57338
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
	+ Subsidies, transfers	14280	..	..	..	14280	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1995</b>	Investment expenditure	17842	17184	1267	364	36659	19044
	+ Internal current expenditure	2817	72469	..	14359	89646	25833
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	20659	89654	..	14723	126305	44877
	+ Subsidies, transfers	16143	..	..	..	16143	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	13875	98894	..	..	112770	..
	= Expenditure 2	..	..	..	..	..	..
<b>1996</b>	Investment expenditure	12470	19311	6549	1476	39808	22679
	+ Internal current expenditure	3191	85556	..	14153	102900	29677
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	15662	104868	..	15629	142709	52357
	+ Subsidies, transfers	19140	..	..	..	19140	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	13078	104107	..	..	117186	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	19695	16636	216	1706	38255	17119
	+ Internal current expenditure	2735	83958	..	13209	99904	28991
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	22430	100595	..	14916	138159	46111
	+ Subsidies, transfers	18032	..	..	..	18032	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	14103	120058	..	..	134161	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	26339	17534	284	1154	45313	16611
	+ Internal current expenditure	3022	83286	..	12755	99064	28902
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	29362	100820	..	13909	144377	45514
	+ Subsidies, transfers	23210	..	..	..	23210	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	14653	121202	..	..	135856	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	27164	16973	166	746	45050	8482
	+ Internal current expenditure	3075	85761	..	12551	101388	29640
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	30240	102734	..	13297	146439	38122
	+ Subsidies, transfers	22928	..	..	..	22928	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	15542	130180	..	..	145723	..
	= Expenditure 2	..	..	..	..	..	..

GRC, million GRD	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>BUSINESS SECTOR</b>							
◆ <b>Manufacturing</b>							
<b>1996</b>	Investment expenditure	4807	908	4732	668	11116	..
	Of which end-of-pipe	4028	818	4448	567	9862	..
+	Internal current expenditure	4673	1626	3382	745	10428	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	9480	2535	8115	1413	21545	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
◆ <b>Electricity, gas and water supply</b>							
<b>1996</b>	Investment expenditure	27761	..	..	..	27761	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	31192	..	..	..	31192	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	58953	..	..	..	58953	..
-	Subsidies, transfers	19140	..	..	..	19140	..
+	Fees, purchases	36190	..	..	..	36190	..
=	Expenditure 2	76003	..	..	..	76003	..
<b>1999</b>	Investment expenditure	37254	..	..	..	37254	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	37952	..	..	..	37952	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	75207	..	..	..	75207	..
-	Subsidies, transfers	22928	..	..	..	22928	..
+	Fees, purchases	40417	..	..	..	40417	..
=	Expenditure 2	92696	..	..	..	92696	..

## HUNGARY

### **SOURCES AND DEFINITION**

Data on PAC expenditure are collected by the Hungarian Central Statistical Office. From 1990 to 1996 only data on end-of-pipe investments were collected through the annual investment survey, which included a table on environment. Investors with more than 50 employees have been covered by this survey. In 1997 and 1998 organisations with more than 20 employees were covered and data on integrated investments were also collected.

Since 1999 separate questionnaire has been used to collect information on environmental protection expenditures (investments and current expenditure) by industry. The data collection covered the organizations in industry with more than 5 employees for 1999 and 2000. From 2001 the data collection on environmental expenditure covers the whole economy.

### **VARIABLES AND ENVIRONMENTAL DOMAINS**

PAC activities include direct pollution abatement and control, planning, monitoring and regulatory activity. The following environmental domains are covered: wastewater, waste, soil and groundwater air, noise, biodiversity & landscape and other. The other category in the monograph includes soil and groundwater, noise and other.

### **ECONOMIC SECTORS**

For 1999 and 2000, investment and current expenditure by quarrying, manufacturing and energy supply are reported.

The national budget provided HUF 52.5 billion in 1997 for various pollution abatement and control projects, as well as for measures related to drinking water, flood control, remediation of contaminated sites, nature conservation, and agriculture. The overall level of public subsidies is relatively small.

Most of the national environmental budget originates from central government revenues. Environmental revenues from local governments remain insignificant. The central government budget provides support for various environmental investments, mainly for combating water pollution and, increasingly, for nature conservation.

Earmarked funds are created to channel earmarked public revenues for specific purposes. The Central Environmental Protection Fund (CEPF), established in 1991, is mostly financed by environmental product charges and, to a lesser extent, revenues from privatisation, fines, loans, PHARE grants, mining charges and, from 1998, revenues from historical buildings. In 1999, the CEPF became part of the budget and is no longer an independent fund.



## HUNGARY

Million forint at 1995 prices

HUN, million HUF	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1997</b>	Investment expenditure	10524	1026	123	717	12392	1014
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	27814	2160	867	1679	32522	277
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR</b>							
<b>1997</b>	Investment expenditure	3732	4708	2377	3245	14063	109
	Of which end-of-pipe	1760	4238	1479	1901	9380	109
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	3358	3863	8127	3770	19121	487
	Of which end-of-pipe	2559	3424	2996	2809	11791	468
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>♦ Mining and quarrying</b>							
<b>1999</b>	Investment expenditure	3	502	435	901	1843	225
	Of which end-of-pipe	..	478	19	780	1278	223
	+ Internal current expenditure	22	71	25	37	156	30
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	25	573	461	9381999	255	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	16	65	..	1	82	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	4	51	9	23	89	4
	Of which end-of-pipe	1	22	3	9	35	4
	+ Internal current expenditure	1	43	8	78	133	61
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	5	95	18	102	222	65
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	11	48	..	8	67	..
	= Expenditure 2	..	..	..	..	..	..

HUN, million HUF		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>◆ Manufacturing</b>							
<b>1999</b>	Investment expenditure	3308	1434	6048	4421	15212	49
	Of which end-of-pipe	2780	1063	3961	1364	9170	23
+	Internal current expenditure	2489	2027	1225	1601	7342	110
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	5797	3461	7274	6022	22555	159
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	12769	8111	..	368	21249	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	1809	1838	15503	1664	20816	30
	Of which end-of-pipe	1660	1431	1805	1059	5956	17
+	Internal current expenditure	2812	2556	1232	1766	8369	71
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	4622	4394	16736	3431	29185	102
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	5596	9223	..	1258	16078	..
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Electricity, gas and water supply</b>							
<b>1999</b>	Investment expenditure	2178	541	3161	433	6314	10
	Of which end-of-pipe	1377	24	2693	222	4317	6
+	Internal current expenditure	15841	553	2947	788	20130	265
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	18019	1094	6109	1221	26444	275
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	670	728	..	62	1461	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	1405	305	5230	656	7598	79
	Of which end-of-pipe	1216	59	4439	183	5898	76
+	Internal current expenditure	7656	475	4515	718	13367	18
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	9062	781	9746	1374	20965	98
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	2064	599	..	52	2717	..
=	Expenditure 2	..	..	..	..	..	..

## ICELAND

<b>SOURCES AND DEFINITION</b>	Data on PAC expenditure are collected by the National Economic Institute from annually published National and Local Government Accounts.
<b>VARIABLES AND ENVIRONMENTAL DOMAINS</b>	Data includes collection and treatment of waste, waste water and environmental supervision on plants and wild animals. Environmental monitoring (i.e. Measurement, control, laboratories and the like) is estimated to represent approximately 54 million IKf (i.e. 1.95% of the total PAC expenditure on air, water and waste).
<b>ECONOMIC SECTORS</b>	Only <u>public sector</u> PAC expenditure data are reported here; the public sector includes both central government and municipalities. <u>Private expenditure</u> has not been documented, but it is thought to be low by international standards. “Financing of environmental expenditure is dominated by the public sector. The funding comes from budgetary sources, water supply pricing, waste water charges and waste charges. The government and a number of municipalities are attempting to increase user funding: the hazardous waste fund is an example of this approach. The national budget for environment has risen gradually as a percentage of total government expenditure and now stands at 1.9%”. (from: <i>OECD environmental performance review of Iceland, Paris, 2001</i> ).

## ICELAND

Million krónur at 1995 prices

ICE, million ISK	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1990</b>	Investment expenditure	257	3	..	..	260	..
	+ Internal current expenditure	31	820	..	..	852	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	289	824	..	..	1113	..
	+ Subsidies, transfers	..	292	..	..	292	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	316	1	..	..	318	..
	+ Internal current expenditure	74	1228	..	..	1303	24
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	391	1230	..	..	1621	..
	+ Subsidies, transfers	..	339	..	..	339	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	307	2	..	..	310	..
	+ Internal current expenditure	73	1219	..	..	1293	25
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	381	1221	..	..	1603	..
	+ Subsidies, transfers	..	342	..	..	342	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	532	2	..	..	534	..
	+ Internal current expenditure	76	1260	..	..	1336	24
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	608	1262	..	..	1871	..
	+ Subsidies, transfers	..	351	..	..	351	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	294	0	..	..	295	..
	+ Internal current expenditure	71	1300	..	..	1372	20
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	366	1301	..	..	1667	..
	+ Subsidies, transfers	..	385	..	..	385	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..

## IRELAND

**SOURCES AND** Environmental domains included are: wastewater, waste, air and other.

**DEFINITION** Only data for 1998 are available.

Business sector only covers manufacturing and electricity, gas and water supply.

