SoER **2004** Portugal

State of the Environment Report 2004

POCKET BOOK

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Introduction

The State of the Environment Report 2004 – Pocket Book is a new initiative to meet the objective of providing environmental data in a more accessible way to a broader audience.

This publication offers a concise version of the State of the Environment Report 2004 (SoER 2004), and includes the same number of key indicators. The format and contents allow for a quick and broad assessment of the implementation of environmental strategies, policies, plans and programmes in Portugal, as well as the country's capacity to meet the objectives and targets to which it is committed.

The Pocket Book can be downloaded from the Institute for the Environment website (www.iambiente.pt). Further information on the indicators presented in this publication can be obtained from the SoER 2004, also available at the same site.

The Institute for the Environment welcomes comments and suggestions for future editions.

**Classification used in the qualitative assessment of the key indicators:**

- ● No progress or negative trend
- ● Progress, but not enough to reach objectives and targets
- ● Positive trend, indicating satisfactory progress towards objectives and targets

1 ○ ● ○ GDP, Energy Consumption and Environmental Impacts

GDP, ENERGY CONSUMPTION AND ENVIRONMENTAL IMPACTS
(1990=100)

Source: INE, 2005; DGGE, 2005; IA, 2005
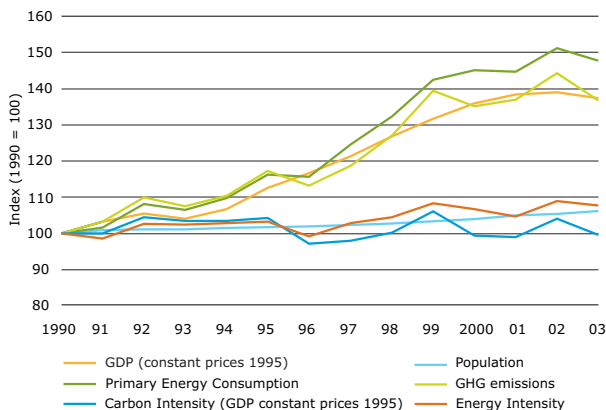
Between 1990 and 2003, the energy and carbon intensities – expressed as primary energy consumption and GHG emissions per unit of GDP – were fairly stable, although a reduction is desirable in order to optimize the resources and bringing down the harmful impacts on the environment. The gradual and widespread introduction of natural gas and renewable energy sources, the improvements in the quality of fossil fuels and the promotion of energy and technology efficiency in some industrial processes have added up to the positive evolution of these indicators.
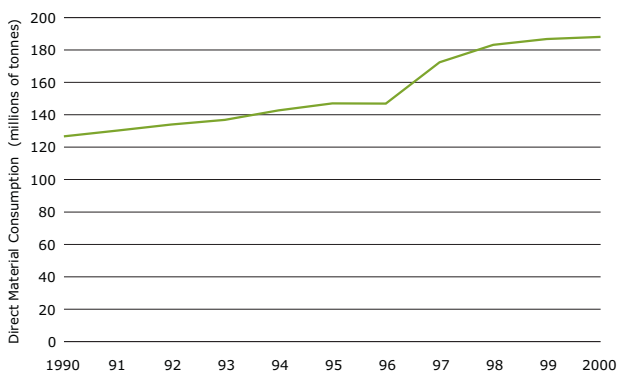
Comparing Portugal with the EU-15 average, there has been a converging trend with regard to GHG reductions per unit GDP over the last decade. On the other hand, energy consumption per GDP is still rising, unlike the EU trend.

Direct Material Consumption

2

Source: INE, 2005

Direct Material Consumption (DMC) is measured by the sum of all materials with economic value extracted in the country (domestic extraction), as well as all imported materials, including raw-materials, semi-finished and finished products. These include biotic materials – raw-materials from activities such as farming, forestry and fishing – and all abiotic materials – raw--materials of mineral base such as fossil fuels, construction and industrial minerals.

Between 1990 and 2000, the DMC increased from 127 million tonnes to 188 million tonnes, corresponding roughly to 13 and 19 tonnes per capita, respectively. In the same period, there was an increasing demand for mate-rials extracted domestically or imported to cover the growing production and consumption demand. In the overall grouping of DMC materials, "Minerals" were the most extracted, followed by "Biomass". From 1994 onwards, "Imports" have overtaken "Biomass" and have since shown a rising trend.

3 Unemployment rate

MALE AND FEMALE UNEMPLOYMENT RATE IN PORTUGAL
AND EU-15
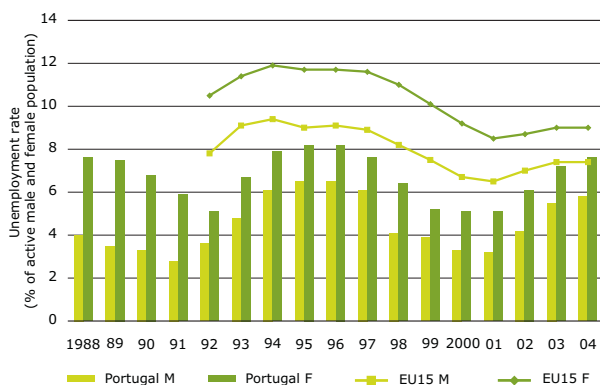
Source: INE, 2005; Eurostat, 2005

Note: There was a methodological change from 1998 onwards.

The Portuguese unemployment rate has been rising since 2001, in line with unfavourable economic circumstances. In 2004 the average unemployment rate reached 6.7%, the highest value since 1998 and 6.3% higher than that of 2003. The 25-34 year age group recorded the highest unemployment growth between 2000 and 2004. In the European context, Portugal's unemployment rate in 2004 was in the middle range and slightly below the average for the group of EU-25 countries (9%). As for long-term unemployment, Portugal had a rate of 3% in 2004, also below the EU-15 and EU-25 averages, though it has roughly doubled the rate of 2001.

At-risk-of-poverty rate

4

AT-RISK-OF-POVERTY RATE BEFORE SOCIAL TRANSFERS

Source: Eurostat, 2005
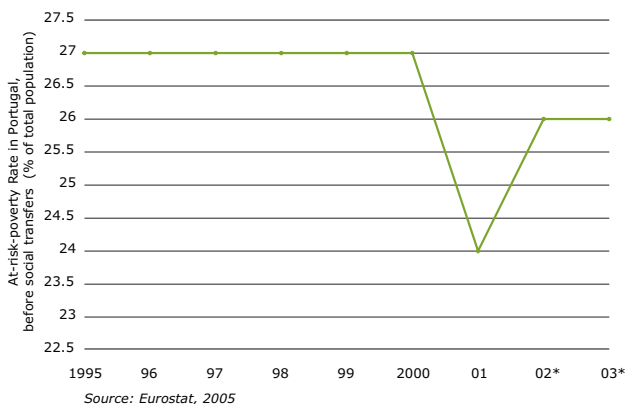
Note: * Data for 2002 and 2003 is provisional.

The at-risk-of-poverty rate is measured by the percentage of the population whose income per adult equivalent, before social transfers, is below the risk-of-poverty threshold (a value corresponding to 60% of national median equivalised disposable income per adult equivalent, where the number of "adult equivalent" is calculated using the OECD-modified scale, which assigns a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child).

