



# 2009 Environment Policy Review



# **2009 Environment Policy Review**

Staff Working Paper SEC(2010) 975 final

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Luxembourg: Office for Official Publications of the European Communities, 2010

ISBN 978-92-79-15124-8

doi: 10.2779/2475

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# Table of contents

All information available on:  
<http://ec.europa.eu/environment/policyreview.htm>

<b>Part 1: Achievements, new findings and outlook in the priority areas of the 6th Environment Action Programme . . . . .</b>	<b>9</b>	<b>Part 2: Environmental data and trends in EU-27 . . . . .</b>	<b>31</b>
<b>Introduction . . . . .</b>	<b>11</b>	<b>What Europeans think about the environment? . . . . .</b>	<b>33</b>
<b>Climate change . . . . .</b>	<b>12</b>	<b>1. Climate change and energy . . . . .</b>	<b>41</b>
Highlights in 2009 . . . . .	12	1.1. State indicator: Global air temperature change . . . . .	41
Internationally a very intensive year . . . . .	12	1.2. Pressure indicator: Concentrations of CO <sub>2</sub> in the atmosphere . . . . .	43
Preparing for adaptation measures and further mitigation efforts in the EU . . . . .	13	1.3. Impact indicator: Natural disasters linked to climate change . . . . .	44
Outlook for 2010 . . . . .	15	1.4. Pressure indicator: Total Kyoto greenhouse gas emissions . . . . .	45
<b>Nature and biodiversity . . . . .</b>	<b>18</b>	1.5. Response indicator: Share of renewable energy sources . . . . .	47
Highlights in 2009 . . . . .	18	1.6. Response indicator: Electricity produced from renewable energy sources . . . . .	47
Outlook for 2010 . . . . .	21	1.7. Response indicator: Combined heat and power generation . . . . .	48
<b>Environment and health . . . . .</b>	<b>22</b>	1.8. Efficiency indicator: Energy intensity . . . . .	49
Highlights in 2009 . . . . .	22	1.9. Driving force indicator: Final energy consumption of transport . . . . .	50
Outlook for 2010 . . . . .	24	1.10. Driving force indicator: Average CO <sub>2</sub> emissions from new passenger cars . . . . .	51
<b>Natural resources and waste . . . . .</b>	<b>26</b>	1.11. Driving force indicator: Cumulative spent fuel from nuclear power plants . . . . .	52
Highlights in 2009 . . . . .	26	<b>2. Nature and biodiversity . . . . .</b>	<b>53</b>
Outlook for 2010 . . . . .	28	2.1. State indicator: Common birds . . . . .	53
<b>Conclusions . . . . .</b>	<b>29</b>	2.2. State indicator: Conservation status of habitats by habitat group . . . . .	53

2.3. State indicator: Conservation status of species by taxonomic grouping.....	54	3.6. Pressure indicator: Water exploitation index .....	66
2.4. Pressure indicator: Landscape fragmentation in 2009.....	55	3.7. Pressure indicator: Production of toxic chemicals .....	67
2.5. State indicator: Topsoil organic carbon content.....	56	3.8. Pressure indicator: Production of environmentally harmful chemicals .....	68
2.6. Driving force indicator: Freight transport (by road, rail and inland waterways) .....	57	3.9. Pressure indicator: Pesticides residues in food .....	69
2.7. Response indicator: Area occupied by organic farming .....	59	<b>4. Natural resources and waste .....</b>	<b>70</b>
2.8. Response indicator: Area under agri-environmental commitment .....	60	4.1. State indicator: Percentage of fish catches from stocks outside safe biological limits .....	70
2.9. Response indicator: Natura 2000 area .....	61	4.2. Pressure indicator: Total waste generated.....	71
<b>3. Environment and health .....</b>	<b>62</b>	4.3. Pressure indicator: Municipal waste .....	73
3.1. State indicator: Urban population exposure to air pollution by particles.....	62	4.4. Response indicator: Recycling rates of packaging waste .....	74
3.2. State indicator: Urban population exposure to air pollution by ozone .....	63	<b>5. Environment and the economy.....</b>	<b>75</b>
3.3. State indicator: People affected by transport noise in urban agglomerations.....	64	5.1. Response indicator: Environmental taxation .....	75
3.4. Pressure indicator: Emissions projections for certain atmospheric pollutants .....	65	5.2. Response indicator: Employment in the eco-industry.....	76
3.5. Pressure indicator: Air emissions of nitrogen oxides.....	66	5.3. Response indicator: Net electricity generating installations in EU .....	77
		<b>6. Implementation .....</b>	<b>78</b>
		6.1 Performance indicator: Infringements of EU environmental legislation by Member State and by sector .....	78

**Part 3: Environment policy actions in the Member States . . . . . 81**

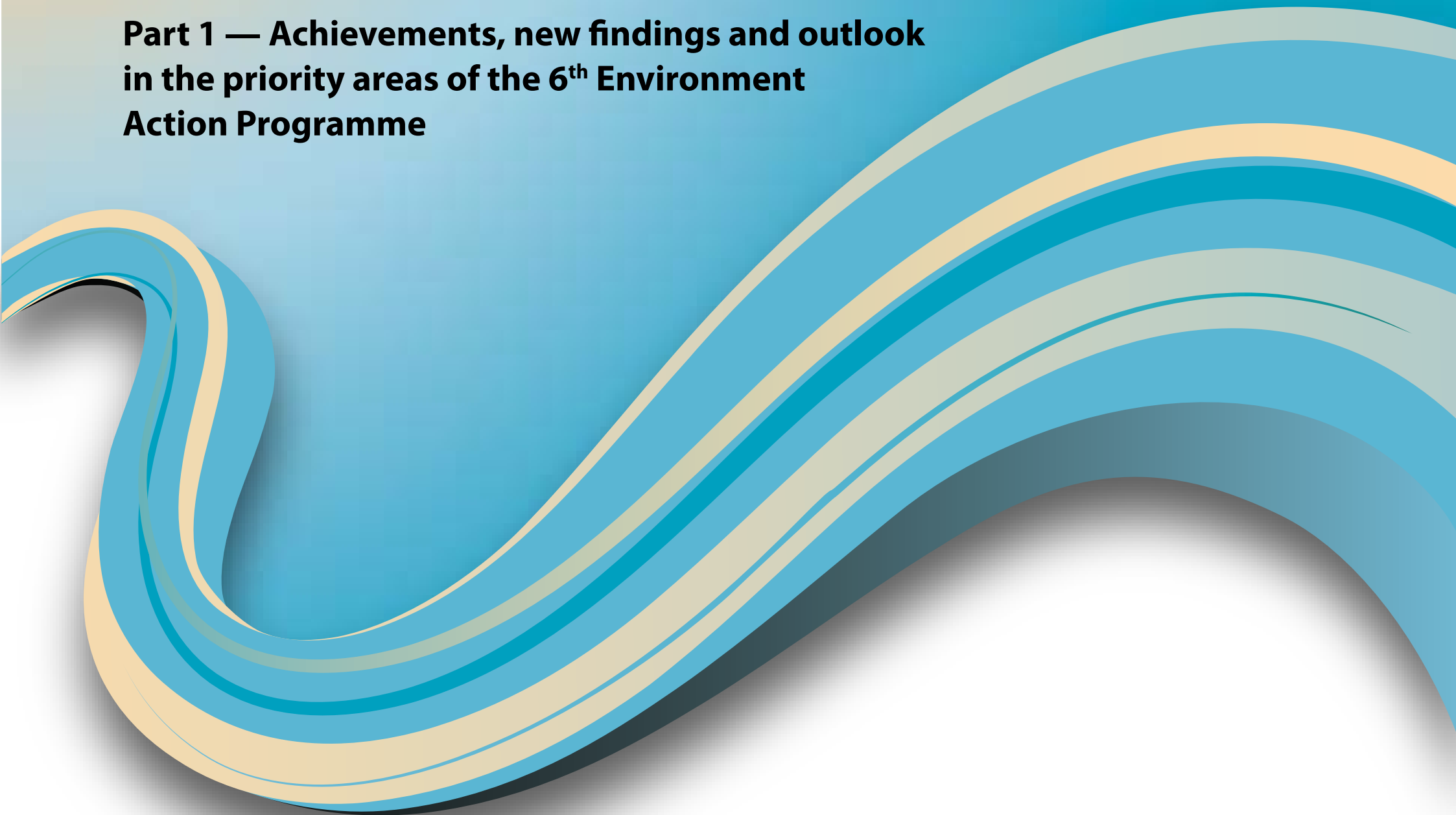
Note to the reader . . . . .	83
EU-27 Indicators . . . . .	87
Austria . . . . .	91
Belgium . . . . .	99
Bulgaria . . . . .	108
Cyprus . . . . .	115
Czech Republic . . . . .	122
Denmark . . . . .	129
Estonia . . . . .	137
Finland . . . . .	144
France . . . . .	151
Germany . . . . .	160
Greece . . . . .	169
Hungary . . . . .	176
Ireland . . . . .	183
Italy . . . . .	192
Latvia . . . . .	200
Lithuania . . . . .	208
Luxembourg . . . . .	215
Malta . . . . .	223
The Netherlands . . . . .	231
Poland . . . . .	239
Portugal . . . . .	247
Romania . . . . .	254
Slovakia . . . . .	262
Slovenia . . . . .	269
Spain . . . . .	276
Sweden . . . . .	284
United Kingdom . . . . .	292

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<http://ec.europa.eu/environment/policyreview.htm>





**Part 1 — Achievements, new findings and outlook  
in the priority areas of the 6<sup>th</sup> Environment  
Action Programme**





# Introduction

The Commission Staff Working Paper '2009 Environment Policy Review' highlights selected EU environment policy issues for 2009.