Million IEP at 1995 prices

IRE, million IEP	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1998</b>	Investment expenditure	88	..	..	4	93	-
	+ Internal current expenditure	41	90	..	51	183	5
	- Receipts from by-products	7	45	..	2	55	..
	= Expenditure 1	122	..	..	53	221	6
	+ Subsidies, transfers	..	..	..	136	136	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	-	..	2	2	..
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR a)</b>							
<b>1998</b>	Investment expenditure	24	3	16	24	68	-
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	8	7	8	19	43	-
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	32	10	24	44	112	-
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
♦	<b>Manufacturing</b>						
<b>1998</b>	Investment expenditure	24	2	14	20	61	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	8	6	7	18	40	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	32	9	21	39	102	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
♦	<b>Electricity, gas and water supply</b>						
<b>1998</b>	Investment expenditure	-	-	2	3	7	-
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	-	-	-	1	2	-
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	-	1	2	5	9	-
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..

Notes:

a) Business sector: partial total including Manufacturing and Energy & water only.

## ITALY

**SOURCES AND DEFINITION**

The first estimates of public environmental expenditure were based on a study carried out by the Research Institute for Economic Planning (ISPE), which was initiated by the Ministry for Environment. These estimates were presented in the 1989 Report on the State of the Environment (Ministero dell'ambiente, 1989<sup>19</sup>). Since then, ISPE and the Italian Treasury have proceeded to update those estimates for a number of years up to 1994; the figures produced were published in the further editions of the Report on The State of the Environment of the Italian Ministry of the Environment.

In the early '90s the Italian National Statistical Institute (ISTAT) launched a series of projects aiming at implementing the Environmental Protection Expenditure Account (EPEA) of the SERIEE system (Eurostat - SERIEE 1994 Version). A first set of figures on General Government EPE were produced by Istat for the years 1990-1992 by processing ISPE data; these data were not consistent with the environmental protection expenditure definition of the EPEA and the CEPA classification (Classification of Environmental Protection Activities). Afterwards Istat started to develop environmental expenditure figures ex novo by means of a number of projects focused on the collection of basic data for EPEA purposes, i.e. consistent with the environmental protection expenditure definition of the EPEA and the CEPA.

As far as the Public sector is concerned the first set of figures produced by Istat for EPEA purposes concerns Ministries' EPE for the years 1995-1996. These figures were presented in the Report on the State of the Environment 2001 (Ministero dell'ambiente, 2001<sup>20</sup>) and are going to be published in: ISTAT (2002), Environment Statistics 2002. The figures were produced by processing data which were collected by means of a methodology set up by Istat specifically for that purpose; the methodology is based on the budget analysis technique. This methodology is now being applied on a regular basis. A time series on Ministries' EPE is being produced as well as a first set of figures concerning Regions' EPE<sup>21</sup>.

A further source of data on General Government EPE stems from the implementation of the European System of National and Regional Accounts (ESA 1995 - EC Regulation n. 2223/96) and particularly from the requirement for Member States to supply data on General Government environmental protection expenditure by function. Functions are defined according to COFOG classification (Classification Of the Functions Of Government), which includes one item specifically related to environmental protection: division "05-environmental protection". COFOG figures, that refer to total environmental protection by General Government as a whole, allow to produce a first answer to the demand of statistical information on the matter. The methodology currently used for producing these figures would need some further refinement in order to produce, with the necessary level of accuracy, also estimates on expenditure broken down for example by government level: (central administration, Regions, Provinces, etc.) or by environmental domain of intervention (air pollution, waste management, etc.). The methodology in use at Istat is based on a range of different approaches applied to the various bodies of general government: in some cases, i.e. for the State, the COFOG classification is applied to the budget documents at the source; in other cases, specifically for local bodies, estimates are produced by linking the items of the original budget to the COFOG classification; finally, where no existing data could possibly be used, ad hoc analysis of the budget is applied.

A first time series on EPE carried out by General Government as a whole is going to be published in: ISTAT (2002), Environment Statistics 2002.

As far as the business sector is concerned, the first collection of data on environmental expenditure coherent with the EPEA framework has been conducted through the long-form phase of the Intermediate Census of Industry and Services<sup>22</sup>.

<sup>19</sup> Ministero dell'ambiente (1989): *Relazione sullo stato dell'ambiente, 1989, Istituto Poligrafico e Zecca dello Stato.*

<sup>20</sup> Ministero dell'ambiente (2001): *Relazione sullo stato dell'ambiente, 2001, Istituto Poligrafico e Zecca dello Stato.*

<sup>21</sup> Regions represent the higher level of Local Government.

<sup>22</sup> The Intermediate Census was based on two surveys: the first phase of the Census, the short form, aimed at supplementing, correcting and verifying data of the Statistical Register of Active Undertakings (ASIA), constructed from the information available in the principal administrative registers; the second phase, the long form, aimed at inquiring into certain structural aspects of the business activity.

The long-form survey was partly census and partly sample. In particular it enumerated:

- ◆ all undertakings with 20 employees or more;
- ◆ undertakings with a number of employees above a size threshold which varies according to the economic activity and province coding (but always below 20 employees);
- ◆ undertakings found within industrial district engaged in the prevailing economic activity for that district and with fewer employees than the variable threshold;
- ◆ a sample of about 263.000 undertakings with less than 20 employees.

The section on environmental protection expenditure enclosed in the long-form questionnaire was sent only to undertakings with 20 employees or more. The reference year is 1997.

The first set of figures concerning business environmental expenditure produced by Istat consistently with EPEA concepts and CEPA classification are going to be published on the ISTAT web site ([www.istat.it](http://www.istat.it)) and in: ISTAT (2002), Environment Statistics 2002.

After the experience of Intermediate Census, questions on business environmental expenditure have been enclosed in the questionnaires of Business Accounts Survey (SCI), addressed to undertakings with 100 employees or more, and "Rilevazione sulle piccole e medie imprese e sull'esercizio di arti e professioni" (PMI), addressed to undertakings with less than 100 employees. In particular, these surveys will allow to collect data on investments in end-of-pipe equipment, investments in integrated technologies and current environmental protection expenditure. The first reference year is 2000.

#### VARIABLES AND ENVIRONMENTAL DOMAINS

Environmental domains are defined according to the CEPA 1994.

As far as the public sector is concerned, the figures on Ministries' EPE for the years 1990-1992 do not cover all the CEPA domains and characteristic activities because they were calculated by processing basic data that were not fully consistent with the EPEA concepts and the CEPA classification.

The figures on Ministries' EPE for the year 1995 cover all the CEPA domains and characteristic activities.

The figures on General Government EPE for the years 1996-2000 are consistent with CEPA 1994 because they are produced according to the division "05 - Environmental protection" which is defined and broken down on the basis of CEPA 1994.

As far as the business sector is concerned, data on capital expenditure include only end-of pipe investments, data on current expenditure include both internal current expenditure (wages, other) and external current expenditure (fees and other payments to public bodies; payments to private enterprises).

The figures on business EPE cover the following CEPA domains: Air and Climate, Waste Water Management, Protection of Soil and Ground Water, Waste Management, Noise, Protection of Biodiversity and Landscape.

#### ECONOMIC SECTORS

As far as the public sector is concerned, before 1996 only expenditures by ministries are covered.

The business sector (enterprises with 20 employees or more) covers all economic activities within the NACE Rev. 1 classification with the exception of the following ones: 01 Agriculture, hunting and related services; 02 Forestry and use of forest area and related services; 05 Fisheries, fish-farming and related services; 75 General government and defence, compulsory social insurance; 80 Education; 85 Health and other social services; 91 Activities of voluntary organisations n.e.c.; 92.5 Activities of libraries, archives, museums, other cultural activities; 92.6 Sporting activities; 92.7 Other leisure activities; 95 Domestic services to households and residential homes; 99 Extra-territorial organisations and bodies. Data for NACE 90 and NACE 37 could not be collected.

## ITALY

Million lira at 1995 prices

ITA, million ITL	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1990</b>	Investment expenditure	..	..	..	..	2278293	..
	+ Internal current expenditure	..	..	..	..	444203	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	2722496	..
	+ Subsidies, transfers	..	..	..	..	2248229	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1995</b>	Investment expenditure	50802	..	751	563215	614768	130469
	+ Internal current expenditure	170613	62747	1439	130577	365379	30463
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	221415	..	2190	693793	980147	160933
	+ Subsidies, transfers a)	116407	85357	13041	525842	740647	186668
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1996</b>	Investment expenditure	43582	0	277	2562788	2606648	90864
	+ Internal current expenditure	229173	60340	1698	9177140	9468352	32781
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	272755	60340	1976	1173992	1207500	123645
	+ Subsidies, transfers	..	..	..	..	475699	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	7523779	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	..	..	..	..	2574391	..
	+ Internal current expenditure	..	..	..	..	9698849	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	1227324	..
	+ Subsidies, transfers	..	..	..	..	645783	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	7430397	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	..	..	..	..	2621250	..
	+ Internal current expenditure	..	..	..	..	1029748	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	1291874	..
	+ Subsidies, transfers	..	..	..	..	664408	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	7704828	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	..	..	..	..	2566749	..
	+ Internal current expenditure	..	..	..	..	1084341	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	1341016	..
	+ Subsidies, transfers	..	..	..	..	632244	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	7219111	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	..	..	..	..	2576003	..
	+ Internal current expenditure	..	..	..	..	1119641	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	1377242	..
	+ Subsidies, transfers	..	..	..	..	663142	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	7231529	..
	= Expenditure 2	..	..	..	..	..	..