In 2001, the at-risk-of-poverty rate in the EU-15, before social transfers, ranged between a low of 22% in Holland, Austria, Italy and Germany, and a high of 30% in Ireland, while in Portugal this figure was at 24% of the population. In the same year, Sweden, Denmark and Finland had rates between 9% and 11% after social transfers, the lowest in the EU-15 group. Meanwhile, Greece, Ireland and Portugal, with rates between 20% and 21%, had the highest share of the population living below the poverty threshold. This situation highlights the fact that social transfers play an important role in reducing the poverty problem.

In Portugal there is still a high risk of poverty, even after social transfers, as can be seen by the worsening phenomenon of social exclusion, due to the absence of other mechanisms effective enough to change the conditions of the population below the poverty threshold.

5 Environmental Management Systems

NUMBER OF ORGANISATIONS WITH ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS) CERTIFIED UNDER THE INTERNATIONAL STANDARD ISO 14001 AND REGISTERED IN ENVIRONMENTAL MANAGEMENT AND AUDIT SCHEME (EMAS)
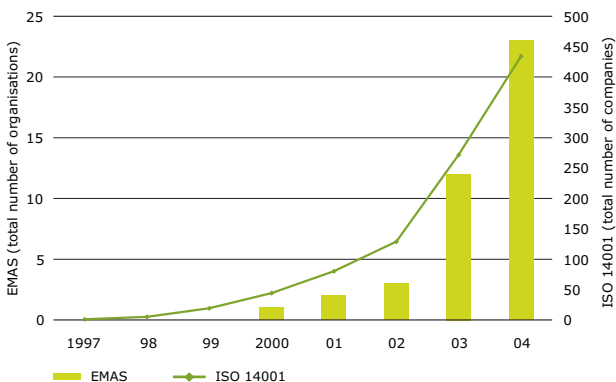
Source: IA, 2005; APCER, BVQI, DNV, ICS Portugal, IPQ, Lloyd's Register, SGS, TUV, 2005

The EU Environmental Management and Audit Scheme (EMAS) and the International Standard ISO 14001 have been implemented by a growing number of companies and other organisations. In 2004, Portugal recorded a rather positive increase in the use of these two key environmental management instruments – ISO 14001 and EMAS.

The first EMAS registration of a Portuguese organisation took place in 2001. In 2004, there were 23 organisations already registered.

There has also been an upward trend with regard to ISO 14001 certifications, with 434 organisations certified by 2004. Portugal occupies the 11th position in the EU-25 ranking of EMAS certification.

Implementation of Community Law

6

NON-COMPLIANCE IN THE TRANSPOSITION OF COMMUNITY
DIRECTIVES IN PORTUGAL – TOTAL DIRECTIVES
AND ENVIRONMENT-RELATED DIRECTIVES
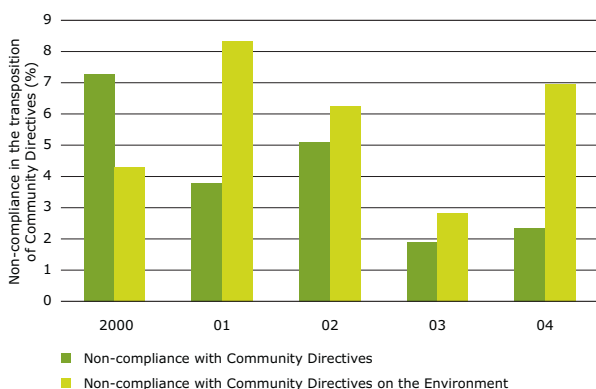
■ Non-compliance with Community Directives
■ Non-compliance with Community Directives on the Environment
Source: European Commission, 2005

This indicator provides a snapshot of the Portuguese situation with regard to the level of non-compliance in the transposition of Community Directives into national legislation, with special focus on those with an environmental context. In 2004, 187 of the 2 537 Community Directives were related to environmental themes. Of these, about 7% are yet to be transposed into national law. In the same year, Portugal was in 15th place in the list of EU-25 countries in terms of implementation of Community Law.

7 ● Greenhouse Gas Emissions
○
○

GREENHOUSE GAS (N_2O, CH_4, CO_2) EMISSIONS AND COMMITMENTS
FOR THE PERIOD 2008-2012
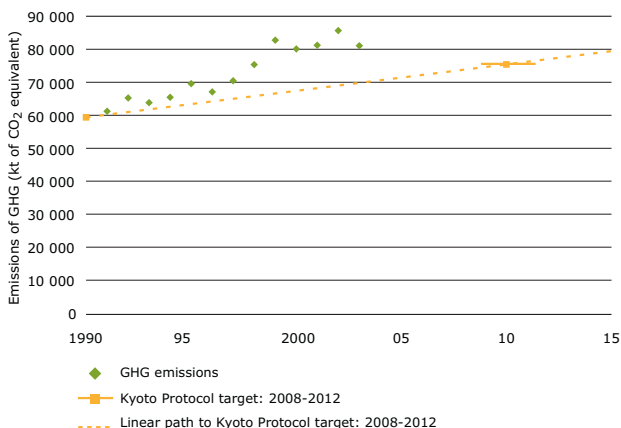
Source: IA, 2005

In 2003, greenhouse gas emissions (GHG) were 37% above the emissions levels of 1990 thus, exceeding by about 10% the 27% target agreed with EU Member States for the period 2008-2012, in the context of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC). This includes only the main gases - carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) - and excludes emissions from land use change, including those from forest fires which were high in 2003. The increase in GHG, measured in terms of CO_2 equivalent, is of the result of a 47% increase in CO_2, 8% in CH_4 and 5% in N_2O. The remaining GHG considered in the UNFCCC - SF_6, PFC and HFC – were responsible for about 0,09% of total emissions in 2003.

Carbon dioxide, the main gas responsible for the greenhouse effect, represented in 2003 about 79% of the total emissions in Portugal, followed by CH_4 (13%) and N_2O (8%). The energy sector accounts for the bulk of CO_2 emissions, while agriculture and waste sectors are responsible for N_2O emissions.
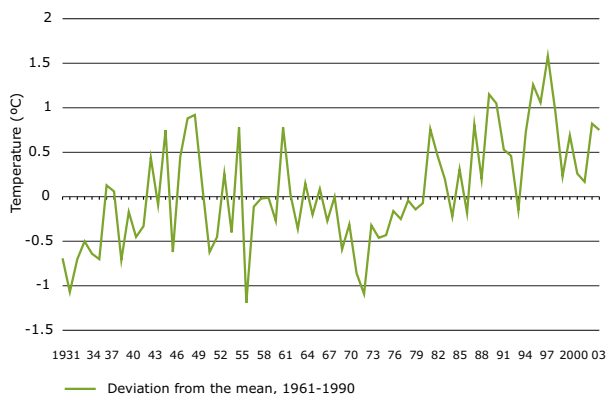
In 2003 it should be noted, however, that Portugal had one of the lowest per capita CO_2 equivalent emissions of the EU-25 countries.