The Review has three parts.

**Part 1 presents the main developments in EU environment policy during 2009.** It concentrates on the four priority areas of the 6<sup>th</sup> Environment Action Programme (climate change; nature and biodiversity; environment and health; and natural resources and waste) and indicates the main issues that will be important in 2010 and in the coming years.

**Part 2 draws on statistical data** relevant to the four priority areas. It reviews the most significant issues and provides background for the Commission's policy work during 2009 and for future initiatives. It also provides evidence on the state of implementation of EU environmental legislation.

**Part 3 is the Commission's summary of major environment policy developments in the Member States.** The policy actions listed are not exhaustive, but offer a snapshot of actions that took place during 2009 as well as upcoming initiatives. The information was gathered with the support of an external consortium and input from officials from Member States. This part also includes tables to show the environmental situation in each Member State.

Additional information on the environment in Europe is provided by the European Environment Agency (EEA), which regularly reports on updates of indicators relating to the four priorities of the 6<sup>th</sup> Environment Action Programme, on country assessments and forecasts.

# Climate change

## Highlights in 2009

### Internationally a very intensive year

On the international stage, 2009 was a very active year on climate action for the European Union and Member States. Many bilateral and multilateral meetings took place to prepare for the **United Nations Climate Change conference in Copenhagen** in December 2009. These international negotiations were launched in 2007 to draw up a United Nations agreement on tackling climate change for the period after 2012, when key provisions of the Kyoto Protocol <sup>(1)</sup> will expire.

Throughout the course of 2009, **negotiating sessions** to prepare for the Copenhagen conference were held **in Bonn, Bangkok and Barcelona**. These were complemented by several other high-level meetings at ministerial or Heads of State level. In parallel, climate outreach work of the EU missions abroad was intensified, culminating in an extensive EU level Green Diplomacy campaign targeting over 60 countries in the immediate run-up to Copenhagen. At all of these discussions, the EU and Member States pushed for an ambitious and comprehensive agreement that would prevent global warming from reaching dangerous levels. The EU position was supported through detailed assessments by the Commission <sup>(2)</sup>. The EU also put forward proposals for scaling up international finance to help developing countries to combat climate change. By 2020, developing countries are likely to face annual costs of

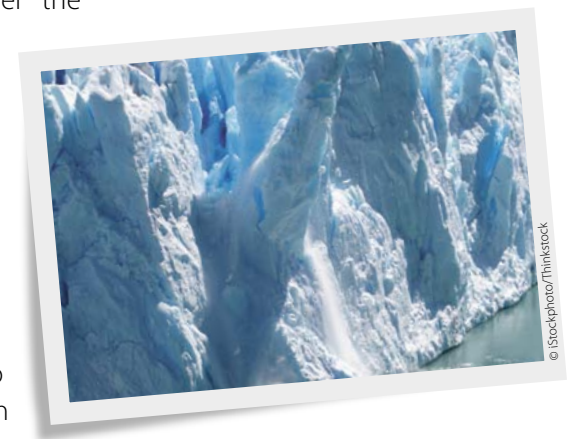
<sup>(1)</sup> As shown in Part 2, the EU is on track to deliver on its Kyoto Protocol commitments for reducing or limiting emissions of greenhouse gases.

<sup>(2)</sup> COM(2009) 39 final, COM(2009) 475/3

around 100 billion euro to mitigate their greenhouse gas emissions and adapt to the impacts of climate change.

The Copenhagen climate conference in December resulted in the **'Copenhagen Accord'**, supported by a large majority of the parties, including the European Union. The conference mandated the two ad hoc working groups, one on long-term cooperative action under the UN Framework Convention on Climate Change, the other on further commitments for developed countries under the Kyoto Protocol, to complete their work by the next annual climate conference, to be held in Mexico in November 2010.

The results in Copenhagen fell short of the European Union's goal of achieving maximum progress towards finalising an ambitious and legally binding global climate treaty to succeed the Kyoto Protocol in 2013. The Copenhagen Accord is nonetheless recognised as a **move in the right direction** and marks a first step towards a legally binding global agreement. It includes several elements for which the European Union fought. For the first time, the Accord endorses at a global level the objective of keeping warming to less than 2 °C above the pre-industrial temperature. Another positive element is that it requires developed countries to submit economy-wide emission reduction targets and developing countries to submit their mitigation



actions. The Accord also lays the basis for a substantial ‘fast start’ finance package for developing countries, approaching \$ 30 billion for the period 2010-12, and medium-term financing of \$ 100 billion annually by 2020.

Despite these positive elements, the Accord does not refer to the conclusion of a legally binding agreement, a key objective for the EU, nor does it set the goal of at least halving global emissions by 2050 compared to 1990 levels to keep warming below 2 °C. The EU will continue to push for these. The Accord also leaves many important details to be worked out in 2010 to make the Accord operational. If the details are indeed worked out, the Accord could, together with the outcomes of the two working groups, provide the basis for a new global climate treaty.

At the end of January 2010 <sup>(3)</sup>, the **European Union formally notified its willingness** to be associated with the Accord, and submitted its emission reduction targets. These consist of a unilateral commitment to reduce the EU’s overall emissions by 20 % of 1990 levels, and a conditional offer to increase this cut to 30 %, provided that other major emitters agree to take on their fair share of cuts too. The EU has also emphasised that in accordance with the findings of the IPCC, developed countries as a group should reduce their greenhouse gas emissions below 1990 levels through domestic and complementary international efforts by 25 to 40% by 2020 and by 80 to 95% by 2050 while developing countries as a group should achieve a substantial deviation below the currently predicted emissions growth rate, in the order of 15 to 30% by 2020.

**Carbon capture and storage (CCS)** has the potential to cut emissions from power generation in fast-developing and coal-dependent emerging economies. In June 2009, the Commission set out plans to finance the demonstration of CCS in cooperation with China. The EU and China have

<sup>(3)</sup> Letter by the Presidency and the Commission to the UNFCCC Executive Secretary, 28 Jan 2010

made a commitment to develop and demonstrate advanced, near-zero emissions coal technology through carbon capture and storage by 2020. The investment scheme could serve as a model for other technology cooperation activities.

## Preparing for adaptation measures and further mitigation efforts in the EU

Within the EU, 2009 was a year during which efforts to mitigate climate change were consolidated. An important **Climate and Energy package was formally adopted in April**. This consists of:

- a Directive revising the EU Emissions Trading System (EU ETS), which will cover - with its extended scope from 2013 - some 45% of total EU greenhouse gas emissions;
- an ‘effort-sharing’ Decision, setting annual binding national targets over the period 2013-2020 for emissions from sectors not covered by the EU ETS;
- a Directive setting binding national targets for increasing the share of renewable energy sources in the energy mix;
- a Directive creating a legal framework for the safe and environmentally-sound use of carbon capture and storage (CCS) technologies, which are important in the fight against climate change.

The package is complemented by two further legislative acts that were agreed at the same time as the package:

- legislation to reduce CO<sub>2</sub> emissions from new cars
- a Directive that requires fuel suppliers to reduce greenhouse gas emissions from the fuel production chain by 6 % by 2020.

In 2009, the Commission prepared **necessary implementing measures** for the package.



Under the Climate and Energy package, changes were made to the **EU Emissions Trading system**. These will apply from 2013. Auctioning is to be the main method of allocating greenhouse gas allowances with final auctioning rules to be drawn up by mid 2010. An auctioning Regulation will be established in 2010 to accommodate this major

change. Harmonised allocation rules for transitional free allocation for certain installations will be based, to the extent that is feasible, on product benchmarks related to the average performance of the top 10% most efficient installations in the EU. In the same context of transitional free allocation for certain installations, a Commission Decision was adopted in December 2009 listing the industrial sectors and sub-sectors deemed to be exposed to “**carbon leakage**”. This refers to the assumed risk that installations in sectors that face strong international competition might relocate energy-intensive production from the EU, or lose market share to third countries with less stringent constraints on greenhouse gas emissions. Installations in ‘carbon leakage’ sectors will receive 100% of emission allowances free of charge up to the benchmarks set for the products of these industrial sectors. The risk of carbon leakage is also reduced by allowing for access to international credits in the EU ETS. Following the outcome of the Copenhagen conference at the end of 2009 the Commission deemed that both these measures remain justified at present <sup>(4)</sup>.