ITA, million ITL		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>BUSINESS SECTOR b)</b>							
<b>1997</b>	Investment expenditure	306591	107235	882128	201763	1497718	21065
	Of which end-of-pipe	306591	107235	882128	201763	1497718	21065
	+ Internal current expenditure	257520	160291	76864	69161	563837	13456
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	564112	267526	958992	270924	2061556	34521
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	256943	329876	50416	52582	689817	40545
	= Expenditure 2	..	..	..	..	..	..
◆ <u>Mining and quarrying</u>							
<b>1997</b>	Investment expenditure	1082	1238	2561	3125	8007	1534
	Of which end-of-pipe	1082	1238	2561	3125	8007	1534
	+ Internal current expenditure	1166	58	453	1471	3151	748
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2249	1296	3015	4597	11158	2282
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	434	120	111	371	1038	2792
	= Expenditure 2	..	..	..	..	..	..
◆ <u>Manufacturing</u>							
<b>1997</b>	Investment expenditure	225547	79704	558978	146189	1010421	14399
	Of which end-of-pipe	225547	79704	558978	146189	1010421	14399
	+ Internal current expenditure	163496	73695	72326	30592	340110	2843
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	389044	153400	631305	176782	1350531	17242
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	187800	280557	45363	26022	539743	8370
	= Expenditure 2	..	..	..	..	..	..
◆ <u>Electricity, gas and water supply</u>							
<b>1997</b>	Investment expenditure	51561	18136	260065	13126	342889	491
	Of which end-of-pipe	51561	18136	260065	13126	342889	491
	+ Internal current expenditure	86995	57800	1244	34333	180374	855
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	138557	75937	261309	47459	523264	1347
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	48898	20208	2108	2044	73259	541
	= Expenditure 2	..	..	..	..	..	..

## Notes:

- a) Public sector: Total Subsidies, transfers include transfers to the rest of the world; Subsidies, transfers broken down by environmental domain include only transfers to resident units.
- b) Business sector: expenditure by companies with 20 employees or more.

## LUXEMBOURG

**SOURCES AND DEFINITION**

The following environmental domains are covered: wastewater, waste, soil and groundwater air, noise, biodiversity & landscape and other. The other category in the monograph includes soil and groundwater, noise and other.

Only public sector expenditures data for 1997 are available.

Million Luxembourg francs at 1995 prices

LUX, million LUF	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1997</b>	Investment expenditure	958	420	0	46	1426	58
	+ Internal current expenditure	652	1064	6	465	2188	50
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1611	1484	7	511	3615	108
	+ Subsidies, transfers	11	16	4	145	178	204
	+ Fees, purchases	193	176	6	44	419	44
	- Revenues	497	1434	..	..	1931	..
	= Expenditure 2	1318	243	..	..	2281	..

## NETHERLANDS

**SOURCES AND DEFINITION**

The Central Bureau of Statistics of Netherlands has been conducting surveys on environmental expenditure for a number of years. In 1979, the Central Bureau of Statistics conducted a special survey to provide a basis for the annual investment surveys that have been carried out since then. Estimation methods are used to update survey results for current PAC expenditure. These data are published along with other environmental statistics (Netherlands Central Bureau of Statistics, 1996<sup>23</sup>).

PAC activity is defined as the reduction of the flow of emissions and waste arising from production processes and from consumption activities. PAC expenditure relates to measures which would not have been introduced in the absence of environmental considerations.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

The following characteristic activities are covered: direct pollution abatement and control, regulation and monitoring, co-ordination of PAC activities, and R&D. Investment expenditure comprise end-of-pipe technologies as well as expenditure for pollution control that is integrated in new technologies. Only part of the purchase value of environmentally friendly goods is classified as PAC expenditure; this is the proportion that is, for environmental reasons, in excess of alternative value of normal equipment. Expenditure for the development of more environmentally friendly products is explicitly excluded. Environmental domains comprise waste, wastewater, soil and groundwater, air and noise.

A major concern of the Netherlands' statistical approach towards PAC expenditure is to trace financial flows associated with pollution control. The amount of transfers, subsidies, and payments in exchange for environmental services is evaluated. Therefore, expenditure data are available according to both the abater principle and the financing principle.

**ECONOMIC SECTORS**

Public PAC expenditure include expenditure by the central government, provinces, water boards, municipalities and inter-municipal corporations (i.e include public specialised producers of EP services).

Household expenditure includes additional expenditure for phosphate-free washing-powder and additional expenditure for low-sulphur fuels.

Data on private specialised producers of EP services are available from 1997.

<sup>23</sup> Netherlands Central Bureau of Statistics (1996): *Environmental Statistics of the Netherlands, 1996, Voorburg/Heerlen*.

## NETHERLANDS

Million guilders at 1995 prices

NLD, million NLG	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1990</b>	Investment expenditure	694	370	0	9	1075	..
	+ Internal current expenditure	1344	1646	120	1414	4525	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2039	2017	120	1424	5600	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1991</b>	Investment expenditure	760	542	1	2	1306	..
	+ Internal current expenditure	1568	2000	113	1742	5423	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2328	2542	114	1744	6729	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1992</b>	Investment expenditure	873	785	0	4	1663	..
	+ Internal current expenditure	1603	1932	108	1895	5540	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2476	2718	108	1899	7203	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1995</b>	Investment expenditure	1243	274	1	34	1552	133
	+ Internal current expenditure	1988	2579	94	2560	7221	733
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	3231	2853	95	2594	8773	866
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	1071	207	..	5	1284	132
	+ Internal current expenditure	2092	1485	81	2973	6633	730
	- Receipts from by-products	36	94	..	4	135	62
	= Expenditure 1	3127	1598	..	2975	7782	800
	+ Subsidies, transfers	52	20	108	78	260	87
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	2973	2661	0	175	5809	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	1470	176	..	12	1658	..
	+ Internal current expenditure	2024	1490	51	3020	6587	..
	- Receipts from by-products	55	87	..	0	144	..
	= Expenditure 1	3439	1579	..	3031	8101	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..

NLD, million NLG		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>BUSINESS SECTOR</b>							
<b>1990</b>	Investment expenditure	723	168	836	429	2158	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	417	417	646	641	2122	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1141	585	1482	1071	4280	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1991</b>	Investment expenditure	344	133	838	540	1857	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	432	442	662	761	2298	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	777	575	1500	1302	4156	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1992</b>	Investment expenditure	308	136	845	689	1979	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	444	459	662	857	2424	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	752	596	1508	1547	4403	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1995</b>	Investment expenditure	298	72	548	505	1425	171
	Of which end-of-pipe	233	30	244	345	853	125
	+ Internal current expenditure	507	103	569	844	2024	77
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	805	175	1118	1350	3449	248
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	254	155	1162	542	2114	202
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	458	105	588	756	1908	106
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	712	260	1751	1298	4023	309
	- Subsidies, transfers	52	11	108	75	248	107
	+ Fees, purchases	1111	2597	27	356	4093	0
	= Expenditure 2	1771	2847	1670	1579	7868	201
<b>1998</b>	Investment expenditure	165	107	770	480	1523	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	651	113	795	728	2288	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	816	221	1566	1209	3812	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
♦ <b>Mining and quarrying</b>							
<b>1999</b>	Investment expenditure	1	8	17	17	46	4
	Of which end-of-pipe	1	0	13	9	24	0
	+ Internal current expenditure	13	6	5	81	106	7
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	15	14	23	99	153	12
	- Subsidies, transfers	0	0	1	0	2	..
	+ Fees, purchases	2	37	..	5	45	1
	= Expenditure 2	17	52	..	105	196	..

NLD, million NLG	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>◆ Manufacturing</b>							
<b>1999</b>	Investment expenditure	187	119	422	147	877	5
	Of which end-of-pipe	127	30	217	98	472	3
+	Internal current expenditure	371	78	323	415	1189	25
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	559	198	745	563	2066	30
-	Subsidies, transfers	12	7	21	12	53	..
+	Fees, purchases	300	514	..	8	824	7
=	Expenditure 2	847	705	..	559	2837	..
<b>◆ Electricity, gas and water supply</b>							
<b>1999</b>	Investment expenditure	3	0	16	3	24	16
	Of which end-of-pipe	1	0	9	2	12	16
+	Internal current expenditure	15	1	120	38	175	12
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	19	1	137	41	200	29
-	Subsidies, transfers	0	0	..	0	0	..
+	Fees, purchases	6	22	..	4	33	16
=	Expenditure 2	26	23	..	46	234	..
<b>PRIVATE SPECIALISED PRODUCERS OF EP SERVICES</b>							
<b>1997</b>	Investment expenditure	22	2214	..	23	2261	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	105	2168	..	219	2494	..
-	Receipts from by-products	10	433	..	19	462	..
=	Expenditure 1	118	3949	..	224	4292	..
-	Subsidies, transfers	0	4	..	0	5	..
+	Fees, purchases	21	1464	..	273	1759	..
-	Revenues	142	4333	..	502	4978	..
=	Expenditure 2	-3	1075	..	-5	1068	..
<b>1998</b>	Investment expenditure	17	548	..	34	599	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	108	2477	..	246	2832	..
-	Receipts from by-products	8	477	..	17	504	..
=	Expenditure 1	117	2547	..	263	2928	..
-	Subsidies, transfers	0	6	..	1	7	..
+	Fees, purchases	20	1752	..	291	2065	..
-	Revenues	143	4848	..	543	5536	..
=	Expenditure 2	-7	-555	..	10	-550	..
<b>1999</b>	Investment expenditure	29	534	..	22	587	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	318	2652	..	298	3268	..
-	Receipts from by-products	135	484	..	54	675	..
=	Expenditure 1	211	2702	..	266	3180	..
-	Subsidies, transfers	0	0	..	0	1	..
+	Fees, purchases	123	1799	..	256	2179	..
-	Revenues	336	5172	..	541	6050	..
=	Expenditure 2	-1	-673	..	-19	-692	..
<b>2000</b>	Investment expenditure	645	33	..	20	699	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	2950	330	..	283	3564	..
-	Receipts from by-products	562	88	..	40	691	..
=	Expenditure 1	3033	276	..	262	3572	..
-	Subsidies, transfers	2	0	..	0	2	..
+	Fees, purchases	2145	71	..	211	2427	..
-	Revenues	5788	356	..	486	6631	..
=	Expenditure 2	-613	-10	..	-13	-635	..