Surface air temperature

MEAN ANNUAL AIR TEMPERATURE AND DEVIATION FROM THE MEAN, 1961-1990

Deviation from the mean, 1961-1990

Source: IM, 2005

In 2004, the mean air temperature was 15.8ºC, roughly 0.8% above the average value for 1961-1990. Analysing the monthly data, only March, November and December recorded below average mean air temperatures. June was exceptionally hot and the warmest since 1931, thus contributing to the intensity and extension of forest fires, which also occurred throughout the month of July. In August the temperatures were below average maximum air temperatures and precipitation was well above average, which may have contributed to a reduction in the number of forest fires relative to the previous year.

In relation to annual averages, the mean maximum temperature was 21.1ºC, 0.7ºC above the average value, and the mean minimum temperature was 10.4ºC, 0.7ºC above the average. 2004 was, therefore, the 18th consecutive year with minimum temperatures above average .

One of the reasons for this situation may be the absence of effective and coordinated policies and consistent efforts aimed at reducing the anthropogenic causes of climate change.

9 Rainfall

Deviations from the 1961-1990 mean of total annual rainfall



Deviation from the mean 1961-1990
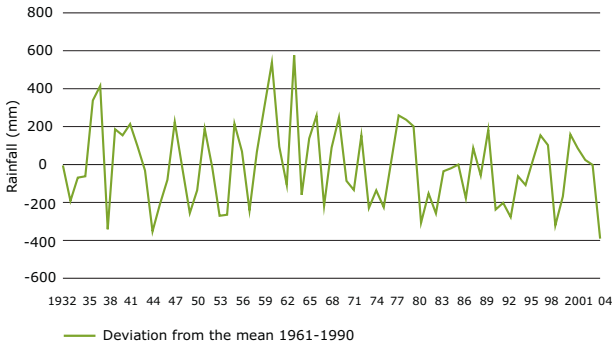
Source: IM, 2005

The lowest value for total annual rainfall since 1931 was observed in 2004; with rainfall figures well below the 1961-1990 average and with 2004 classified as extremely dry. During the course of the year, only the months of August and October saw rainfall figures above average. Associated to this lack of rainfall was a period of widespread drought affecting a significant part of the Portuguese mainland, which, by December 31st, suffered mild to extreme drought intensities (30% mild, 20% severe and 2% extreme drought). This led to adverse socio-economic effects mainly affecting the agriculture and livestock sectors and drawing down water reserves, especially in the southern regions.

Renewable Energy

CONTRIBUTION OF RENEWABLE ENERGY SOURCES TO THE NATIONAL ENERGY BALANCE

Source: DGGE, 2005
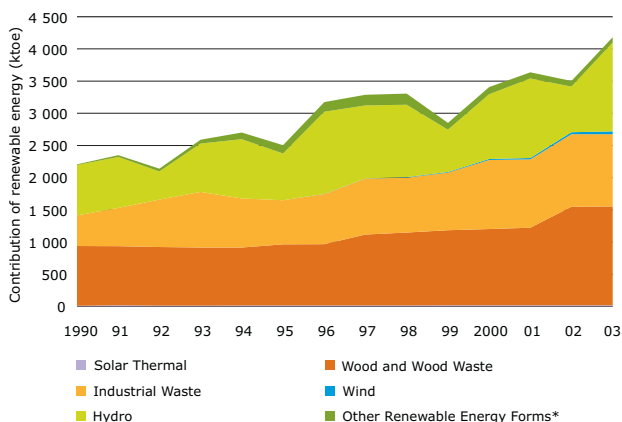
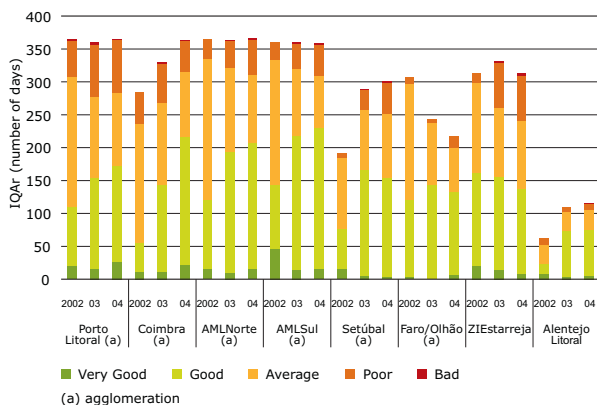Note: toe - tonnes of oil equivalent, equivalent to 10^7 kcal.

* Includes solar photovoltaic, geothermal of low and high enthalpy, heat pumps, biogas and charcoal.

The promotion of alternative energy use is an important aspect of compliance with climate change commitments. It is also important for improving energy and carbon efficiencies.

Portugal has very few fossil energy resources, and is therefore significantly dependent on imports. Since 1995, when coal extraction ceased, primary energy production has been entirely obtained from renewable energy sources (RES). Traditionally, the contribution of RES to the total of primary energy consumption came from hydropower and biomass, in particular from forest products. However, wind energy has shown the highest annual average growth (51.7%), reaching 616 MW of installed capacity by 2004. In this year alone there was a 363 MW increase in installed capacity, representing an increment of 61.5% relative to 2003.

The share of RES in gross consumption of electricity was 36% in 2003, close to the 39% EU target to be achieved by Portugal by 2010.

11 Air Quality

NUMBER OF DAYS IN EACH OF THE AIR QUALITY INDEX CLASSES

■ Very Good ■ Good ■ Average ■ Poor ■ Bad

(a) agglomeration

Source: CCDR, 2005

The pollutants included in the Air Quality Index (IQAr) are: carbon monoxide (CO), nitric dioxide (NO_2), sulphur dioxide (SO_2), ozone (O_3) and particulate matter (thin and inhalable) measured as PM10. IQAr is divided into five classes, ranging from "Very Good" to "Bad", shown by a scale of colours. A different range of concentrations apply for each pollutant, as a function of threshold values. The worst classification obtained for the pollutants analysed determines the index for each zone.

The air quality measurements at the monitoring stations are recorded at a national database, "Qualar", where the IQAr is calculated daily for each of the zones or agglomerations, as well as for the cities of Lisboa and Porto.

Based on the daily Index values for 2004, the predominant IQAr class is "Good", as in previous years. However, in densely populated urban areas or those with some industrial clustering, there is still a significant number of "Poor" or even "Bad" days. This is often observed in the cities of Lisboa and Porto as well as in the Estarreja area. In the former, there has been an increase in the days classified as "Good" and a decrease in the number of occurrence of the "Average" class. However, it was also recorded a simultaneous increase in the days classified as "Poor", usually due to particulate matter and ozone levels.