Another major change (that was already decided earlier in 2008) is that the **aviation activities** of aircraft operators who operate flights arriving at and

departing from Community airports will be included in the system from 2012. In 2009, the Commission published the list of aircraft operators to be included in the EU ETS (to be updated annually).

The **Effort-Sharing Decision** regulates greenhouse gas emissions in all sectors except installations and aviation covered by the EU Emissions Trading System (ETS), Land Use, Land Use Change and Forests (LULUCF), and international maritime shipping. Member States will limit their greenhouse gas emissions between 2013 and 2020 according to a linear trajectory with binding annual targets. This will ensure a gradual move towards agreed 2020 targets in sectors such as transport, buildings and agriculture. Member States will be responsible for defining and implementing policies and measures to limit their emissions, and their efforts will be facilitated by EU-wide measures such as emission standards for passenger cars, and energy efficiency standards. A **strong monitoring and compliance system** will be put in place to monitor Member States’ progress and to help them to take corrective measures if they fail to meet their targets.

Regarding the operation of the 2008-2012 trading period of the EU Emissions Trading System, the Commission took new decisions on Estonia’s and Poland’s **national allocation plans** distributing CO<sub>2</sub> emission allowances. It had rejected both plans in December 2009 on several grounds. This followed the Court of First Instance’s annulment in September 2009 of the Commission’s previous decisions on those plans. In December, the Commission appealed against these judgements. Appeals are currently pending before the European Court of Justice. In April 2010, Poland notified the Commission of a new national allocation plan which respects the terms of the Emission Trading Directive. The Commission therefore decided not to raise objections to the new Polish national allocation plan.

The **Carbon capture and storage Directive** constitutes one of the first comprehensive legal frameworks for the management of environmental and health risks related to CCS worldwide. It includes requirements on permitting, monitoring, reporting, inspections, corrective measures, and financial security.

<sup>(4)</sup> COM(2010) 265 final

Member States have to transpose the Directive into national law by June 2011. In this respect, the Commission has established an informal Information Exchange Group, which will meet regularly to discuss questions on interpretation and implementation of the Directive.

The **revised ETS-Directive** provides that 300 million allowances will be available until the end of 2015 to help stimulate the construction and operation of up to 12 commercial demonstration projects in EU on carbon capture and storage and on innovative renewable energy technologies. Over the course of 2009, the Commission services have prepared and discussed with Member States a draft Decision (“draft NER 300 Decision”) establishing criteria and measures for project selection, monetisation of the allowances and disbursement of the revenues in which the European Investment Bank will also play an important role.

The adoption of the third energy liberalisation package in August 2009 brings the goal of a **true internal market in electricity and gas** within reach. This will be crucial in delivering a low carbon economy - facilitating the integration of renewable energy sources and bringing a European focus to network planning.

Given the impact of high and growing emissions from transport, the Commission followed up its approach for passenger cars (agreed at the end of 2008) with a similar initiative for **light commercial vehicles (vans)** in 2009. It proposed legislation to reduce the average CO<sub>2</sub> emissions of newly-sold vehicles to 175 grams per kilometre by 2016, phased in from 2014. The proposal also includes an emission target of 135 g/km for vans by 2020. This legislation is one of the last remaining elements of the EU’s strategy to improve the fuel economy of light commercial vehicles, which account for about 10 % of the EU’s total CO<sub>2</sub> emissions from road transport. The format of the proposed legislation is similar to that for passenger cars. Member States will monitor manufacturers’ progress each year on the basis of new vehicle registration data.

The Council and Parliament adopted an amendment to the Fuel Quality Directive resulting in the first ever transport fuels greenhouse gas (GHG) intensity (emissions per unit of energy) reduction target. The Directive sets an obligation on suppliers to reduce by 6% the lifecycle GHG intensity of fuel and other (electric) energy supplied for use in road vehicles by the end of the compliance period in 2020.



The Commission outlined the actions needed to strengthen EU’s resilience in coping with climate change. The impacts of climate change will vary across regions, so most adaptation measures will need to be taken at national and regional level. The Commission presented a **White Paper** in April 2009, setting out a two-phase strategic approach to **adapting to the impacts of climate change** in the EU. This complements actions Member States are taking through an integrated and coordinated approach. The **White Paper** describes over 30 actions that the Commission is to carry out with respect to adaptation. The first action was the publication of a guidance document on adapting to climate change in water management, issued by Water Directors of Member States, to support the implementation of the Water Framework Directive and the Floods Directive.

## Outlook for 2010

- The Commission issued a “**Post-Copenhagen Communication**” in response to the outcome of the Copenhagen meeting. This Communication reconfirmed the EU’s position in the negotiations context and listed leading

by example and reaching out to our partner countries among its priorities for 2010 and onwards. The Communication explains that while the EU is ready to adopt a robust and legally binding agreement at **the United Nations Climate Change Conference in December 2010 in Mexico (Cancun)**, the substantial differences outstanding mean that the EU has to recognise the possibility of a more step-by-step approach. The EU's objective for the Cancun conference should therefore be a comprehensive and balanced set of decisions to anchor the Copenhagen Accord in the UN negotiating process, and to address the gaps.

- To reinstall developing countries' confidence in the prospects of a meaningful global climate regime, the Commission will be working with the Member States to deliver on the **fast start funding commitments** made in the context of the Copenhagen Accord. As part of this process, the Commission will produce a Communication on climate change and development with particular emphasis on transparent and effective delivery. This Communication should be adopted by the Commission in autumn 2010.
- The Commission presented in the first half of 2010 a detailed **analysis of the costs, benefits and options for moving to a 30% reduction for the EU** compared to 1990 by 2020 <sup>(5)</sup>. This analysis takes into account recent developments such as the economic crisis. Its aim is to inform Council and Parliament and to allow for the preparation of policies which would be required if the EU were to decide to increase its ambition level beyond a 20% reduction.
- With respect to the **revised EU Emission Trading System**, the Commission plans to adopt several implementing measures in 2010: a regulation on auctioning of allowances, a decision on harmonised rules for the transitional free allocation of allowances, a decision on the total number of allowances in the ETS for the third trading period, a Communication on market abuse, and

<sup>(5)</sup> COM(2010) 265 final

amendments to the regulation governing the electronic registries to cater for a range of new functions for the single Community registry.

- With respect to the **Effort-sharing Decision**, the Commission will prepare implementing measures for determining Member States' emission limits in 2013-2020 in tonnes of CO<sub>2</sub> equivalent and for facilitating transfers of annual emission allocations between Member States. It will also assess inclusion of Land Use, Land Use Change, and Forestry (LULUCF) in the EU's emission reduction commitment for 2020 and report on its findings in mid 2011.
- The Commission will discuss with Member States and relevant stakeholders the various elements on the **Directive on Carbon capture and storage**, such CO<sub>2</sub> storage life cycle risk management, site characterisation, CO<sub>2</sub> stream composition, monitoring and corrective measures and financial contribution. In this respect, the Commission will issue guidance documents towards the end of 2010. The Commission will also establish a Scientific Panel to help it review draft storage permits and draft transfer decisions pursuant to the CCS-Directive. Finally, the Commission Decision establishing guidelines for the monitoring and reporting of greenhouse gas emissions <sup>(6)</sup> pursuant to 2003 Emission Trading Directive should be amended to include monitoring and reporting guidelines for greenhouse gas emissions from the capture, transport and geological storage of carbon dioxide.



<sup>(6)</sup> Decision 2007/589/EC



- The draft **NER 300 Decision** was submitted for a vote in the Climate Change Committee early in 2010. Following successful completion of Parliament and Council scrutiny, the draft Decision should be adopted by the Commission in summer 2010. At the same time, the details of the envisaged involvement of the European Investment Bank (EIB) both in the selection of projects and the monetisation of the allowances are being elaborated in an inter-institutional agreement between the Commission and the EIB. Finally, the Commission is preparing the call for project proposals on the basis of the NER 300 Decision.
- Preliminary results from the campaign carried out in 2009 in the context of Eurostat's **Land Use/Cover Area frame statistical Survey** are expected in 2010. They will enable the Joint Research Centre of the Commission to produce **the first-ever map of topsoil organic carbon** on the basis of measurements covering the whole EU (except Bulgaria and Romania, which should be covered in 2012). This will be a decisive step in providing the EU with a carbon stock baseline which is of high interest for numerous EU policies, including LULUCF, agriculture, biodiversity, and soil.
- The Commission White Paper on **Adaptation** describes over 30 actions that the Commission is to carry out with respect to adaptation. The European 'Climate Change Impacts, Vulnerability and Adaptation Clearinghouse' is the key policy set out in the White Paper for the purposes of strengthening the knowledge base. The Clearinghouse is an internet-portal that will collect all available information related to adaptation and make it easily assessable to stakeholders, which will be operational in 2012. Also as a follow-up of the White Paper, the Commission is preparing a Communication on Mainstreaming Adaptation and Mitigation into Community Policies, foreseen for adoption in 2011. This Communication intends to introduce or further

develop the climate-proofing of the main EU policies. As part of the preparatory work for the Communication, an Adaptation Steering Group will be launched in autumn 2010. The steering group will consist of Member State experts, European institutions and stakeholders.