## NORWAY

**SOURCES AND DEFINITION** The Division for Environmental Statistics at Statistics Norway<sup>24</sup> extracts PAC expenditure data from the annual accounts of the municipalities. From 2001, the municipal accounts are reported electronically.

PAC expenditure is defined as expenditure aimed at the prevention, reduction and elimination of pollution as well as other degradation of the environment.

**VARIABLES AND ENVIRONMENTAL DOMAINS** The environmental domains currently covered include only wastewater and waste by public specialized producers. For both domains, collection and treatment activities are covered. Other domains such as air, nature and landscape, and noise are excluded.

**ECONOMIC SECTORS** Currently only public specialised producers (municipal departments) expenditure data are available for wastewater and solid waste.

From 2000, investment in pollution treatment equipment (end-of-pipe) has also been collected for the manufacturing industry and for mining and quarrying (excluding ISIC/NACE 11, extraction of crude petroleum and natural gas). These statistics will be continued in the future and there are plans for expanding both the sector coverage and the types of variables reported.

A pilot study for environmental expenditure by industry was conducted covering six manufacturing sectors (chemicals, metals, pulp and paper, textiles, beverages, meat and meat products). Results (for 1997) are considered very uncertain, but they provide some insight. With 22 and 21% of the total, respectively, the pulp and paper and chemical industries invested the largest amounts, mostly in waste water treatment (over 90% of investments by the pulp and paper industry and 50% of those by the chemical industry). While investments by pulp and paper companies were almost exclusively in end of pipe technology, the chemical industry invested most in process integrated solutions.

While detailed information is not provided on pollution abatement and control expenditure, environmental expenditure by ministries is presented annually in the context of the budget procedure. In 2000, total environmental expenditure was over NOK 10 billion. The precise nature of much public expenditure is often unclear. An example of the difficulties involved in classifying such expenditure is the fact that the Ministry of Transport and Communications appeared to have a larger environmental budget than the Ministry of the Environment. A considerable portion of environmental expenditure may actually be compensation for environmental damage (e.g. accompanying road construction, etc.).

There is also currently work being done to develop independent estimates for public environmental protection expenditure using budget analysis techniques. This work is being done by the Division for Environmental Statistics and the Division for National Accounts and these estimates should be available for the next PAC reporting.

<sup>24</sup> Statistics Norway's websites for PAC (in English):  
Municipal wastewater: [http://www.ssb.no/english/subjects/01/04/20/avlok\\_en/](http://www.ssb.no/english/subjects/01/04/20/avlok_en/)  
Industry: [http://www.ssb.no/english/subjects/01/06/20/miljokostind\\_en/](http://www.ssb.no/english/subjects/01/06/20/miljokostind_en/)

## NORWAY

Million kroner at 1995 prices

NOR, million NOK	Pollution Abatement and Control (PAC)					TOTAL	Biodiversity & Landscape
	Waste water	Waste	Air	Other			
<b>PUBLIC SPECIALISED PRODUCERS OF EP SERVICES</b>							
<b>1990</b>	Investment expenditure	1194	..	..	..	1194	..
	+ Internal current expenditure	1680	..	..	..	1680	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2875	..	..	..	2875	..
<b>1996</b>	Investment expenditure	1315	199	..	..	1515	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure a)	1702	2079	..	..	3782	..
	- Receipts from by-products	..	49	..	..	49	..
	= Expenditure 1	3018	2230	..	..	5248	..
	- Subsidies, transfers	..	4	..	..	4	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	3047	2192	..	..	5240	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	1361	..	..	..	1361	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure a)	1717	..	..	..	1717	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	3079	..	..	..	3079	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	3152	..	..	..	3152	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	1665	..	..	..	1665	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure a)	1807	..	..	..	1807	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	3472	..	..	..	3472	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	3235	..	..	..	3235	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	1776	..	..	..	1776	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure a)	1829	..	..	..	1829	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	3605	..	..	..	3605	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	3369	..	..	..	3369	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	1507	..	..	..	1507	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure a)	1654	..	..	..	1654	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	3162	..	..	..	3162	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	3584	..	..	..	3584	..
	= Expenditure 2	..	..	..	..	..	..

Notes:

a) Public specialised producers: internal current expenditure also includes fees.



## POLAND

**SOURCES AND DEFINITION**

Since the 1970s, data on investment expenditure have been collected through annual comprehensive statistical surveys, by the Central Statistical Office and the regional services of official statistics. These surveys cover budget as well as investments by enterprises.

Since 1995, the "Single European Standard Statistical Classification of Environmental Protection Activities and Facilities" has been applied.

From 1996, the methodology of data collection for public sector investment has been changed. New data are not comparable with previous ones.

Surveys on current costs were conducted separately under the supervision of the Ministry of Environment as the pilot sample survey in 1997/98 and as sample survey in 1999. In 2000 the next sample survey was carried out for sections A and B of NACE Rev. 1, in 2001 - for sections C and E and in 2002 – for section D. Data are accessible for public and business sectors.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

The following environmental domains are included in PAC expenditures: air, waste water, waste, soil and groundwater, noise, protection against radiation, biodiversity and landscape. The other category in the monograph includes soil and groundwater, noise and protection against radiation.

Environmental monitoring (i.e. Measurement, control, laboratories and the like) is estimated to represent approximately 23,5 million national currency in 2000 (i.e. 0,1% of the total PAC expenditure – investments and current costs on all domains).

**ECONOMIC SECTORS**

The public sector is defined to include ministries and the regional and local authorities like municipalities as well as environmental funds and voivodships<sup>25</sup>. A large part of investments and other environmental expenditure within the public sector is related to municipalities and to waste water treatment and solid waste collection and disposal.

Data on households and specialised producers of EP services expenditure are available from 1999.

<sup>25</sup> OECD/COWIconsult (1995): *Case Study of Environmental Expenditure and Investment in Six Selected CEE Countries, Draft Final Report, June 1995, Lyngby, Denmark.*

## POLAND

Million zlotys at 1995 prices

POL, million PLN		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>PUBLIC SECTOR</b>							
<b>1995</b>	Investment expenditure	753	118	95	2	970	1
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	1769	153	148	36	2107	1
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	1729	162	167	25	2084	5
	+ Internal current expenditure	330	127	293	492	1244	158
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2060	289	461	517	3329	163
<b>1999</b>	Investment expenditure	1824	203	156	11	2195	4
	+ Internal current expenditure	320	123	284	477	1206	153
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2144	326	441	489	3401	157
<b>2000</b>	Investment expenditure	1569	154	129	37	1891	1
	+ Internal current expenditure	320	123	285	477	1207	153
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1890	277	414	515	3098	155
<b>BUSINESS SECTOR</b>							
<b>1997</b>	Investment expenditure	505	231	2711	52	3501	0
	Of which end-of-pipe	402	176	1472	14	2066	0
	+ Internal current expenditure	486	979	1437	207	3111	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	992	1210	4148	260	6612	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	458	389	568	517	1933	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	676	409	3096	63	4247	0
	Of which end-of-pipe	548	286	1482	20	2337	0
	+ Internal current expenditure	485	897	1433	190	3006	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1162	1306	4530	254	7253	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	424	297	515	529	1766	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	743	242	2600	61	3647	0
	Of which end-of-pipe	558	213	1639	32	2444	0
	+ Internal current expenditure	504	642	1452	181	2780	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1247	885	4052	242	6428	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	413	120	414	522	1471	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	426	167	1350	99	2044	0
	Of which end-of-pipe	374	159	850	33	1418	0
	+ Internal current expenditure	498	614	1642	188	2944	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	924	782	2993	287	4988	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	389	94	381	543	1409	..
	= Expenditure 2	..	..	..	..	..	..