Exceedance of public information threshold values for tropospheric ozone

EXCEEDANCE OF PUBLIC INFORMATION THRESHOLD VALUES, AND TROPOSPHERIC OZONE MONITORING STATIONS
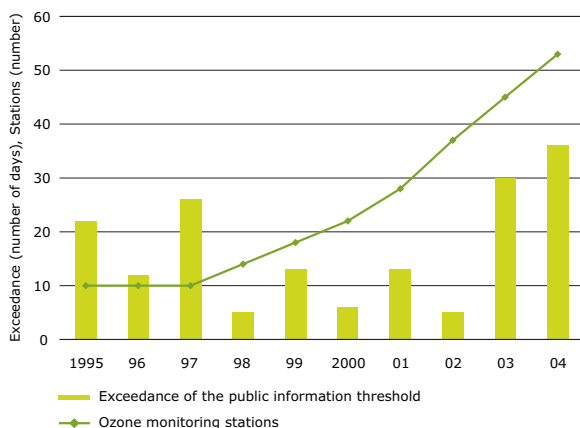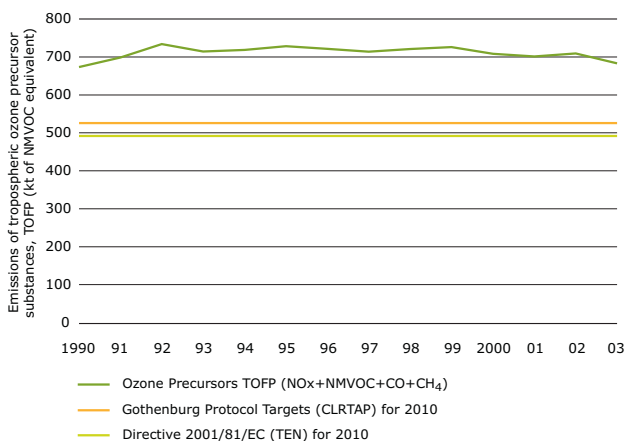

Source: CCDR, 2005

Ozone air pollution result from a complex process involving chemical reactions between nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOC) and oxygen (O_2), in the presence of sunlight. The formation of ozone occurs mainly in seasons of greater sunlight and very stable atmospheric conditions near the surface, as these meteorological conditions allow for a low dispersion of pollutants, thus increasing the probability of reaction among themselves.

The alert threshold is attained each time the average hourly concentrations exceed 240 μg/m^3. Whenever these concentrations are above 180 μg/m^3, the public information level is reached and the general public is duly informed, as required under specific legislation.

In 2004, the number of ozone monitoring stations increased from 45 to 53; most of the occurrences above the public information threshold have been registered by these new stations. Throughout that year, there were 36 days with levels above this threshold in 33 stations, six more when compared with the previous year. This higher incidence of ozone events can be justified by the occurrence of high temperatures throughout the Summer of 2004, combined with the increase in the number of available monitoring stations.

13 ● ○ ○ Emissions of tropospheric ozone precursors

AGGREGATE EMISSIONS OF TROPOSPHERIC OZONE PRECURSOR
SUBSTANCES AND TARGETS FOR 2010

Ozone Precursors TOFP (NOx+NMVOC+CO+CH$_4$)
Gothenburg Protocol Targets (CLRTAP) for 2010
Directive 2001/81/EC (TEN) for 2010

Source: IA, 2005

Note: Weighing / Conversion factors in NMVOC equivalent - TOFP (*Tropospheric Ozone Forming Potential*): NOx=1.22; NMVOC=1.00; CO=0.11; CH$_4$=0.014.

Ground-level ozone, also known as tropospheric ozone, is a pollutant that results from a set of complex photochemical reactions involving pollutants such as nitrogen oxides (NOx), non-methane volatile organic compounds (NM VOC), carbon monoxide (CO) and methane (CH$_4$) – all ozone precursors. In assessing the trends regarding ozone, it is common to use a specific indicator – the Tropospheric Ozone Forming Potential (TOPF) – which results from aggregation of its precursors and measured in NMVOC equivalent, by applying the weighing factors listed above.

Emissions of these gases rose by 1.5% between 1990 and 2003, according to the National Inventory of Air Pollution Emissions. From 2002 to 2003 there was a 4% reduction in the TOPF indicator, with the pollutants with the largest share being NOx (49%) and NMVOC (40%), as in previous years. Over the last few years, the main source of emissions of precursors of tropospheric ozone was the industry sector, followed by the transport sector.

The results obtained in the National Inventory and the TOPF indicator show that current emissions of these pollutants in Portugal are still above the limits established for 2010, indicating the need to adopt adequate mitigation measures in the sectors responsible for the emissions. However, GDP growth has been higher than the rate of increase in the TOFP, showing a relative decoupling of economic growth and the impacts resulting from such emissions.

Emissions of acidification and eutrophication pollutants

14

AGGREGATE EMISSIONS OF ACIDIFICATION AND EUTROPHICATION POLLUTANTS AND TARGETS TO BE REACHED BY 2010
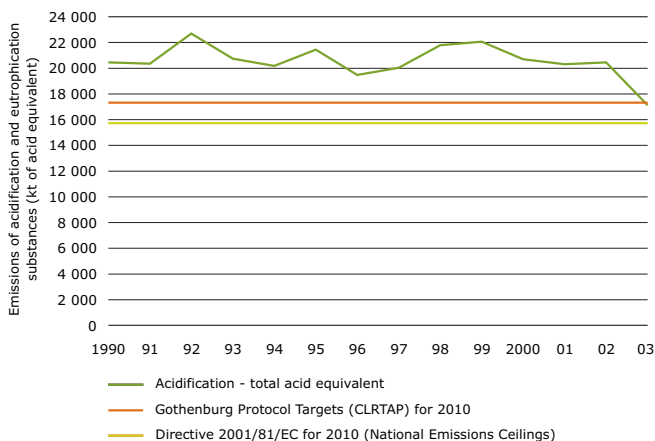

Source: IA, 2005

The gases which emissions contribute to acidification and eutrophication processes are sulphur dioxide (SO_2), nitrogen oxides (NOx) and ammonia (NH_3). Although Portugal's contribution to global emissions is not significant, it has nonetheless agreed to meet the 2010 limits defined in international agreements and was close to meeting those targets by 2003.

In 2003, SO_2 and NOx were responsible in equal proportions for the emissions of acidifying substances (36% and 35%, respectively), while NH_3 was responsible for 29%. The sectors with the most significant contributions to these emissions were energy production and transformation (30%), agriculture (24%), industry (24%) and transport (16%).

In the same year, emissions were reduced by about 16% in relation to 1990 levels, due mainly to the reduction by 37% of the SO_2. NH_3 emissions have not been subject to significant oscillations throughout time. Such reduction in emissions is positive as it occurred during a period of growth in GDP and energy consumption.

15 | Water extraction

VOLUME WITHDRAWN BY CITY COUNCILS, MUNICIPAL SERVICES
FOR WATER AND SANITATION (SMAS) AND OTHER MANAGING
ENTITIES FOR PUBLIC WATER PROVISION (EXCLUDING AGRICULTURE
AND ENERGY SECTORS)

Source: INE, 2005
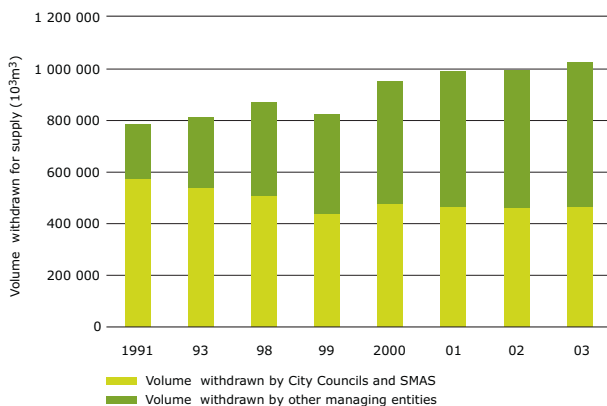
Agriculture and energy sectors are the main consumers of water at the national level, accounting for 75% and 14%, respectively, of the total extracted.