- The Commission will adopt two measures **implementing the CO<sub>2</sub> and cars Regulation**: a Regulation on provisions for the application for a derogation from the specific CO<sub>2</sub> emission targets, and a Regulation on monitoring and reporting of data on the registration of new passenger cars. In addition, the Commission will be preparing draft rules setting out a procedure to approve eco-innovations.
- In 2010, in the context of the **Fuel Quality Directive**, the Commission should adopt implementing measures establishing a methodology for estimating fossil fuel GHG intensity and the GHG intensity of the fossil fuel baseline. The Commission should also update fuel quality limits in accordance with technical progress in this field and write a report and make a proposal to address indirect land use change (ILUC) resulting from biofuel cultivation.



# Nature and biodiversity

## Highlights in 2009

The **EU biodiversity picture remains mixed**, with positive developments for some species and habitats overshadowed by worrying trends elsewhere. The first large-scale nature assessment, covering 216 types of habitat with information about 1182 species, compiled by the Commission in 2009 <sup>(7)</sup>, found that only 17 % of habitats and species protected under the Habitats Directive have a good conservation status. Grasslands, wetlands and coastal habitats are the most vulnerable, mainly due to factors such as the decline of traditional patterns of agriculture, pressure by tourist development, and climate change. The protection of soil biodiversity continues to present a challenge. Furthermore, the overexploitation of marine fisheries remains a threat to marine ecosystems, with some 45 % of assessed European stocks falling outside safe biological limits <sup>(8)</sup>.

There are, however, indications that protection measures based *inter alia* on Community legislation are having an impact, and that some habitat types and species, such as the brown bear, the wolf and the beaver, are starting to recover and re-establish themselves <sup>(9)</sup>.

In 2009, the **Natura 2000 network** was further developed. It is now one of the most advanced, most extensive and most flexible systems of nature protection in the world. With almost 26 000 sites and nearly 18% of EU land designated, the Natura 2000 network is nearly complete on land. In the marine environment, there was some - but still insufficient - progress in 2009.

<sup>(7)</sup> COM (2009) 358.

<sup>(8)</sup> EEA (2009) Progress towards the European 2010 biodiversity target. Report 4/2009.

<sup>(9)</sup> COM (2009) 358.

The **Birds Directive**, the EU's first nature law, **marked its 30th anniversary** in April 2009. The Directive has played a key role in reversing the decline of some of Europe's most threatened birds, particularly through its network of protection areas. Thanks to targeted action on the part of the EU, national governments, conservationists and volunteers to implement the Directive on the ground, many birds are now better protected.

**On a global level, loss of biodiversity has reached alarming proportions.** Assessments to date suggest that the current global biodiversity target for significantly reducing the rate of biodiversity loss by 2010 will not be met. More than a third of species assessed are threatened with extinction, and an estimated 60 % of the Earth's ecosystem services have been degraded in the last 50 years. Biodiversity losses at global level are estimated to be occurring at a rate 100 to 1000 times faster than normal extinction rates. This is not a purely environmental issue. Investing in protecting ecosystems makes economic sense, as was shown in a 2009 report, 'The Economics of Ecosystems and Biodiversity'. Nature supports a wide range of economic sectors, can help to increase the resilience of our economy, and expands our options for long-term economic growth. Nature's capacity to provide vital ecosystem services such as fresh water and climate regulation is cheaper than investments in technological



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solutions. Protected areas, the cornerstone of EU's conservation policies, are not only good for nature, they can also generate significant benefits for local communities and national economies. In Scotland, for instance, the public benefits of protecting the Natura 2000 network are estimated to be worth three times more than its costs<sup>(10)</sup>.

The EU and Member States supported many initiatives to protect biodiversity at EU and global level in 2009. For example, under the **second call for the LIFE+ programme** (2007-2013), the European fund for the environment, the Commission approved funding for nearly 200 new projects. The call for proposals closed in November 2008, and the Commission received more than 600 proposals from public and private bodies in the EU's 27 Member States. Of these, 196 were selected for co-funding. The projects cover actions in the fields of nature conservation, general environmental policy, as well as information and communication. Overall, they represent investment worth a total of 431 million euro, of which the EU will provide 207.5 million euro. About half of this budget is allocated to nature and biodiversity projects. LIFE+ has a budget totalling 2.14 billion euro for 2007-2013.

Under the **Thematic Programme for Environment and Natural Resources, including Energy** (ENRTP), commitments were made under the 2009 Annual Action Plan for a total of 201.6 million euro for projects and programmes to integrate environmental protection requirements into the Community's development and into other external policies as well as to help promote the Community's environmental, climate and energy policies abroad in the common interest of the Community and partner countries and regions. ENRTP has also prioritised biodiversity in its combined 2009-2010 call for proposals, allocating 8.5 million euro to address ecosystem services in South-East Asian countries and invasive alien species in Small Island Developing States and Overseas Countries and Territories, and 7.3 million euro for biodiversity and

climate change in the partner countries under the European Neighbourhood and Partnership Instrument. Several other areas of the call e.g. fisheries, forests, desertification, have also had a direct link to biodiversity.

In 2009, the European Parliament and Council adopted a Regulation **banning the trade of seal products** in the EU. This applies both to seal products produced in the EU and to those imported. The aim of the Regulation is to ensure that products derived from seals are no longer placed on the European market. The Regulation provides for limited exemptions, so as to respect the fundamental economic and social interests of Inuit and other indigenous communities, and the need to conduct hunting to ensure sustainable management of marine resources on a not-for-profit basis and for non-commercial reasons. It also provides an exemption covering the import of goods derived from seals for personal use and without any commercial purpose. The implementing regulation the Commission has been asked to adopt will ensure that only seal products which comply with the conditions in the basic regulation are placed on the market.

In March 2009, the Commission presented a **guide on the sustainable hunting of wild birds** to ensure hunting is carried out in accordance with EU nature legislation. Although there is a general ban on killing wild birds, hunting of certain species is allowed outside breeding and pre-nuptial migration periods. Closed periods are critical to allow wild birds to renew their numbers. The guide focuses on the timing of recreational hunting, on minimising the risk of disturbing birds and their habitats, and on the conditions under which hunting is allowed under exceptional circumstances.

Negotiations for the adoption of the **proposed Soil Framework Directive** continued in 2009. In June 2009, the Czech Presidency presented a progress report <sup>(11)</sup> to the Council, noting that there was a blocking minority preventing further progress.

<sup>(10)</sup> <http://www.teebweb.org>; TEEB 2009, D1 report for National and International Policy makers.

<sup>(11)</sup> <http://register.consilium.europa.eu/pdf/en/09/st10/st10919.en09.pdf>

There can only be effective protection of nature and biodiversity if measures are also taken at international level. Thus, the Commission actively supported a number of initiatives in 2009. They include work to set up a global platform to address biodiversity and ecosystem services issues, similar to the Intergovernmental Panel on Climate Change (IPCC), whose regular assessment reports are the most authoritative global scientific consensus on climate change. **An Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)** would greatly enhance the credibility of future biodiversity strategies and actions. A high-level Intergovernmental consultation meeting took place in October 2009 and contributed to developing a shared vision on the kind of mechanism needed for biodiversity. In June 2010, an agreement was made to establish IPBES at a high-level Intergovernmental consultation meeting in Busan, South Korea. This agreement should be endorsed in September 2010 at the United Nations General Assembly and the IPBES is expected to be formally established in 2011.

The EU waited for the outcome of the November 2009 annual meeting of the **International Commission for the Conservation of Atlantic Tuna (ICCAT)** before deciding whether to support Monaco's proposal that Atlantic Bluefin Tuna should be listed in Appendix I of the **Convention on International Trade in Endangered Species (CITES)** at the CITES Conference of the Parties in March 2010. At the November meeting, a number of measures to improve the poor conservation status of tuna were adopted. These included lowering Total Allowable Catches and shortening the fishing season for purse seiners for 2010, as well as a commitment to adopt a multiannual recovery plan for tuna at the next ICCAT annual meeting in November 2010.

In November 2009, **Ghana** signed an important agreement with the EU, intended to ensure that it only exports legally-harvested timber to the EU market. The **Forest Law Enforcement Governance and Trade (FLEGT) Voluntary Partnership Agreement**, the first of its kind, provides a legal framework and monitoring system intended to ensure that all of Ghana's timber exports to the EU have been acquired, harvested, transported and

exported in accordance with Ghanaian law. The first FLEGT-licensed timber from Ghana is expected to reach Europe at the end of 2010.

In the context of the **Bucharest Convention** <sup>(12)</sup>, the main instrument for the **protection of the Black Sea**, two important instruments essential if the sea is to recover progressively were adopted: the new Protocol on Pollution Control from Land Based Sources and Activities, and a new Strategic Action Plan. The latter reflects the consensus reached on a series of proposals such as ecosystem quality objectives, legal and institutional reforms, and investments needed to solve the sea's main environmental problems. The newly-adopted Protocol replaces that agreed in 1992 and will prevent, control and, to the maximum extent possible, eliminate pollution from land-based sources and activities.