POL, million PLN	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>◆ Agriculture, fishing, forestry</b>							
<b>2000</b>	Investment expenditure	2	..	..	..	2	..
	Of which end-of-pipe	2	..	..	..	2	..
+	Internal current expenditure	4	2	1	9	18	125
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	6	..	..	..	20	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	4	0	3	6	15	0
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Mining and quarrying</b>							
<b>2000</b>	Investment expenditure	23	6	23	4	57	..
	Of which end-of-pipe	18	6	11	2	39	..
+	Internal current expenditure	60	25	10	49	145	2
-	Receipts from by-products	79	7	5	0	92	0
=	Expenditure 1	4	24	27	53	110	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	64	106	7	234	412	6
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Manufacturing</b>							
<b>2000</b>	Investment expenditure	125	114	524	54	819	0
	Of which end-of-pipe	85	106	432	13	637	0
+	Internal current expenditure	..	..	..	..	..	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	..	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	..	..
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Electricity, gas and water supply</b>							
<b>2000</b>	Investment expenditure	184	38	687	9	920	0
	Of which end-of-pipe	179	38	387	2	608	0
+	Internal current expenditure	66	91	164	20	342	12
-	Receipts from by-products	58	13	203	0	275	0
=	Expenditure 1	192	116	648	30	987	12
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	51	74	239	31	397	5
=	Expenditure 2	..	..	..	..	..	..
<b><u>PUBLIC SPECIALISED PRODUCERS OF EP SERVICES</u></b>							
<b>2000</b>	Investment expenditure	35	22	..	7	65	..
<b><u>PRIVATE SPECIALISED PRODUCERS OF EP SERVICES</u></b>							
<b>2000</b>	Investment expenditure	22	13	..	0	35	..
<b><u>HOUSEHOLDS</u></b>							
<b>2000</b>	Expenditure 1	250	5	4800	563	5620	1012
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	1367	673	..	..	2040	..
=	Expenditure 2	..	..	..	..	..	..

## PORTUGAL

**SOURCES AND DEFINITION**

In Portugal, PAC expenditure statistics are produced and diffused by the National Statistical Office (INE); first estimates are for years 1988 and 1989. The methodology applied follows the environmental accounting system of the European Communities (SERIEE). Detailed results covering the entire field of environmental protection and a methodological discussion are presented in Ribeiro (1992<sup>26</sup>).

**VARIABLES AND ENVIRONMENTAL DOMAINS**

The following environmental domains are covered: wastewater, waste, soil and groundwater, air, noise, biodiversity & landscape and other. The other category in the monograph includes soil and groundwater, noise and other.

**ECONOMIC SECTORS**

Public sector expenditure includes expenditure at the central government level (from 1990 onward), at the departmental level and at the municipality level, but expenditure on "waste" refer only to municipalities.

Business sector covers mining and quarrying, manufacturing and electricity, gas and water supply.

Data on specialised producers of EP services are available from 1996 to 1998.

For the main economic sectors, Portuguese statistics allow to distinguish between the abater and financing principles, *i.e.* fees and subsidies for PAC purposes are identified.

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<sup>26</sup> Ribeiro, *Methodological problems inherent in setting up an economic database on the environment., Portugal 1992.*

## PORTUGAL

Million escudos at 1995 prices

PRT, million PTE	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1998</b>	Investment expenditure	30601	6879	2209	1607	41298	11722
	+ Internal current expenditure a)	8352	24168	36	8465	41022	18062
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	38954	31047	2245	10073	82320	29784
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	9643	4988	..	..	14632	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	36938	5619	329	2109	44997	9062
	+ Internal current expenditure a)	9861	28251	73	8397	46583	12930
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	46799	33871	402	10507	91580	21992
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	10848	6277	..	..	17125	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	32836	10696	401	1090	45025	11246
	+ Internal current expenditure a)	9868	31216	129	8107	49322	11038
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	42704	41913	530	9198	94347	22284
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	13769	9245	..	..	23015	..
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR B)</b>							
<b>1994</b>	Investment expenditure	5089	2324	12213	1340	20967	..
	Of which end-of-pipe	3607	1809	9936	1020	16373	..
	+ Internal current expenditure	1867	1720	817	379	4784	..
	- Receipts from by-products	106	3540	751	56	4455	..
	= Expenditure 1	6849	503	12279	1663	21295	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	12042	3227	12080	3370	30720	..
	Of which end-of-pipe	7304	2683	5555	1188	16732	..
	+ Internal current expenditure	3718	1590	3851	784	9945	..
	- Receipts from by-products	..	8395	..	..	8395	..
	= Expenditure 1	15761	-3578	15932	4155	32271	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	1392	4643	519	649	7205	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	9065	4890	12792	2874	29622	673
	Of which end-of-pipe	7277	3346	9070	2092	21786	556
	+ Internal current expenditure	4549	9437	2856	1673	18517	693
	- Receipts from by-products	..	7248	..	..	7248	..
	= Expenditure 1	13614	7078	15649	4547	40890	1367
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	2180	6248	1004	894	10327	447
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	11068	3990	22122	4214	41395	184
	Of which end-of-pipe	8031	2685	12081	2803	25603	161
	+ Internal current expenditure	5306	10260	3096	2304	20968	472
	- Receipts from by-products	..	8486	..	..	8486	..
	= Expenditure 1	16374	5764	25219	6518	53876	657
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	2888	6962	1135	1240	12227	260
	= Expenditure 2	..	..	..	..	..	..

PRT, million PTE	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>♦ Mining and quarrying</b>							
<b>1995</b>	Investment expenditure	..	13	20	5	38	..
	Of which end-of-pipe	..	..	0	5	5	..
	+ Internal current expenditure	7	..	3	9	20	..
	- Receipts from by-products	..	26	..	..	26	..
	= Expenditure 1	..	..	24	14	32	..
<b>2000</b>	Investment expenditure	277	199	325	415	1217	79
	Of which end-of-pipe	208	105	297	211	822	79
	+ Internal current expenditure	140	166	47	278	633	44
	- Receipts from by-products	..	56	..	..	56	..
	= Expenditure 1	418	308	373	693	1794	124
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	46	61	4	234	347	16
	= Expenditure 2	..	..	..	..	..	..
<b>♦ Manufacturing</b>							
<b>1995</b>	Investment expenditure	5284	1239	5237	2565	14327	..
	Of which end-of-pipe	4296	889	3003	1784	9972	..
	+ Internal current expenditure	2026	2015	3599	814	8457	..
	- Receipts from by-products	131	3591	537	..	4260	..
	= Expenditure 1	7180	-336	8299	3380	18523	..
<b>2000</b>	Investment expenditure	10685	3707	20501	3716	38611	95
	Of which end-of-pipe	7729	2527	10508	2510	23276	81
	+ Internal current expenditure	4539	9379	2768	1849	18537	389
	- Receipts from by-products	..	7697	..	..	7697	..
	= Expenditure 1	15225	5389	23270	5566	49451	485
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	2652	6760	1015	949	11379	210
	= Expenditure 2	..	..	..	..	..	..
<b>♦ Electricity, gas and water supply</b>							
<b>1995</b>	Investment expenditure	817	1159	6363	857	9197	..
	Of which end-of-pipe	817	1159	6359	835	9171	..
	+ Internal current expenditure	808	883	1144	50	2886	..
	- Receipts from by-products	..	2233	..	..	2233	..
	= Expenditure 1	1625	-191	7507	907	9850	..
<b>2000</b>	Investment expenditure	104	84	1294	81	1565	8
	Of which end-of-pipe	93	53	1276	81	1505	0
	+ Internal current expenditure	626	714	280	176	1797	38
	- Receipts from by-products	..	732	..	..	732	..
	= Expenditure 1	730	66	1575	258	2630	47
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	189	139	123	55	507	34
	= Expenditure 2	..	..	..	..	..	..
<b>PRIVATE &amp; PUBLIC SPECIALISED PRODUCERS OF EP</b>							
<b>1998</b>	Investment expenditure	4685	..	..	69	4754	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	6648	..	..	1023	7672	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	11333	..	..	1093	12427	..
	- Subsidies, transfers	677	..	..	677	1354	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	7256	..	..	489	7745	..
	= Expenditure 2	..	..	..	..	..	..

## Notes:

a) Public sector: internal current expenditure also includes fees.

b) Business sector: only covers ISIC/NACE categories C, D &amp; E.

## SLOVAK REPUBLIC

**SOURCES AND** From 1998 only total PAC expenditure data are available.

**DEFINITION** Data on public & private specialised producers of EP services are available from 1999.

Million kuruny at 1995 prices

SLK, million SKK	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1990</b>	Investment expenditure	11879	3518	6599	..	21997	..
	+ Internal current expenditure	3236	958	1799	..	5995	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	15115	4477	8399	..	27992	..
<b>1999</b>	Investment expenditure	..	..	..	..	1714	..
	+ Internal current expenditure	..	..	..	..	1816	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	3530	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	1283	..
	- Revenues	..	..	..	..	13	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	..	..	..	..	664	..
	+ Internal current expenditure	..	..	..	..	233	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	898	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	52	..
	- Revenues	..	..	..	..	14	..
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR</b>							
<b>1998</b>	Investment expenditure	..	..	..	..	12943	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	3071	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	16014	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	2857	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	..	..	..	..	7097	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	2799	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	9897	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	4688	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	..	..	..	..	1857	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	..	..	..	..	2444	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	4302	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	2217	..
	= Expenditure 2	..	..	..	..	..	..