In 2003, the volume withdrawn for public distribution reached 1 028 million m^3, of which 45% were extracted by City Councils and Municipal Services for Water and Sanitation, and the remaining 55% by other entities managing public water supply systems. Most of the volume was withdrawn from groundwater sources.

Water consumption (excluding agriculture and energy) increased by 0.6% relative to 2002, reaching 658 million m^3 in 2003. The largest share was taken up by "Households and Services" (74%), with the remaining being split between "Industry" (15%) and "Others" (11%). Not all the water extracted is effectively used; a significant share, 35%, is due to leakage in the water supply network and consumption inefficiency.

Population served by public water supply

POPULATION SERVED BY PUBLIC WATER SUPPLY, BY NUTS II

1998　1999　2000　2001　2002　2003　PEAASAR target (2000-2006)

Source: INE, 2005
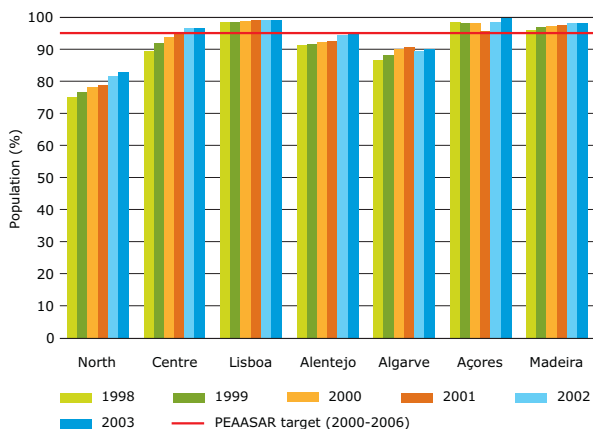
Note: PEAASAR (Strategic Plan for Water Supply, Sewerage and Wastewater Treatment).

In 2003, approximately 92% of the population was served by public water supply. This reflects investments made over the years.

However, there are still some asymmetries between the regions. The regions of Açores and Madeira, as well as the Lisboa region, show the highest percentage of population served with water supply systems; Açores served 99.9% of the population in 2003. In the same year, the North region had still the lowest figures: only 83% of the population had water supplied to their homes.

17 Drinking water quality

INFRINGEMENTS TO THE QUALITY STANDARDS ON DRINKING WATER

Source: IRAR, 2004
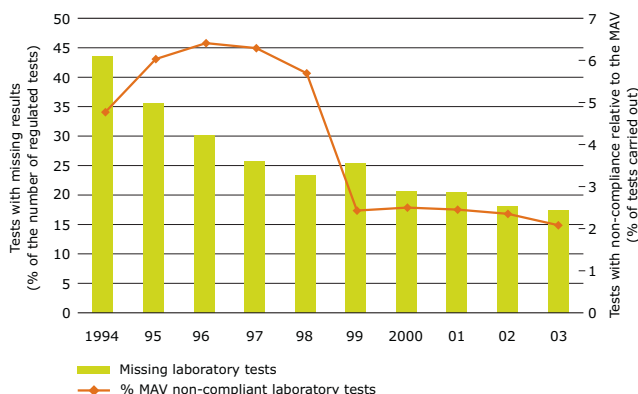
Note: from 1999 onwards, the analysis was based on new legislation.

Following the approval of new legislation in 1998 (Decree-law number 236/98, of August 1st), there was a significant drop in the percentage of infringements to water quality standards. A slight downward trend has been observed since, both in terms of missing laboratory tests and infringements to MAVs (Maximum Admissible Values).

In 2003, there was a reduction in incidents of non-compliance with MAVs by 11.4% compared to the previous year. The most significant infringements to the MAVs were observed for parameters such as manganese (9.1%), iron (6.6%) and total coliforms (6.6%), outlining deficiencies to water treatment, particularly with regard to disinfection processes.

The percentage of absent laboratory tests relative to the minimum legal standards is still significant (17.3%), thus requiring a greater effort by the managing entities. Organoleptic and toxicological parameters are those with the highest rates of non-compliance.

Population with sewerage and wastewater treatment

1 8

POPULATION SERVED BY SEWERAGE AND WASTEWATER TREATMENT
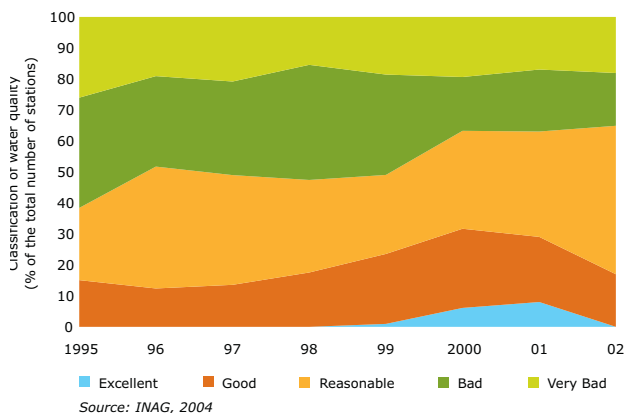FACILITIES (ETAR)
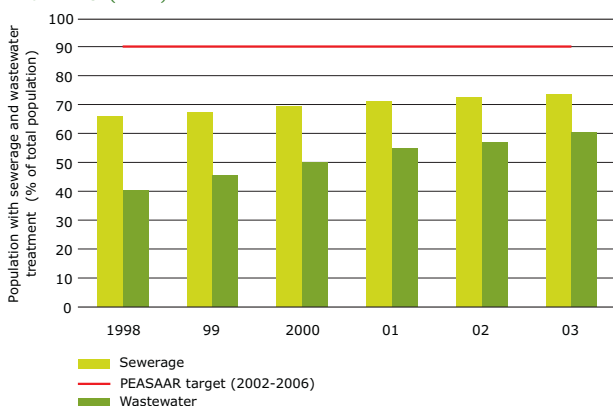
Source: INE, 2005

In 2003, approximately 74% of the population was served by sewerage, 1% more than the previous year, and 60% was served by wastewater treatment facilities, an increase of 3% compared to 2002. Despite these improvements, about 2.8 million inhabitants did not benefit from collection of wastewater, and 4.2 million individuals did not have their wastewater treated. With regard to population served with sewerage, the regions of Lisboa, Alentejo and the Algarve have the highest access rates. The North region, as well as Madeira and Açores still have levels of access below the national average. The same applies to wastewater treatment, although the North region and the Açores have seen the biggest improvements from 2002 to 2003.

Primary treatment was done in 12% of wastewater treatment plants, and 64% had secondary or tertiary treatment. Preliminary treatment was only applied to 6% of the plants.

19 ○ Quality of surface waters and bathing waters

QUALITY OF SURFACE WATERS

Classification of water quality
(% of the total number of stations)

Legend: Excellent | Good | Reasonable | Bad | Very Bad

Source: INAG, 2004

The quality of surface waters is assessed in accordance with the "Classification of Surface Waters for Multiple Uses" wich provides information on the quality of the water. Five quality classifications are considered: "Excellent", "Good", "Reasonable", "Bad" and "Very Bad".