The 16th Conference of the Parties (COP) to the **Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean** adopted a work programme for 2010-2011 and the first indicative five-year work programme, including a specific biodiversity theme: legally-binding decisions on protecting species, extending the list of those endangered, were taken. The work programme also reflects the holistic ecosystem approach as an overarching principle, which is crucial for the implementation of the Marine Strategy Framework Directive by the Mediterranean EU Member States.

At the **G8 meeting in Sicily**, environment ministers adopted the '**Carta di Siracusa**' together with ministers from 11 other countries and representatives from international organisations. The document stresses the relationship between biodiversity and climate, focusing particularly on the role of ecosystems in mitigating and adapting to climate change. Strengthening and restoring the resilience of ecosystems, as well as ensuring a steady flow of ecosystem services, were also recognised as essential for human well-being and for achieving the Millennium Development Goals. Ministers gave special emphasis to the definition of a common path towards post-2010 targets for biodiversity.

<sup>(12)</sup> Turkey, Ukraine, Georgia, Romania, Bulgaria and Russia are members of the Convention.

## Outlook for 2010

- **2010 is the International Year of Biodiversity.** 2010 - and the years onwards - will test the credibility and efficiency of EU and global policy-making and implementation in the area of biodiversity. The EU will use this momentum to step up efforts to protect biodiversity both within and outside the EU. In January, a Commission Communication set out targets for biodiversity post-2010. Despite efforts made, biodiversity is still being lost at alarming rates, and a new vision is required to address this loss. The Communication proposed a long-term (2050) vision for biodiversity, with four options for a mid-term (2020) target, offering different levels of ambition. The aim is to stimulate discussion and debate among Member States with a view to **developing the post-2010 biodiversity policy framework for the EU** before the end of 2010. It will also contribute to the debate on a new global vision for the period beyond 2010, in which the EU is taking part actively and constructively.
- In March 2010, the Council reaffirmed that protected areas and ecological networks were a cornerstone of efforts to preserve biodiversity. It stressed the need to fully implement the Birds and Habitats Directives and to speed up **completion of the Natura 2000 Network**. The achievements under the Birds and Habitats Directives, particularly the Natura 2000 network, will be an essential basis for achieving the EU's post-2010 biodiversity targets. The Directive's implementation has entered a crucial phase, that of making it fully operational as a coherent ecological network, and making it work in practice. The Commission will work pro-actively with all Member States to help ensure the effective management, protection, financing and monitoring of Natura 2000. Ways of **avoiding conflicts** and reconciling nature conservation objectives with socio-economic development within Natura 2000 will be further developed.
- The **Economics of Ecosystems and Biodiversity** (TEEB) project will present its final reports in the course of 2010, including the quantitative assessment

and reports for local policy makers, for business and for the general public. The Joint Research Centre of the Commission will publish the **European Atlas of Soil Biodiversity**, a comprehensive guide on life beneath our feet. The final findings of the complete TEEB study and the Atlas will be presented in October 2010 at the 10th meeting of the Conference of the Parties (COP 10) in Nagoya, Japan, under the Convention of Biological Diversity.

- The year 2010 will see the EU ratifying the **Protocol on Integrated Coastal Zone Management** (Barcelona Convention). The Protocol will enable efforts to tackle the continuing degradation of the coastal environment in the Mediterranean to be stepped up.
- The **proposal for a Regulation on the obligations of operators placing timber and timber products on the market** is expected to have a second reading at the European Parliament and Council in 2010, with possible adoption towards the end of the year. The Regulation is intended to minimise the risk of illegal timber or products containing such timber being placed on the EU market.
- The White Paper on climate change adaptation invited the Commission to launch a debate on options for an **EU approach on forest protection and information**. In March 2010, the Commission adopted a Green Paper on this. The paper invites stakeholders to debate how forest protection in the EU should ensure that forests continue performing all of their productive, socio-economic and environmental functions. The public consultation on the Green Paper ends on 31 July 2010.



# Environment and health

## Highlights in 2009

A clean and healthy environment is essential for human well-being. To limit environmental threats to human health, the European Union continued to take action in various fields during 2009, including chemicals, air and water quality:

Important steps were taken on **chemicals management** at a global level, so that chemicals are produced, used and disposed of as safely as possible. The second **International Conference on Chemicals Management** in May highlighted four areas involving chemicals as the focus for future work: nanotechnologies and manufactured nanomaterials, hazardous substances within the life cycle of electrical and electronic products, chemicals in products and lead in paint.

The conference also considered how to ensure there were enough resources available to fully implement the Strategic Approach to International Chemicals Management, a global political commitment to sound chemicals management by 2020, made by more than 140 countries worldwide.

Agreement was also reached in 2009 on banning nine dangerous chemicals used in farming and industry. These will be included on the list of substances to be banned under the **Stockholm Convention on Persistent Organic Pollutants** (POPs). POPs can lead to cancer, birth defects and dysfunctions of the immune and reproductive systems. In February, global consensus was also reached at the meeting of the United Nations Environment Programme Governing Council to launch negotiations on an international legal agreement to control mercury.

Within the EU, the formal adoption of the **Pesticide Framework Directive** in 2009 was an important step forward in reducing the impact of pesticides.

Member States must enforce regular inspection of pesticide application equipment and ban aerial spraying, but also develop training schemes for professional users.

The Commission also put forward a **proposal for a Biocides Regulation**, partly to adapt it to the chemicals legislation, REACH. The proposal aims to improve the safety of biocide products used and placed on the EU market. It proposes, amongst other measures, phasing out the most hazardous substances, particularly those that may cause cancer, and to introduce new rules for products such as furniture and textiles treated with biocides, which are not covered by existing legislation.

The Dangerous Substances Directive has been replaced by new legislation, the **Regulation on the Classification, Labelling and Packaging of Substances and Mixtures**, which took effect from January 2009. It incorporates the classification criteria and labelling rules agreed at UN level. The European Chemicals Agency focused on the next steps in the **implementation of REACH chemicals legislation** and, specifically, for the first registration deadline in November 2010. The Agency is responsible for managing the registration, evaluation, authorisation and restriction processes of chemical substances as provided for in REACH. As part of the authorisation process, the Agency also launched a public consultation on the first draft recommendation on substances of very high concern.

In June 2009, political agreement was reached in the Council on the **Industrial Emissions Directive**. This brought the EU one step closer to new legislation on industrial pollution, providing higher levels of environmental protection. After concluding second reading negotiations with the Council in July 2010, the European Parliament agreed on a proposed revision of the Industrial Emissions Directive. The revised proposal provides for a system regulating industrial emissions that is clearer, more effective and more efficient in ensuring a higher

level of environmental protection than the present legislative framework. It will strengthen the use of best available techniques and reduce harmful emissions from large combustion plants. The legislative procedure will conclude with a vote in the Council and the entry into force of the Directive by the end of 2010.

In the context of industrial emissions, the European Commission and the European Environment Agency launched also a comprehensive new **European Pollutant Release and Transfer Register** <sup>(13)</sup>. This contains information about emissions releases to air, water and land, and transfers of pollutants in wastewater, as well as waste produced by industrial facilities throughout Europe. It includes annual data for 91 substances and covers more than 24 000 facilities in nine industrial sectors.

Regarding **air quality**, progress was achieved in various areas of legislation. The European Council and Parliament adopted **new legislation to cut harmful vapour emissions from fuel stations**. This will ensure that petrol vapour which escapes while drivers refuel their cars at service stations is captured and recycled. The Directive will require so-called Stage II petrol vapour recovery technologies to be fitted to petrol pumps at service stations. Member States have until the end of 2011 to transpose the Directive into national law.

The **Commission** also adopted **Decisions** concerning requests from Member States **for additional time to comply with EU legislation on air quality**. The vast majority of air quality zones in the EU did not qualify for a time extension. The Commission decided that 48 air quality zones fulfilled the conditions for an exemption from the PM<sub>10</sub> limit values. These were in Austria, Cyprus, the Czech Republic, Germany, Hungary, Italy, the Netherlands, Poland and Spain. The conditions for postponing NO<sub>2</sub> limit values were also satisfied in nine zones in the Netherlands. In these cases, the Commission was satisfied that compliance would be achieved by the end of the time extension through comprehensive air quality plans. At the same time, there was enforcement

action against 19 Member States that had not submitted notifications or to which the Commission had already addressed a Decision objecting to a time extension and which continued to exceed the PM<sub>10</sub> limit values.

**New legislation** was also adopted in September which should help the **ozone layer** to recover, and will also contribute to mitigating climate change. The legislation reinforces measures on the illegal trade of ozone-depleting substances, as well as on their remaining uses. It confirms the ban on the use of methyl bromide, and bolsters measures on the management of banned substances in older products.