SLK, million SKK		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>◆ Agriculture, fishing, forestry</b>							
<b>2000</b>	Investment expenditure	..	..	..	..	18	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	32	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	51	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	19	..
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Mining and quarrying</b>							
<b>2000</b>	Investment expenditure	..	..	..	..	8	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	3	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	11	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	14	..
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Manufacturing</b>							
<b>2000</b>	Investment expenditure	..	..	..	..	890	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	729	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	1620	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	643	..
=	Expenditure 2	..	..	..	..	..	..
<b>◆ Electricity, gas and water supply</b>							
<b>2000</b>	Investment expenditure	..	..	..	..	692	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	1611	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	2303	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	1418	..
=	Expenditure 2	..	..	..	..	..	..
<b>PRIVATE &amp; PUBLIC SPECIALISED PRODUCERS OF EP</b>							
<b>1999</b>	Investment expenditure	..	..	..	..	75	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	30	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	106	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	58	..
-	Revenues	..	..	..	..	116	..
=	Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	..	..	..	..	260	..
	Of which end-of-pipe	..	..	..	..	..	..
+	Internal current expenditure	..	..	..	..	27	..
-	Receipts from by-products	..	..	..	..	..	..
=	Expenditure 1	..	..	..	..	287	..
-	Subsidies, transfers	..	..	..	..	..	..
+	Fees, purchases	..	..	..	..	45	..
-	Revenues	..	..	..	..	92	..
=	Expenditure 2	..	..	..	..	..	..



## SPAIN

**SOURCES AND DEFINITION**

Public sector data on environmental protection expenditure have been collected since 1987; they are published regularly in the publication *Gasto Público en Medio Ambiente* by the Ministry of the Environment (Ministerio de Medio Ambiente, 1998<sup>27</sup>). Data collection follows closely the SERIEE-framework developed by Eurostat; hence data are generally consistent with the definitions used in the OECD/Eurostat questionnaire. [role of INE?]

Business sector data have first been compiled for 1993 in a study "Asistencia Técnica para la realización de una Encuesta sobre el Gasto en Medio Ambiente efectuado por las Empresas Industriales en 1993", carried out for the Ministry of the Environment. The study presented the results of an expenditure questionnaire that was sent to 9756 firms: 1065 firms replied to the questionnaire, no attempt was made to estimate the total business sector expenditure based on the replies. Thus, the business sector figures presented here are partial as they cover only a small fraction of the business sector. More recent surveys have been carried out for enterprises within ISIC/NACE C, D and E only, excluding ISIC/NACE 37 and 41.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

The following environmental domains are covered: wastewater, waste, air, soil and groundwater, noise, biodiversity & landscape and other. In this report the domains soil and groundwater, noise and other are grouped under "Other".

**ECONOMIC SECTORS**

Public specialised producers of EP services are included in Public sector.

Business sector only covers quarrying, manufacturing and energy supply.

Specialised producers include municipal departments, publicly owned companies, and private companies, as well as as producers of water supply services within ISIC/NACE 90.001. "wastewater" refers to enterprises whose main activity is within ISIC/NACE 41, and whose secondary activity is waste water treatment [cf qst reply]. "waste" refers to enterprises whose main activity is within ISIC/NACE 90.002.

<sup>27</sup> *Ministerio de Medio Ambiente (1998): Gasto público en medio ambiente 1995, análisis comparativo 1987 - 1995, Madrid.*  
*Ministerio de Medio Ambiente): Gasto público en medio ambiente 1996, Madrid.*  
*Ministerio de Medio Ambiente: Encuesta, estudio y resultados del gasto de las administraciones publicas en la proteccion del medio ambiente y en el uso y gestion de los recursos naturales en los años 1997, 1998 y 1999.*

## SPAIN

Million pesetas at 1995 prices

ESP, million ESP	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1994</b>	Investment expenditure	80620	24288	1966	24524	131400	67575
	+ Internal current expenditure	42527	150519	1718	101328	296093	54444
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	123148	174807	3684	125853	427493	122020
	+ Subsidies, transfers	27137	55984	467	36422	120012	31523
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1995</b>	Investment expenditure	81701	21475	1397	29677	134250	104092
	+ Internal current expenditure	38301	138636	1927	112396	291260	67787
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	120002	160111	3324	142073	425510	171879
	+ Subsidies, transfers	25056	56453	1517	58531	141557	40483
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1996</b>	Investment expenditure	87637	30857	1865	17914	138275	78789
	+ Internal current expenditure	41811	154740	2771	51559	250881	54444
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	129448	185597	4636	69474	389157	133233
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	140719	53496	1189	50751	246157	56536
	+ Internal current expenditure	41516	127878	1977	52907	224279	34328
	- Receipts from by-products	4701	2738	..	164	7604	389
	= Expenditure 1	177534	178636	3166	103494	462832	90474
	+ Subsidies, transfers	9928	34995	305	-1295	43935	5379
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	36456	54507	33	8887	99884	1162
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	153181	54342	1011	52165	260701	71420
	+ Internal current expenditure	47825	129067	2310	59589	238793	35431
	- Receipts from by-products	4314	3835	1	933	9085	32
	= Expenditure 1	196692	179574	3319	110822	490409	106819
	+ Subsidies, transfers	18505	36332	432	23580	78851	5016
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	38026	61878	200	8658	108765	902
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	166552	57351	1236	59933	285074	82710
	+ Internal current expenditure	48773	130614	2955	58670	241015	33511
	- Receipts from by-products	7130	4241	..	424	11796	118
	= Expenditure 1	208195	183724	4192	118179	514293	116103
	+ Subsidies, transfers	11611	47524	516	28917	88569	5712
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	37204	61483	227	8738	107653	789
	= Expenditure 2	..	..	..	..	..	..

ESP, million ESP		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>BUSINESS SECTOR</b>							
<b>1993</b>	Investment expenditure	846	170	17	38	1073	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	1050	772	831	15	2670	..
	- Receipts from by-products	57	..	1	..	58	..
	= Expenditure 1	1839	943	847	54	3685	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>◆ Mining and quarrying</b>							
<b>1999</b>	Investment expenditure	250	275	277	538	1342	623
	Of which end-of-pipe	222	86	212	53	575	623
<b>2000</b>	Investment expenditure	441	187	619	256	1505	1422
	Of which end-of-pipe	291	116	439	199	1046	1422
<b>◆ Manufacturing</b>							
<b>1999</b>	Investment expenditure	27388	12404	32388	20668	92850	999
	Of which end-of-pipe	20169	6097	16267	5738	48274	999
<b>2000</b>	Investment expenditure	29247	18875	38501	22351	108976	1936
	Of which end-of-pipe	24261	11602	24428	5767	66059	1936
<b>◆ Electricity, gas and water supply</b>							
<b>1999</b>	Investment expenditure	452	300	124	673	1552	69
	Of which end-of-pipe	362	141	25	397	926	69
<b>2000</b>	Investment expenditure	775	5271	274	2847	9168	179
	Of which end-of-pipe	647	356	60	1391	2456	179

## SWEDEN

**SOURCES AND DEFINITION**

The main source for annual data on PAC expenditure by the public sector is the central government budget. Data on expenditure by municipalities are not compiled on a regular basis. In 1991, a survey carried out by Statistics Sweden provided data on environmental protection expenditure by municipalities and helped to complete the picture.

Data on environmental protection (EP) expenditure in industry have been collected since 1981 through surveys conducted on an adhoc basis by Statistics Sweden. Since 1997, the surveys are conducted and published on an annual basis<sup>28</sup>. However, due to changes in the definition and scope of "environmental protection expenditure" data collected since 1997 cannot be compared to data from earlier surveys. Recent data are in line with SERIEE definitions and with the OECD/Eurostat questionnaire, whereas older data are incomplete and seen as rough estimates (Björzell, 1993<sup>29</sup>). Since 2001, data collection is mandatory according to Swedish law ( law on official statistics) and to the European Union regulation on structural business statistics.

Data on expenditure by specialised producers are derived from enterprise statistics for ISIC/NACE 90.

**VARIABLES AND ENVIRONMENTAL DOMAINS**

The surveys on EP expenditure by enterprises cover both investment (end-of-pipe and integrated investments) and current expenditure (internal current expenditure and payments for bought services and fees) for the following domains: water, waste, air and other (including noise, soil and groundwater, as well as landscape and biodiversity). For the year 2000, only data on investments were collected.

The 1991 survey on expenditure by local governments covered the treatment and collection of waste water and solid waste, as well as air and noise. Central government data encompass in principle, all environmental media, but since details by domain are not available, they are included as a whole under "Other" for the year 1991. The group "other" consists, apart from the government grants, largely of expenditure on general administration associated with municipal environmental programmes. 1991 data concerning the central government refer to government grants/appropriations for environmental protection; they include some transfers, both to companies and the rest of the world, as well as investments e.g. in land. The figures for solid waste refer to estimated expenditure associated with the collection and treatment of household, industrial and hazardous waste. Receipts for waste include the value of heat from waste incineration.

In the Swedish state budget, SEK 48 million is allocated to the national environmental monitoring programme for the fiscal year 1998-99.

**ECONOMIC SECTORS**

The public sector includes for the year 1991 central government as well as municipal waste and waste water departments operating within ISIC/NACE 90. For the years 1997-2000 it includes general government, i.e. administration of non-market activities provided free of charge or with fees covering only a small part of the total costs. Hence, data for 1991 cannot be compared to data for 1997-2000.