In recent years, the trend in quality of surface waters has shown a reduction in the number of stations classified as "Bad". In 2002, the water quality of about 47% of the stations analysed was considered "Reasonable". However, none of the stations analysed was classified as "Excellent", a situation consistent with the one observed from 1999 to 2001. Among the most worrying situations is the one of Lis river basin, where the water quality in most of the selected stations was considered "Very Bad", as well as the basins of the Ribeiras do Oeste, where this category, although in lower percentage still occurs in 57% of the stations analysed. The basins of the Tejo, Vouga and Guadiana rivers had also "Bad" and "Very Bad" classifications in 2002.
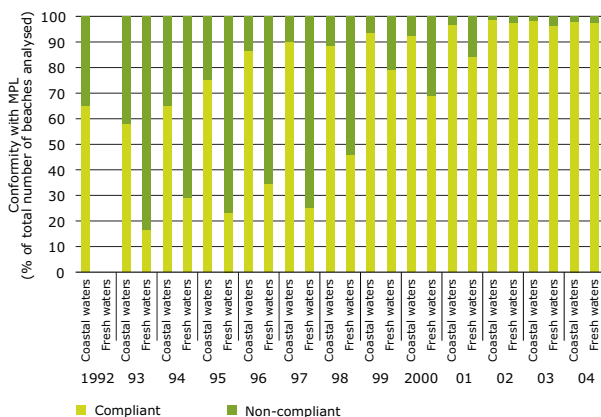
Source: INAG, 2005

Note: MAV – Maximum Admissible Value.

Over the last decade, there has been a significant improvement in the quality of coastal and fresh bathing waters, reflecting the effort that has been made towards ensuring compliance with requirements of national and community legislation, in particular with regard to the mandatory values. Nevertheless, improvements must still be made in order to comply with the more stringent values recommended by legislation.

Soil use

LAND USE IN MAINLAND PORTUGAL, IN 2000, AND CHANGES FROM
1985 TO 2000

Land use changes 1985-2000 (thousands of ha)
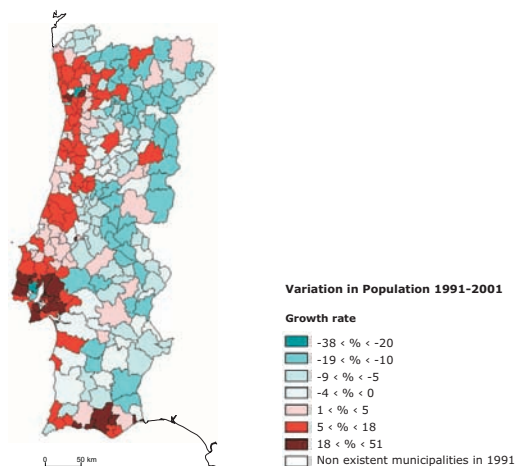
Source: IA, 2005
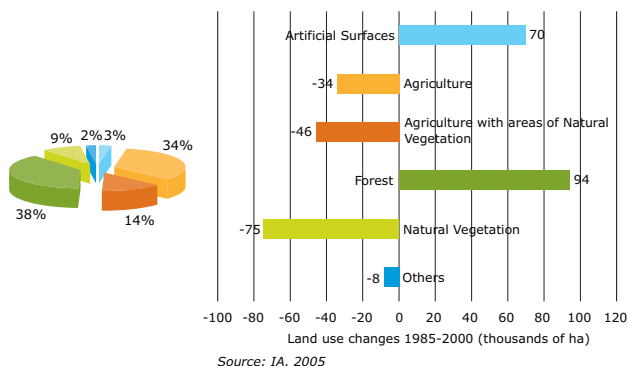
In 2000, "Forest" and "Agriculture" were the land use classes with highest predominance, accounting for 72% of the mainland area (European Programme CORINE Land Cover). The mixed areas of "Agriculture with areas of Natural Vegetation" accounted for 14% of the land cover, while the areas of "Natural Vegetation" and the "Artificial Surfaces" (including urban areas, industry, commerce, installations, transport infrastructure and net-works, etc.) took up only 9% and 3%, respectively. The "Other" category, such as rocky areas, water bodies and wetlands, had little representation (2%). About 41% of national forests were found in the Centre, while the majority of agricultural areas – including both "Agriculture" (43%) and the mixed areas "Agriculture with Areas of Natural Vegetation" (51%) - were concentrated in Alentejo. Lisboa was the region with the highest relative percentage of "Artificial Surfaces" in the country, though in absolute terms this figure is lower in comparison to the North and Centre regions.

From 1985 to 2000, "Forest" and "Artificial Surfaces" were the only two classes that grew (94 000 and 70 000 ha, respectively), with the latter undergoing the most significant positive change (41%). This expansion of artificial surfaces is related to the high economic growth rates during that period as a result of EU structural funds and economic policies adopted.

Population Change and Housing Stock

21

POPULATION GROWTH RATE IN MAINLAND PORTUGAL
(1991 - 2001)

Variation in Population 1991-2001

Growth rate

- -38 < % < -20
- -19 < % < -10
- -9 < % < -5
- -4 < % < 0
- 1 < % < 5
- 5 < % < 18
- 18 < % < 51
- Non existent municipalities in 1991

Source : INE, 1991 e 2001

The trend towards population concentration in the coastal strip between Braga and Setúbal has persisted between 1991 and 2001. There was also a consolidation of the network of middle-sized cities due to population growth in some of the hinterland municipalities around these urban areas, especially in the District capitals and suburbs.

During the same period, there was a population decrease in Alentejo, Northern Interior and Centre regions and in some Tejo Valley areas, in stark contrast with the metropolitan areas of Lisboa and Porto, the coastal areas north of Lisboa and the Algarve, which all have registered strong population growth. However, the process of desertification of historic city centres has been observed also in relation to the metropolitan areas of Lisboa and Porto, which have registered population decrease in those areas.

The housing stock has undergone strong expansion, with the total number of housing units increasing by about 21%. As for regional distribution, the Algarve and Northern region recorded above-average growth rates while the interior regions suffered a decline in the number of units. More than one third of the national housing stock can be found in buildings in the North, followed by the Centre region and Lisboa. The remaining areas account for less than a quarter of the total of buildings in Portugal.

22 Protected Areas with Land Use Plans

PROTECTED AREAS (PA) WITH LAND USE PLANS

Source: ICN, 2005
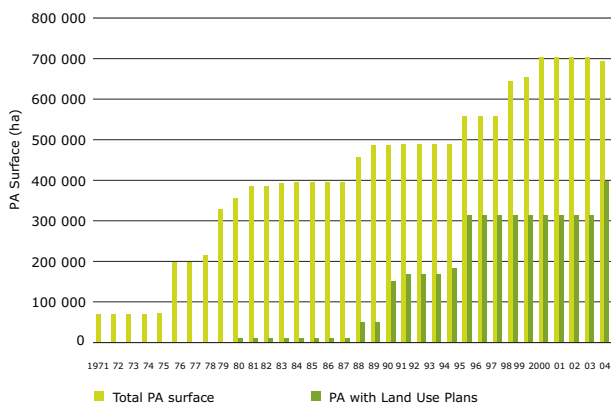
The Land Use Plans for Protected Areas (POAP) define the policy for safe-guarding and conserving these areas, through the regulation of land use and the conditions for land use change, classified by their heritage value.