According to a recent Eurobarometer survey, almost two out of three Europeans think there is a serious problem with the quality and quantity of water in their country <sup>(14)</sup>. A set of EU rules addresses this issue comprehensively: the Water Framework Directive established the legally-binding objective to achieve good status in all waters by 2015. **River Basin Management Plans** should have been prepared and been available for all basin districts across the EU by the end of 2009. Most Member States carried out public consultations in 2009 and adopted Management Plans. There were, however, serious delays in some parts of the EU, and in a few countries consultations were still ongoing at time of writing. In 2010, the Commission started checking the quality of plans submitted.

The 2007 EU Strategy on Water Scarcity and Droughts identified policy options which could help improve the management of water quantity in the EU. The second annual progress report on implementing the Strategy confirms that some EU countries continue to face water scarcity problems and/or drought, and that much more effort is needed to stop and reverse overexploitation of Europe's precious but limited water resources.

On bathing water, the European Commission and the European Environment Agency's recent report showed that most **bathing sites** across the European

<sup>(13)</sup> <http://prtr.ec.europa.eu>.

<sup>(14)</sup> Flash European Barometer — Series #261 ; see also Part 2 of this document 'What Europeans think about environment'.

Union met EU hygiene standards in 2008. Some 96 % of coastal bathing areas and 92 % of bathing sites in rivers and lakes complied with minimum standards. Another recent European Commission report showed that **nitrate levels** in waters across the EU were stable or falling in about two-thirds of monitoring sites for the period 2004-2007. However, the Commission has taken **legal action** against several Member States for not complying with EU legislation on **urban waste water treatment and nitrate action programmes** under the Nitrates Directive.

In line with the Protocol on pollution from land-based sources and activities, the 16th Conference of the Parties (COP) to the **Barcelona Convention** for the Protection of the Marine Environment and the Coastal Region of the Mediterranean adopted legally-binding measures on reducing pollution (nutrients from waste water treatment and persistent organic pollutants) for the first time, and more measures are being prepared.

To encourage cities to improve the quality of urban life by taking the environment systematically into account in urban planning, the Commission introduced a new award scheme, the **European Green Capital award**. Stockholm and Hamburg were named as the first winners of this award. The Swedish capital will be European Green Capital in 2010, followed by Hamburg in 2011. Stockholm has an Integrated Management System that ensures environmental issues are included in the city's budget, operational planning, reporting and monitoring. It has set itself the ambitious target of becoming fossil-fuel-free by 2050. In Hamburg, air quality is very good, there are numerous awareness-raising programmes, and the city has introduced ambitious climate protection goals.

Regarding civil protection, further steps were taken towards testing innovative arrangements for a European rapid response capacity based on standby intervention modules and supplementing EU-level capacities. This included setting up a European Forest Fires Tactical Reserve on a pilot basis, with two water-bombing aircraft available to assist in response to major forest fires in the summer of 2009. Throughout the year 2009, the European **Civil Protection Mechanism** was activated 28 times: 10 cases concerned disasters within the

EU, the others in response to emergencies in third countries. Within the EU, forest fires triggered most alerts. Outside the EU, the Mechanism was activated to assist countries in Eastern neighbours (the Republic of Moldova and Ukraine), in Africa (Namibia, following its worst floods in decades) and Asian and Asia-Pacific nations (Tajikistan, Taiwan, Indonesia, Philippines, Samoa) in the aftermath of disasters. In 2009, the Commission strengthened civil protection cooperation activities with neighbouring countries.

A Communication on a **Community approach on the prevention of natural and man-made disasters** <sup>(15)</sup> was adopted by the Commission in February 2009. Proposed action at EU level, supported in Council conclusions of November 2009, focuses on areas where a common approach is more effective than separate national approaches. These include developing knowledge, guidelines on risk assessment and mapping, linking actors and policies, and improving the performance of existing Community disaster prevention instruments. **EU-Floodex 2009**, an exercise organised in the context of the Civil Protection Mechanism, brought together over 1000 participants from the Netherlands, the UK, Germany, Estonia and Poland to cooperate in a major flood scenario in September.

## Outlook for 2010

- In 2010, the Commission will begin the **assessment of the River Basin Management Plans** due under the Water Framework Directive and will launch a policy review on water scarcity and droughts, both to be finalised in 2012. The focus will be, *inter alia*, on assessing, on implementation gaps/problems for the Directive, and on what is being achieved in terms of water efficiency, policy integration, land use, use of unconventional water resources, drought management and stakeholder mobilisation.

<sup>(15)</sup> COM(2009)82



- REACH implementation in 2010 is dominated by preparations for the first **registration** deadline at the end of November. This concerns all manufacturers and importers of chemicals in quantities of more than 1000 tonnes per year, and of chemicals toxic to the aquatic environment above 100 tonnes per year and CMRs (Carcinogenic, Mutagenic or toxic to Reproduction) above 1 tonne per year. REACH art. 5: 'No data, no market' states that late registration means that supply of the chemical in question will be interrupted, so the stakes are high for the chemical industry. The Commission estimates there will be 38 000 dossiers for 4 400 substances registered by the deadline. Under the REACH **authorisation procedure**, the substances 'of very high concern' can only be used and put on the market if they have been authorised. In 2010, the Commission has put forward a proposal for the inclusion of the first six 'very high concern' substances. The number of substances on the candidate list is expected to grow gradually from the 29 recorded at the beginning of 2010 to 136 by 2012. As for **restrictions** on chemicals under REACH, the Commission is continuing work on transitional measures, i.e. restriction proposals which follow on from risk assessments from the pre-REACH period.
- Further activities under REACH in 2010 include the launch of a study for the **review of the scope of REACH**. The purpose is to assess by 2012 whether to amend the scope of REACH to avoid overlaps with other Community legislation. The review involves analysis of all relevant sectoral Community legislation and a comparison with REACH, and includes stakeholder feedback.
- The Regulation for the **Classification, Labelling and Packaging of Substances and Mixtures**, which entered into force in January 2009, has a deadline of December 2010 to classify substances according to the new rules. Manufacturers and importers must notify the European Chemicals Agency by January 2011 of the classification of substances placed on the market.
- The Commission will publish its fourth report on the implementation of the Community strategy on **endocrine disruptors** in 2010, to cover the period since the previous report in 2007.
- Work will continue on the **combination effects of chemicals**. Current regulatory approaches to assessing chemicals are usually based on evaluating single substances, one by one. There are concerns that this does not provide enough information on the hazards of interactions, and that the combination effects of chemicals should be addressed in a more systematic way. Acknowledging these concerns, the Council of Environment Ministers adopted conclusions on combination effects of chemicals in December 2009. The Council invited the Commission to assess how and whether existing legislation addresses this problem and to suggest appropriate modifications and guidelines by 2012. In 2010, the Commission will complete a study to review current scientific knowledge and regulatory approaches entitled 'State of the Art Report on Mixture Toxicity' and this will provide input to address Council recommendations.
- Before the end of 2010, the Commission intends to adopt a new Action Plan for 2010–14 on **nanotechnologies** to follow up the first Action Plan for 2004–2009. The new plan will focus mainly on broader aspects of the technology, including its risks and hazards, as well as how it can be deployed in an 'integrated, safe and responsible' manner. In this context, the Commission has also started work on reviewing parts of the environmental legislation to see how it covers nanomaterials and it intends to do the same for REACH. These reviews will be reported in a 2011 Communication to the Parliament and may lead to proposals for legislative changes if necessary.
- In 2010, the Council and the European Parliament are expected to adopt a **Directive on the protection of animals used for scientific purposes**, revising the existing Directive on that topic. The Commission proposal aims to minimise the number of animals used in scientific procedures and to significantly improve the treatment of animals where these are still needed for safety testing and biomedical research throughout the European Union. It should also enhance the quality of research conducted in the EU and ensure high standards of human and animal health and environmental protection.

# Natural resources and waste

## Highlights in 2009

Current patterns of consumption and production are leading to the depletion of natural resources, while also causing serious environmental pressures. The EU has developed a set of policies to promote resource efficiency and better waste management, at home and internationally, in order to move towards a more sustainable consumption and production.

In 2009, two new Commission reports <sup>(16)</sup> showed that **EU waste law is being poorly implemented and enforced** in many Member States, particularly in the cases of the Waste Framework Directive, the Landfill Directive and the Waste Shipment Regulation. In many cases, there is a lack of waste treatment infrastructure, and waste is not sorted before collection. Targets for re-use, recycling and recovery are being missed for waste streams such as electrical and electronic equipment, end-of-life vehicles or packaging. There are also many cases of illegal shipment of waste. In recent years, the Commission has stepped up its efforts to support Member States to improve their implementation, via awareness campaigns, a helpdesk, as well as guidance documents. The Commission is also studying the **costs and benefits of creating an EU Waste Implementation Agency** to help address shortfalls in implementation and lack of enforcement. Further steps may be proposed during 2011.

Public opinion and awareness about waste disposal is growing: four out of five Europeans say they consider the environmental impact of the products they buy, according to the Eurobarometer survey published in 2009 <sup>(17)</sup>. There was

<sup>(16)</sup> <http://ec.europa.eu/environment/waste/reporting/index.htm>.

<sup>(17)</sup> Flash European Barometer — Series #256.

also strong support for the idea of retailers playing a role in promoting environmentally-friendly products, as well as for mandatory carbon labelling.