The business sector covers enterprises with 20 employees or more within ISIC/NACE 10-41, i.e. mining and quarrying (ISIC/NACE 10-14), manufacturing (ISIC/NACE 15-36), and electricity, gas and water supply (ISIC/NACE 40-41). The sample is around 1000 enterprises.

Specialised producers of EP services cover private and public enterprises operating within ISIC/NACE 90 regardless of their size. Municipal departments operating in the waste and the wastewater fields are not covered. A breakdown into public and private specialised producers is not available.

Data on PAC expenditure by households are not available.

<sup>28</sup> *Environmental protection expenditure in industry 2001, Statistics Sweden, 2002*

For further details see Statistics Sweden's website at [www.scb.se](http://www.scb.se).

<sup>29</sup> Björzell M. (1993): *Environmental Expenditures in the Swedish Manufacturing Industries, An Inventory of Problems, Statistics Sweden, in Contributions of Member States and EFTA countries to the SERIEE system, Eurostat F3, Luxembourg, 1994.*

## SWEDEN

Million of kronor at 1995 prices

SWE, million SEK	Pollution Abatement and Control (PAC)					TOTAL	Biodiversity & Landscape
	Waste water	Waste	Air	Other (a)			
<b>PUBLIC SECTOR b)</b>							
<b>1991</b>	Investment expenditure	2362	393	..	..	2756	..
	+ Internal current expenditure c)	3385	3897	..	3363	10646	..
	- Receipts from by-products	..	428	..	..	428	..
	= Expenditure 1	5747	3862	..	..	12973	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	5601	3886	..	..	9488	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	..	..	..	..	327	..
	+ Internal current expenditure c)	..	..	..	..	3018	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	3345	..
	+ Subsidies, transfers	..	..	..	..	26	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	1990	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	..	..	..	..	228	..
	+ Internal current expenditure c)	..	..	..	..	2960	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	3189	..
	+ Subsidies, transfers	..	..	..	..	14	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	2219	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	..	..	..	..	277	..
	+ Internal current expenditure c)	..	..	..	..	2585	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	2862	..
	+ Subsidies, transfers	..	..	..	..	0	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	1825	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	..	..	..	..	693	..
	+ Internal current expenditure c)	..	..	..	..	3279	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	3972	..
	+ Subsidies, transfers	..	..	..	..	496	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	2706	..
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR D,E)</b>							
<b>1999</b>	Investment expenditure	..	..	..	308	2734	..
	Of which end-of-pipe	..	..	..	233	1307	..
	+ Internal current expenditure c)	1384	1059	..	1470	4370	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	1778	7105	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	1930	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	860	..	1167	442	2470	..
	Of which end-of-pipe	..	..	..	..	1670	..
	+ Internal current expenditure c)	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..

SWE, million SEK	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other (a)	TOTAL		
<b>◆ Mining and quarrying d)</b>							
<b>1999</b>	Investment expenditure	4	30	2	24	63	..
	+ Internal current expenditure c)	25	5	22	49	104	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	30	36	25	74	167	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	28	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	4	71	17	23	118	..
<b>◆ Manufacturing d)</b>							
<b>1999</b>	Investment expenditure	666	200	1166	244	2277	..
	+ Internal current expenditure c)	1310	1015	424	1182	3933	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1976	1216	1591	1427	6211	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	1797	..
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	842	178	924	286	2232	..
<b>PRIVATE &amp; PUBLIC SPECIALISED PRODUCERS OF EP F)</b>							
<b>1997</b>	Investment expenditure	305	942	..	..	1247	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure c)	474	4863	..	..	5338	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	780	5806	..	..	6586	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	700	5591	..	..	6291	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	108	824	..	..	933	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure c)	493	5583	..	..	6077	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	602	6407	..	..	7010	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	685	6464	..	..	7149	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	250	930	..	..	1180	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure c)	393	5928	..	..	6322	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	643	6858	..	..	7502	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	546	6923	..	..	7470	..
	= Expenditure 2	..	..	..	..	..	..

## Notes:

- a) Business sector "Other ": includes soil, noise, nature protection and general administration.
- b) Public sector: 1991 data include public specialised producers; cannot be compared to data for 1997-2000 since stemming from different sources. From 1997, data refer to Eurostat estimates for general government expenditure on environmental protection based on NewCronos National accounts data and on COFOG.
- c) Data refer to total current expenditure, including fees and payments to the public and private sectors for bought services.
- d) Business sector: enterprises with 20 employees or more.
- e) Business sector: includes only ISIC/NACE 10-41.
- f) Data cover all enterprises with one employee or more operating within ISIC/NACE 90.

## SWITZERLAND

<b>SOURCES AND DEFINITION</b>	<p>The Federal Statistical Office of Switzerland carried out a pilot survey on PAC expenditure in 1994. The pilot survey was based on the OECD PAC expenditure concepts and is therefore also compatible with the Eurostat SERIEE system. The pilot study (Bundesamt für Statistik, 1996<sup>30</sup>) contains data on public sector PAC expenditure for 1992 and business sector expenditure for 1993.</p> <p>From 1996, administrative data have been used to estimate the public sector PAC expenditures at all levels of administration, <i>i.e.</i> the federal government, the cantons, and the municipalities. Also included are public enterprises with the exception of household waste incineration installations.</p>
<b>VARIABLES AND ENVIRONMENTAL DOMAINS</b>	<p>Pilot survey: the environmental domains covered include wastewater, waste, air and other (including noise, soil and biodiversity &amp; landscape).</p> <p>Provisional data for the public sector since 1996: the environmental domains covered include wastewater, waste, biodiversity &amp; landscape and other (including air, noise and other).</p>
<b>ECONOMIC SECTORS</b>	<p>For the <u>public sector</u>, receipts from by-products are negligible and have not been estimated separately. From 1996, data are provisional estimates.</p>

<sup>30</sup> Bundesamt für Statistik (1996): *Umweltausgaben und -investitionen in der Schweiz 1992/1993, Ergebnisse einer Pilotstudie 2 Raum, Landschaft und Umwelt*, Bern.

## SWITZERLAND

Million Swiss francs at 1995 prices

CHE, million CHF	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR a)</b>							
<b>1992</b>	Investment expenditure	585	488	15	65	1156	..
	+ Internal current expenditure	875	977	64	427	2344	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1461	1465	80	492	3500	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	879	663	10	14	1568	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure b)	1020	181	..	31	1233	47
	+ Internal current expenditure c)	824	903	..	207	1935	55
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1844	1085	..	238	3169	102
	+ Subsidies, transfers d)	..	..	..	..	..	155
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues e)	1373	675	..	33	2082	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure b)	1139	152	..	51	1343	58
	+ Internal current expenditure c)	830	872	..	213	1916	50
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1970	1025	..	265	3260	108
	+ Subsidies, transfers d)	..	..	..	..	..	159
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues e)	1499	678	..	28	2206	..
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure b)	1083	143	..	66	1293	56
	+ Internal current expenditure c)	833	897	..	210	1941	64
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1916	1041	..	276	3234	120
	+ Subsidies, transfers d)	..	..	..	..	..	148
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues e)	1457	699	..	27	2184	..
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR</b>							
<b>1993</b>	Investment expenditure	226	206	538	201	1173	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	213	268	101	288	871	..
	- Receipts from by-products	0	35	0	4	40	..
	= Expenditure 1	439	439	638	486	2004	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..

## Notes:

- a) Public sector: from 1997, data are provisional estimates and "other" also includes expenditure on "air" and "noise".  
b) Public sector Investment expenditure: include Subsidies, transfers paid to other sectors.  
c) Public internal current expenditure: include both Subsidies, transfers paid to other sectors and payment for environmental services.  
d) Subsidies, transfers: Ecological direct payments to agriculture.  
e) Revenues other than those received for the provision of environmental services.



## TURKEY

### SOURCES AND DEFINITION

The following characteristic activities are included in the PAC expenditure tables: wastewater; waste; air ; biodiversity & landscape and other.

### ECONOMIC SECTORS

Public sector data include public specialised producers of EP services

Business sector covers, manufacturing and energy and water supply.

Environment-related investment can be financed from 20 funds in the general budget, notably for pollution prevention, national parks, afforestation, ORKÖY (forest villages), municipalities, special provincial administrations, special settlements, reform, support to and development of housing, upgrading of traffic services, tourism, improvement of health services and new settlements, earthquakes and natural disaster relief.

Revenues of the Environmental Pollution Prevention Fund, created in 1991, are generated by motor vehicle inspection fees (20 per cent) and auto sales taxes (25 per cent), the remainder being provided by plane ticket taxes (0.5 per cent of the price) and air and sea cargo taxes. In 1996, revenues were USD 346 million and outlays were USD 184 million, for 182 projects on reforestation, sewerage and drainage, stream rehabilitation and geothermal energy development. The Fund also supports research and training, protection of biodiversity and environmental clean-up.

About 56 % of environment-related public investment is made by local governments.