In 1980, the Preliminary Land Use Plan for the Arrábida Natural Park was approved, followed by Plans for the Natural Parks of Serra de Aire and Serra dos Candeeiros in 1988; and the Plans for the Natural Parks of Serra da Estrela and Ria Formosa in 1990 and 1991, respectively. In 1995, the Plans for the National Parks of Peneda-Gerês and the Natural Park of the Alentejo Southeast and Coast (Costa Vicentina) were approved. In 2004, three other plans were approved and published: the Sintra-Cascais Park, the Natural Reserve of Paúl de Arzila and the Natural Park of Guadiana Valley.

Organic Farming

AREAS UNDER ORGANIC FARMING METHODS BY AGRICULTURAL REGION IN MAINLAND PORTUGAL, AND USED AGRICULTURAL AREA
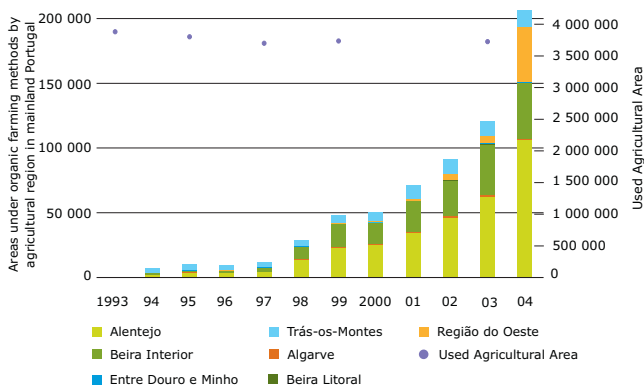

Source: IDRHa, 2005; INE, 2005

The areas occupied by organic farming have grown significantly from 2 799 ha in 1994 to 206 524 ha in 2004, the equivalent to about 5.5% of the used agricultural area. Breaking this down by agricultural region, Alentejo is the region where biological farming is most expressive, accounting for about 50% of the country's total, followed by Beira Interior and Região Oeste. In 2004, these three regions represented 93% of the total area of biological agriculture. As for the other regions, such agricultural practices are scarce. The main biological cultures were, in 2004, pastures (52%), arable crops – cereals, oilseeds and protein crops (24%) and olive groves (19%). These three cultures represented about 94% of the total area of biological agriculture.

There has been a steady increase in the number of farmers in this activity since 1993. There have also been important changes in the structure of control and certification, in order to adapt organic farming to international practices. Control and certification of areas and operators of organic production methods was introduced in 1996 and carried out by a private certification body established for the purpose; in the same year there was a reduction in the number of operators, but the growth has been steady since. However, of a total population of 400 000 farmers in 2004, just over one-thousand are in the organic farming sector, about 2.5% of the total.

24 Forest Fires

FOREST FIRES IN MAINLAND PORTUGAL

Total burnt area   Fires

Source: DGRF, 2005
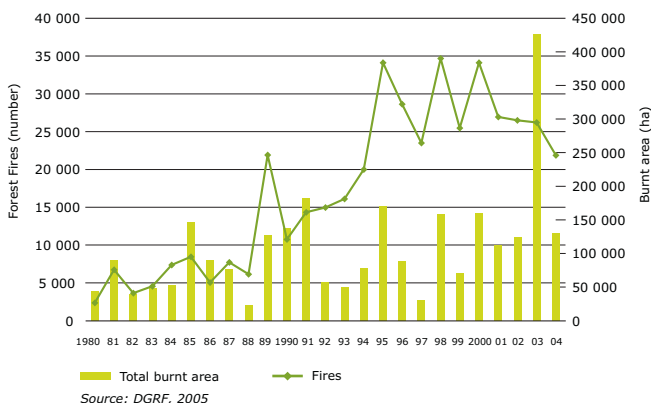
Following the peak of 2003, there was a slight decrease in the number of fires in 2004 and a more significant reduction of the burnt areas, dropping from 425 000 ha to 129 000 ha. The Faro district was the most affected, with a burnt area of 30 672 ha, which makes up 24% of the total in mainland Portugal.
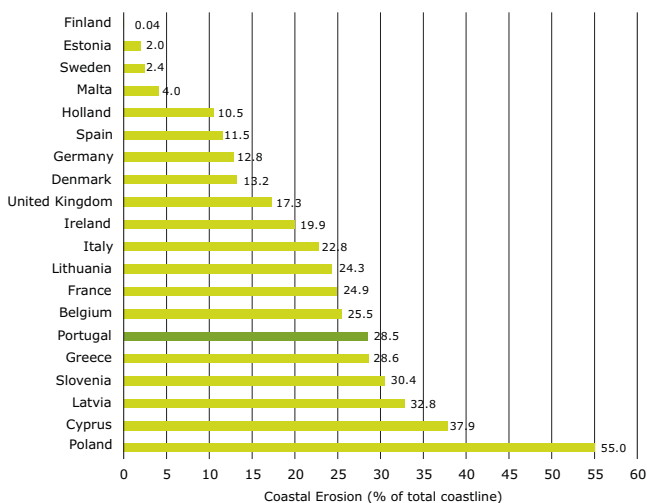
Although the number of fires and burnt area in the National Network of Protected Areas has increased steadily since 1992, a slight declining trend has been observed in the last four years. The most serious situation took place in 2003 due to an exceptionally hot year, such that the total area affected by fires was about one fourth of the total burnt area over the period from 1991 to 2003.

In 2004 there were 573 fires in Protected Areas, resulting in 6 457 ha of burnt area. The most affected were the Natural Park of Guadiana Valley with 1 767 ha (27% of the total burnt area, the highest record since its inception in 1995), the Natural Park of Arrábida with 1 179 ha and the Natural Park of Serras de Aire e Candeeiros with 1 001 ha (18% and 16% of the total burnt area, respectively).

Coastal Erosion

COASTAL EROSION IN 2001, BY COUNTRY

Country	Value
Finland	0.04
Estonia	2.0
Sweden	2.4
Malta	4.0
Holland	10.5
Spain	11.5
Germany	12.8
Denmark	13.2
United Kingdom	17.3
Ireland	19.9
Italy	22.8
Lithuania	24.3
France	24.9
Belgium	25.5
Portugal	28.5
Greece	28.6
Slovenia	30.4
Latvia	32.8
Cyprus	37.9
Poland	55.0

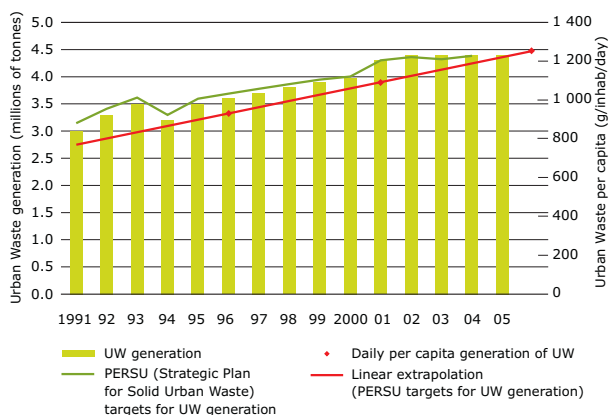Coastal Erosion (% of total coastline)

Source: European Commission, 2004

Results of EUrosion – a Project by the EC Directorate-General for the Environment with the objective of collecting information on problems related to coastal erosion in Europe – reveal that 28.5% of the national coast is affected by erosion, placing Portugal in the 6th place of the ranking, superseded only by Poland (55%), Cyprus (37.9%), Latvia (32.8%), Slovenia (30.4%) and Greece (28.6%). Finland is the EU country whose coast shows the lowest erosion rate (0.04%).