With the small and medium enterprises as its prime target, the Competitiveness and Innovation Framework Programme (CIP) provides a framework for support in fields that are essential for strengthening productivity, innovation capacity, and sustainable growth in Europe, while addressing environmental concerns. **CIP Eco-innovation** covers a wide range of green products, services and processes that can turn environmental challenges into business opportunities. In 2009, 45 projects were selected from over 200 proposals submitted for funding. Ranging from innovative materials for easy sorting and recycling to advanced production methods that save water and other resources, the selected projects are set to strengthen Europe's competitive edge, while improving its environmental standing.

In 2009, the European Council and Parliament reached a first-reading **agreement on the revision of** two key information and management instruments to promote sustainable consumption and production, **the European Ecolabel and the Eco-Management and Audit Scheme (EMAS)**. The agreement came less than a year after the Commission presented the proposals as part of a package of measures on sustainable consumption



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and production. Both schemes will remain voluntary. The revised Ecolabel scheme will simplify requirements for participants. There will also be more focus on products and services that have the most significant environmental impacts. Ecolabel criteria will be developed for food and drink products in future in the event that a study to be performed by 2011 demonstrates the need for and feasibility of such criteria. Lower fees, higher environmental standards, exclusion of dangerous substances and simplified criteria linked to public purchasing and other EU policies are just some of the benefits of the revised Regulation. At the end of 2009, nearly 20 000 products and services carried the label's signature flower logo. The fundamental changes to the EMAS scheme focus on the needs of small organisations (SMEs and small public authorities). The major new elements include taking a sectoral approach to promoting best practice in environmental management and extending EMAS to non-EU countries. The revision also includes elements strengthening compliance with environmental legislation and reinforced environmental reporting. This should increase the number of companies that take part, and reduce the administrative burden and costs for SMEs. In 2009, the Commission decided to extend EMAS to all of its own activities and buildings. During a pilot phase, it saw significant reductions in energy and water consumption, greenhouse gas emissions and waste generation, and more Commission staff commuted by public transport.

To enhance the role of retailers in promoting more environmentally sustainable consumption patterns, the Commission and the European retail sector launched a **Retail Forum** <sup>(18)</sup>. The Forum will meet every quarter for the next three years. It will aim to generate better understanding of the practical measures needed to promote sustainable consumption and production. Over time, it should result in more environmentally-friendly and energy-efficient products for sale in shops. The Retail Forum will issue papers with proposals for action on environmental issues important for the sector. It has already

<sup>(18)</sup> <http://ec.europa.eu/environment/industry/retail>

published recommendations on how to improve energy efficiency in EU stores and on how to make the distribution of goods greener, on use and management of sustainable timber, and on marketing and communication <sup>(19)</sup>.

A diverse range of methodologies is emerging to assess the environmental impact of food products. This diversity often makes it difficult for SMEs or even larger economic actors to access several schemes and may lead to a fragmentation of the internal market. In order to promote a more harmonised approach, the Commission works with the European food supply chain within the **food sustainable consumption and production roundtable** <sup>(20)</sup>. The objective is to provide harmonised and reliable assessment and improvement tools based on a life-cycle approach. The roundtable was launched in 2009 and had its first Plenary in July 2010. This Plenary was the occasion to present its first deliverables on guiding principles for voluntary environmental assessment of food products and communication along the food chain, including to consumers.

On an international level, a new Convention was adopted to set global rules on ship recycling: the **International Convention for the Safe and Environmentally Sound Recycling of Ships**, developed by the International Maritime Organisation. This is the first convention to address ship recycling



<sup>(19)</sup> See also the Report "Towards more efficient and fairer retail services in the internal market for 2020" (COM(2010) 355 final)

<sup>(20)</sup> <http://www.food-scp.eu>



issues specifically, and it aims to improve the health and environmental standards applied in the industry. The rules will enter into force once they are ratified by a minimum of 15 countries, representing at least 40 % of the world fleet.

As part of the EU strategy of sustainable use of natural resources, an **International Panel on Sustainable Resource Management** was set up in 2007 under the auspices of the United Nations Environment Programme. Its aim is to provide scientific evidence to underpin the delivery of policies on resource efficiency <sup>(21)</sup>. In October 2009, it

published its first report, on biofuels <sup>(22)</sup>. It assessed a number of options for efficient and sustainable production and the use of biomass as an alternative fuel source. These include measures such as restoring formerly degraded land, and energy recovery from agricultural waste and residues. Several of the report's scientific recommendations are already integrated into EU biofuels policy, which includes a set of sustainability criteria.

## Outlook for 2010

- Building on the Environmental Technologies Action Plan and policy initiatives in the area of Research and Innovation, the Commission is working on further measures to support eco-innovation following the Innovation Union Flagship Initiative under the Europe 2020 Strategy.
- With regard to impacts to the environment from industrial accidents related to the exploitation of natural resources, the Commission will assess the current legislative framework in relation to requirements on sustainability and environmental safety and in relation to environmental liability for damages in the area of offshore hydrocarbons exploration and production.

<sup>(21)</sup> The EU Framework Programme for Research and Innovation is also providing scientific evidence and technologies to underpin EU policies on resource efficiency.

<sup>(22)</sup> <http://www.unep.fr/scp/rpanel/>.

## Conclusions

At the end of 2008, the **European Economic Recovery Plan** providing a fiscal stimulus of 400 billion euro was adopted. It included green initiatives, focusing on energy-saving and climate change measures, and is currently being implemented by the Commission and Member States. The Commission's analysis of green elements in national economic recovery packages showed that most Member States directed their efforts towards energy efficiency, renewable energy, public transport, fleet renewal of passenger cars, infrastructure and eco-innovation.

The coming years should show how these measures contribute to shifting to a low-carbon and resource-efficient economy. However, only a few Member States included measures to promote resource efficiency (recycling, waste prevention and treatment), water infrastructure, and ecosystems protection and management, promotion of 'green consumption' via green public procurement or via incentives for consumers to purchase greener products. The number of 'green measures' planned, as well as depth of the approach, vary significantly from one Member State to another.

The **Europe 2020 strategy** - adopted by the European Council in June 2010 - also supports the need to shift to a resource-efficient economy. The successor to the Lisbon strategy for growth and jobs seeks to ensure that Europe emerges from the economic crisis stronger, and it paves the way for smart, green and inclusive growth. In this context, the Commission proposed launching '**Resource efficient Europe**' as a key flagship initiative of Europe 2020. This would require full integration of environmental concerns in many other policy areas, while ensuring internal policy coherence. The drive will lead to a number of follow-up initiatives in the course of 2010.

Achieving progress also requires **good tools to measure it**. That is why the Commission adopted a roadmap in 2009 to measure progress in a changing

world: '**GDP and Beyond**'. Although GDP is - by design and purpose - not a welfare measure, it has come to be regarded as a proxy indicator for overall societal progress. However, it does not measure environmental sustainability or social inclusion and these limitations need to be taken into account. The actions proposed aim to improve the measurement of a nation's progress by complementing GDP with indicators that cover such aspects. As a part of efforts to shift towards a low-carbon, resource-efficient economy, the Commission will present a pilot version of a comprehensive environmental index in 2010. The European Statistical System will implement integrated environmental economic accounting as a standard in macro-economic statistics. In 2009, the obligation to share data about policies and activities having an impact on the environment came into force through the INSPIRE directive (**Infrastructure for Spatial Information in the European Community**). Over the coming years, INSPIRE implementation will continue to address the various obstacles which prevent this sharing from happening efficiently. Coordinated implementation of this vital information infrastructure, which remains a challenge, will significantly enhance the Member States' capacity to better plan, implement and monitor environmental, disaster mitigation and climate change adaptation measures.

For other key policy areas, **2010 will be a crucial year:**

On **climate change**, the outcome in Copenhagen clearly falls short of the EU's initial objectives. The Accord also leaves many important details to be worked out. Much work will now be needed to make the Accord operational. The EU must honour its pledges in the Accord, and convince others to do so as well. If this can be achieved, it could, together with the outcomes of the two working groups, provide the basis of a new global climate treaty. The EU's goal should

now be to ensure that good progress is made before the meeting in Mexico at the end of 2010.