## TURKEY

Million liras at 1995 prices

TUR, million TRL	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR</b>							
<b>1996</b>	Investment expenditure	3351023	314	2413	9190158	1254390	108825
	+ Internal current expenditure	..	..	55	71493	71549	4286
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	2469	9261652	1261545	113111
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	1080873	1954544	14538	1984747	3262528	69329
	+ Internal current expenditure	1461487	1761845	..	2049200	3957194	1155
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	1227022	1957300	..	4033947	7219723	70485
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR</b>							
<b>1996</b>	Investment expenditure	36899	..	2387577	..	2424477	..
	Of which end-of-pipe	36899	..	888811	..	925711	..
	+ Internal current expenditure	..	..	..	..	..	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	..	..	..	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	1490001	653852	6207640	120824	8472319	..
	Of which end-of-pipe	1490001	653852	2035934	..	4179789	..
	+ Internal current expenditure	1085864	4049733	4966879	232280	1033475	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2575866	4703586	1117451	353105	1880707	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	..	..	248201	..	248201	..
	Of which end-of-pipe	..	..	248201	..	248201	..
	+ Internal current expenditure	2720	4350502	4459931	194	8813349	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	4708133	..	9061551	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>♦ Manufacturing</b>							
<b>1997</b>	Investment expenditure	1440392	637448	620285	120824	2818951	..
	Of which end-of-pipe	1440392	637448	620285	..	2698126	..
	+ Internal current expenditure	1082583	..	750618	231980	2065182	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	2522975	..	1370904	352805	4884133	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..

TUR, million TRL		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>◆ Electricity, gas and water supply</b>							
<b>1997</b>	Investment expenditure	49609	16404	5587354	..	5653368	..
	Of which end-of-pipe	49609	16404	1415649	..	1481662	..
	+ Internal current expenditure	3281	4048613	4216260	299	8268455	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	52891	4065017	9803615	..	1392182	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	..	..	248201	..	248201	..
	Of which end-of-pipe	..	..	248201	..	248201	..
	+ Internal current expenditure	2720	4350502	4459931	194	8813349	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	..	..	4708133	..	9061551	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..

## UNITED KINGDOM

**SOURCES AND DEFINITION**

The 1990 estimates were based on a study conducted by ECOTEC and commissioned by the Department of the Environment (HMSO, 1993<sup>31</sup>) using published information and market research. The 1990 estimates should be regarded as indicating broad orders of magnitude only.

The 1994 estimates are derived from a survey (HMSO, 1996<sup>32</sup>), also conducted by ECOTEC, of the mining, manufacturing, energy supply and water industries. These estimates are considered to be the most reliable of all the estimates for these industries.

The results for 1994 are not comparable with business sector spending for earlier years because they do not cover all industries and because they are based on a new survey rather than more limited published information and market research.

It is an annual survey which is being carried out by URS Corporation Ltd on behalf of the Department for Environment, Food and Rural Affairs. One can find information about the survey on : [www.defra.gov.uk/environment/statistics/index.htm](http://www.defra.gov.uk/environment/statistics/index.htm)

**VARIABLES AND ENVIRONMENTAL DOMAINS**

The following environmental domains are covered: wastewater, waste, air, soil and groundwater, noise, biodiversity & landscape and other. The other category in the monograph includes soil and groundwater, noise and other.

**ECONOMIC SECTORS**

Public specialised producers of EP services are included in Public sector.

Business sector only covers quarrying, manufacturing and energy supply.

<sup>31</sup> HMSO (1993): *A Review of UK Environmental Expenditure, A Final Report to the Department of the Environment by Ecotec Research and Consulting Ltd, London.*

<sup>32</sup> HMSO (1996): *Environmental Protection Expenditure by Industry, A survey of environmental protection expenditure by extraction, manufacturing, energy and water supply industries in the UK, Department of the Environment.*

## UNITED KINGDOM

Million pounds at 1995 prices

UKD, million GBP	Pollution Abatement and Control (PAC)					Biodiversity & Landscape	
	Waste water	Waste	Air	Other	TOTAL		
<b>PUBLIC SECTOR A)</b>							
<b>1990</b>	Investment expenditure	107	..	..	131	239	..
	+ Internal current expenditure	340	..	561	97	1000	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	448	1391	..	229	2068	..
	+ Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1997</b>	Investment expenditure	5	76	7	125	214	25
	+ Internal current expenditure	175	2486	73	377	3112	324
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	181	2563	80	502	3327	350
	+ Subsidies, transfers	37	0	185	280	504	64
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	91	349	15	68	524	24
	= Expenditure 2	..	..	..	..	..	..
<b>1998</b>	Investment expenditure	4	61	12	113	192	23
	+ Internal current expenditure	175	2624	68	372	3241	331
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	180	2685	80	486	3433	355
	+ Subsidies, transfers	29	0	184	305	520	65
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	90	385	18	63	559	24
	= Expenditure 2	..	..	..	..	..	..
<b>1999</b>	Investment expenditure	6	57	8	112	184	26
	+ Internal current expenditure	170	2724	75	377	3348	367
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	177	2782	83	490	3533	393
	+ Subsidies, transfers	26	1	150	301	479	65
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	92	402	21	66	582	27
	= Expenditure 2	..	..	..	..	..	..
<b>2000</b>	Investment expenditure	6	50	7	104	169	25
	+ Internal current expenditure	152	2815	81	381	3431	389
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	159	2865	89	486	3601	414
	+ Subsidies, transfers	28	1	178	329	537	66
	+ Fees, purchases	..	..	..	..	..	..
	- Revenues	76	443	29	67	617	28
	= Expenditure 2	..	..	..	..	..	..
<b>BUSINESS SECTOR b)</b>							
<b>1990</b>	Investment expenditure	313	..	563	..	877	..
	Of which end-of-pipe	..	..	..	..	..	..
	+ Internal current expenditure	343	..	591	..	934	..
	- Receipts from by-products	..	..	..	..	..	..
	= Expenditure 1	656	1537	1155	314	3662	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..
<b>1994</b>	Investment expenditure	350	154	617	143	1265	..
	Of which end-of-pipe	320	115	445	91	973	..
	+ Internal current expenditure	697	379	81	9	1167	..
	- Receipts from by-products	..	90	..	..	90	..
	= Expenditure 1	1047	443	698	152	2342	..
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	..	..	..	..	..	..
	= Expenditure 2	..	..	..	..	..	..

UKD, million GBP		Pollution Abatement and Control (PAC)					Biodiversity & Landscape
		Waste water	Waste	Air	Other	TOTAL	
<b>1999</b>	Investment expenditure	251	100	655	226	1234	25
	Of which end-of-pipe	133	53	347	121	655	13
	+ Internal current expenditure	269	271	343	237	1121	24
	- Receipts from by-products	..	..	..	..	191	..
	= Expenditure 1	520	372	999	463	2166	49
	- Subsidies, transfers	..	..	..	..	14	..
	+ Fees, purchases	..	..	..	..	1233	..
	= Expenditure 2	..	..	..	..	3434	..
<b>2000</b>	Investment expenditure	202	178	627	261	1269	87
	Of which end-of-pipe	146	99	246	67	560	38
	+ Internal current expenditure	258	272	306	148	986	20
	- Receipts from by-products	..	..	..	..	187	..
	= Expenditure 1	460	450	933	410	2068	107
	- Subsidies, transfers	..	..	..	..	2	..
	+ Fees, purchases	463	581	21	240	1448	0
	= Expenditure 2	..	..	..	..	3621	..
<b>♦ Mining and quarrying</b>							
<b>2000</b>	Investment expenditure	13	47	81	16	158	46
	Of which end-of-pipe	8	24	26	4	64	23
	+ Internal current expenditure	16	14	17	11	60	7
	- Receipts from by-products	..	..	..	..	1	..
	= Expenditure 1	30	62	98	27	217	53
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	6	57	0	79	176	0
	= Expenditure 2	..	..	..	..	447	..
<b>♦ Manufacturing</b>							
<b>2000</b>	Investment expenditure	182	117	440	212	952	20
	Of which end-of-pipe	133	63	206	57	461	7
	+ Internal current expenditure	239	219	228	125	812	8
	- Receipts from by-products	..	..	..	..	178	..
	= Expenditure 1	421	337	668	338	1588	28
	- Subsidies, transfers	..	..	..	..	2	..
	+ Fees, purchases	450	487	21	94	1159	0
	= Expenditure 2	..	..	..	..	2772	..
<b>♦ Electricity, gas and water supply</b>							
<b>2000</b>	Investment expenditure	6	13	105	32	158	21
	Of which end-of-pipe	4	10	13	6	35	6
	+ Internal current expenditure	2	37	60	12	112	4
	- Receipts from by-products	..	..	..	..	8	..
	= Expenditure 1	9	51	166	44	263	26
	- Subsidies, transfers	..	..	..	..	..	..
	+ Fees, purchases	7	35	0	65	112	0
	= Expenditure 2	..	..	..	..	402	..

## Notes:

a) Public sector: Includes expenditure by public specialised producers.

b) Business sector: NACE C, D &amp; E. only.

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(1997): Spain.

(1997): Korea.

(1997): Finland.

(1997): Belarus.

(1998): Mexico.

(1998): Australia.

(1998): Switzerland.

(1998): Belgium.

(1999): Czech Republic.

(1999): Denmark.

(1999): Turkey.

(1999): Russia

(2000): Hungary.

(2000): Greece.

(2000): Ireland.

(2000): Luxembourg.

(2002): Slovak Republic.

#### *Second cycle of reviews*

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