The analysis carried out by the National Water Institute (INAG) regarding the Portuguese coast, has concluded that the hotspots under threat of coastal erosion are situated between the Douro estuary and Nazaré, an area of intense and generalized erosion process on a sandy and low-lying coast, with little sediment run-off and which is subject to harsh maritime conditions. The strip between Vilamoura and the Guadiana estuary is also of considerable risk. As for the rest of the coast, there are some localised problems (with greater incidence between the Mondego Cape and São Pedro de Moel), which are, in most cases, linked to eroding cliffs caused by mass movement processes.

Over the last few years, the average rates of erosion (i.e. coastline retreat) in some coastal areas has varied between 0.02 and 9.0 meters, with the north and centre of the country showing the highest figures.

26 Waste generation

Legend:
- UW generation
- PERSU (Strategic Plan for Solid Urban Waste) targets for UW generation
- Daily per capita generation of UW
- Linear extrapolation (PERSU targets for UW generation)

Source: INR, 2005

In 2004, the generation of urban waste (UW) in mainland Portugal reached 4.5 million tonnes, roughly 448 kg per capita/year (1.2kg per inhabitant/day) matching the target for 2005 of 4.5 million tonnes/year. Portugal has one of the lowest per capita UW figures in the EU-25, below the Community average of 534 kg per inhabitant/year.

Lisboa and the North are the regions with the highest UW production levels due to greater population density and higher concentration of economic activities. UW collection systems are widespread, serving all the population and the whole country is covered by inter or multi-municipal treatment and waste recovery systems.

Treatment and final destination of Waste

Treatment and final destination of Urban Waste
in mainland Portugal

Source: INR, 2005
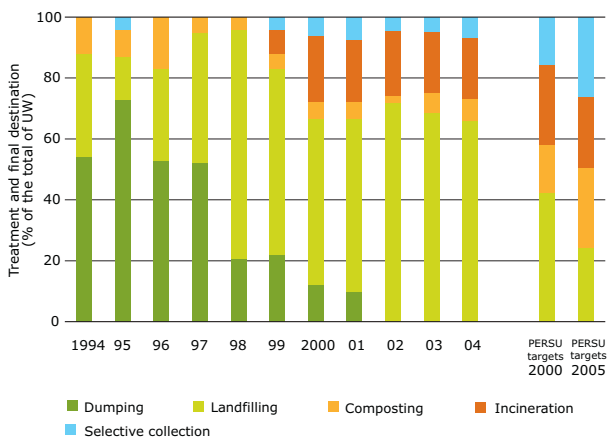
In 2004, about 66% of urban waste (UW) produced ended in landfills, with 20% being incinerated, 7% composted and 7% subject to selective collection. Despite the progress achieved in the treatment and final destination of UW, these numbers are still far from the PERSU (Strategic Plan for Solid Urban Waste) targets, which aim at 25% composting and 25% selective collection in 2005.
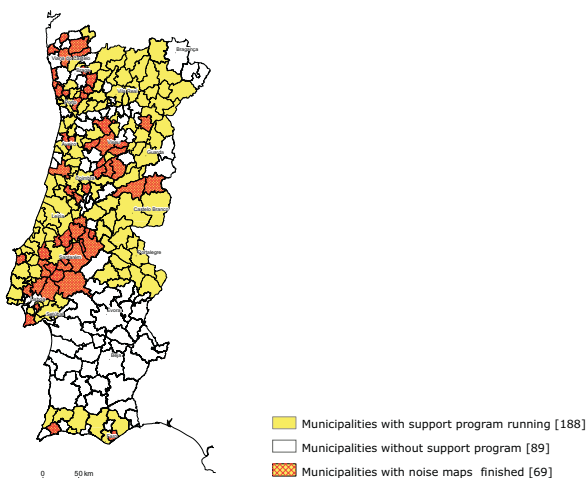
28 Waste Recovery

Rates of recycling and recovery of packaging waste, in Mainland Portugal

Source: INR, 2005
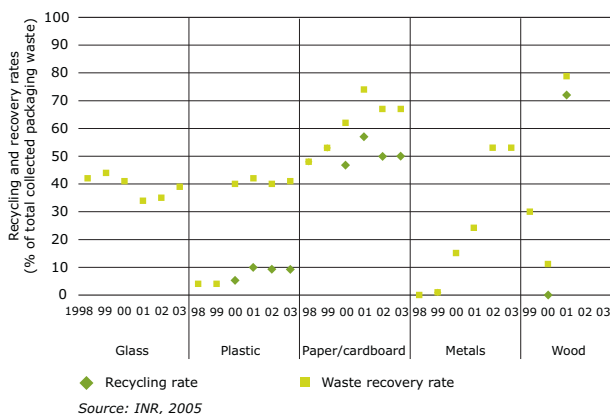
In 2003, 37% of packaging waste was recycled while the recovery rate was at about 51%. The recycling of paper/cardboard packaging waste has stabilized in the last years at levels around 50%. The recycling of metals is a more recent practice, showing significant growth in recent years; in 2003, the recycling rate of metal packaging reached 53%. However, the recycling rate of plastic packaging has remained at the low end of the scale (below 15%).

Although the minimum quota for plastic packaging recycling for 2003 has not yet been reached, Portugal did meet the 2005 targets, two years in advance, of 25% and 50% for waste recycling and recovery, respectively, as stipulated in the Directive 94/62/EC.

Noise maps

ANALYSIS OF NOISE MAPS - 2004

Municipalities with support program running [188]
Municipalities without support program [89]
Municipalities with noise maps finished [69]

Source : IA, 2005

The preparation of noise maps includes digital modelling, identification of noise sources – road, railway and air traffic, industrial noise – and measurements to calibrate the model. A noise map is a valuable tool in land use management, namely in the areas of control and reduction of noise pollution and regulation on source activities. It is expected that, by 2007, most municipalities will have already completed these maps.

In 2003, during the first application phase of the Financial Support Programme in the context of the Legal Regime on Noise Pollution (RLPS), many municipalities, in associations or individually, put forward applications for obtaining State support in the preparation of noise maps for their areas; 145 municipalities were supported. The second phase of applications took place in 2004, resulting in the granting of support to 43 municipalities not contemplated in the first phase, thus elevating to 188 the number of supported municipalities. Assuming that all requirements defined in the Programme are met, 59% of Portugal mainland territory, covering 71% of the population, will be covered by noise maps. This support Programme does not cover 89 municipalities, though these may be individually working toward the same objective.

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