**Loss of biodiversity** is a global threat as serious as climate change. The Commission will use the momentum of 2010, the International Year of Biodiversity, to step up efforts to protect biodiversity both within and outside the EU. To reverse the alarming trends of loss, the EU must fully implement relevant legislation, from the Habitats and Birds Directives to the Water Framework and Marine Directives. The **completion of the Natura 2000 network** will be speeded up on land and sea, and its effective management will be promoted. Further efforts will be made to offer enough EU funding and incentives under the next financial perspective from 2013 to support the management of Natura 2000. Biodiversity must become a central element of all policies. Dialogue with various economic sectors must be enhanced, and their awareness raised. Existing legislative gaps need to be filled, particularly on soils and invasive species. We need to improve the knowledge base and to develop a biodiversity baseline against which to measure progress towards reaching goals to be set for the post-2010 period. Finally, the science-policy interface should be reinforced at EU and global level to facilitate informed policy-making – hence the significance of the agreement reached in June 2010 on the need to establish an Intergovernmental Platform on Biodiversity & Ecosystems. “

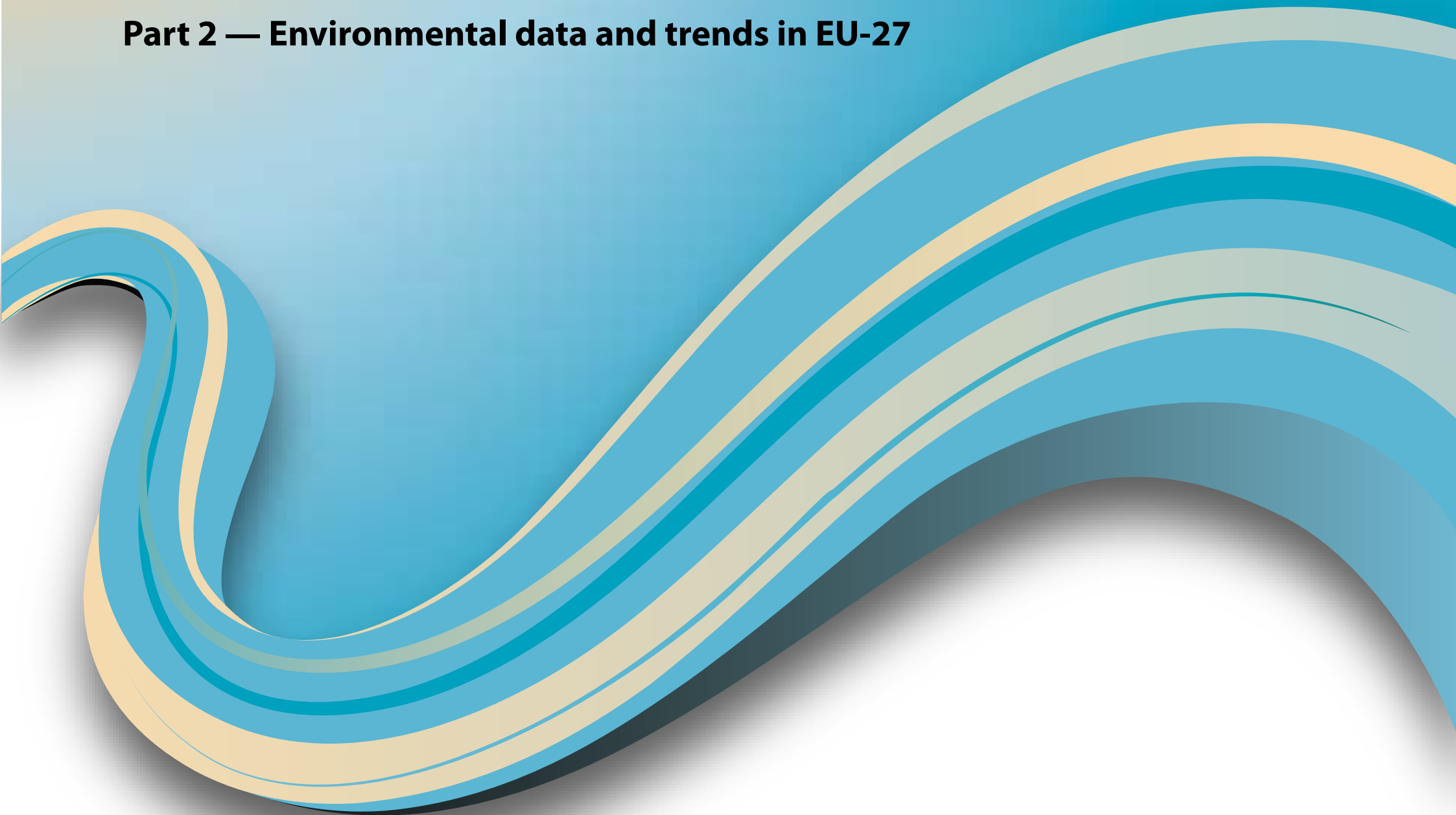
Environment policy can and should be further **integrated into other policy areas**. Environmental challenges are already addressed in the EU Budget, for example via Cohesion Policy, with investment in waste and water management, clean energies, sustainable transport and promotion of biodiversity and nature protection. Around 105 billion euro is planned to be invested in environment-relevant programmes and projects out of the total budget of 347 billion euro available for Cohesion Policy over the years 2007-2013. Energy policy is now integrating environmental and climate change objectives, moving the economy towards a low carbon future, with binding targets on renewables and ambitious goals in energy efficiency by 2020. The further completion of the internal market

in gas and electricity aims at facilitating the implementation of this policy. A new Energy Infrastructure Package will be tabled in 2010 to ensure that infrastructures will help meeting these new challenges. Environmental concerns have also been progressively integrated into the Common Agricultural Policy (CAP), with about half the 2nd pillar of the CAP now going to Rural Development measures with specific agri-environmental objectives. However, much more can be done in both Pillar 1 and Pillar 2 of the CAP. Environment is also a key area of the EU's external policy, including its dialogue and cooperation with neighbouring countries and wider. The upcoming **Review of the Financial Perspective** could further improve the way in which environmental concerns are integrated into various EU policy areas.

Finally, in the years to come, the Commission's key priority is to ensure **full implementation of the environmental acquis**. Member States bear much of the responsibility here, but the Commission will continue to cooperate with them to support their efforts, through technical assistance, guidance on implementation, exchanges of best practice and EU funding. The Commission will at the same time continue to co-operate with and support the candidate countries and potential candidates in aligning with and preparing for implementation of EU legislation, so that these countries are well prepared upon joining the EU. This is done through sustained financial assistance and instruments as the Regional Environmental Network for Accession.

A good example of promoting better implementation was a series of seminars for judges from ten Member States in May 2009, enabling them to look at the ways in which EU environmental law is applied. The role of national judges in ensuring compliance with EU law is crucial. This is particularly true for the environment, where thousands of decisions with potential impacts on the environment throughout the EU are taken every year, for instance, on applications for new landfill sites, questions on the protection of Natura 2000 sites, or permits for industrial installations. Ultimately, the Commission will use instruments to ensure legal enforcement whenever necessary.

## Part 2 — Environmental data and trends in EU-27







This part presents selected key indicators on the environment and environment policy, including the four priority areas of the 6<sup>th</sup> EAP. The indicators have been mainly chosen from the EU Sustainable Development Indicators to monitor the EU Sustainable Development Strategy,<sup>1</sup> the EU Structural Indicators employed for reporting for the Lisbon process,<sup>2</sup> and the EEA's Core Set of Indicators,<sup>3</sup> which provide a comprehensive basis for assessment of progress against environment policy priorities.

Wherever possible, the information provided describes the full circumstance of the environmental issue – covering all links in the causal chain (DPSIR)<sup>4</sup>:

- showing the *state* of the environment, illustrating what to preserve or regain,
- highlighting aspects of the *pressures* exerted by society and the economy on the state of the environment,
- informing about underlying social and economic *driving forces* behind the pressures,
- reporting what action has been taken as a *response* to mitigate these pressures or driving forces.

Other indicators show the current or projected *performance* of Member States or the *eco-efficiency* of their economy.

Table 1 presents these indicators by priority area of the 6<sup>th</sup> Environment Action Programme, together with other relevant issues. It describes the type of indicator according to the DPSIR scheme, the data source, the most recent year for which information is available (as of March 2009) and the assessment of EU environment indicators based on criteria mentioned below. The assessment is indicative and meant to improve the understandability of this

<sup>1</sup> <http://ec.europa.eu/eurostat/sustainabledevelopment>




<sup>2</sup> <http://ec.europa.eu/eurostat/structuralindicators>

<sup>3</sup> <http://themes.eea.europa.eu/IMS/CSI>

<sup>4</sup> DPSIR is a framework for describing the interactions between society and the environment: Driving forces, Pressures, States, Impacts and Response.

document. It addresses the performance of the indicator from an environmental perspective.

#### Key to assessment of indicators

-  good performance or worrying trend has been reversed or the EU is on track to meet the target
-  average performance or trend not clear, overall problem remains despite some mixed progress
-  poor performance or worrying trend or EU target is unlikely to be met

## What Europeans think about the environment?

European citizens are increasingly concerned about environmental problems and they are willing to contribute to the solutions. In 2009 the Commission launched four European surveys on the following themes: water<sup>5</sup>, sustainable consumption and production<sup>6</sup>, climate change<sup>7</sup> and civil protection<sup>8</sup>. We present here some conclusions from recent Eurobarometers<sup>9</sup>.

### Moving towards a sustainable economy

European public opinion is divided when citizens are asked if they agree on the following: “Economic growth must be a priority for our country, even if it

<sup>5</sup> Flash Eurobarometer 261 on water (conducted in January and published in March 2009)

<sup>6</sup> Flash Eurobarometer 256 on Europeans' attitudes towards the issue of sustainable consumption and production (conducted in April and published in July 2009).

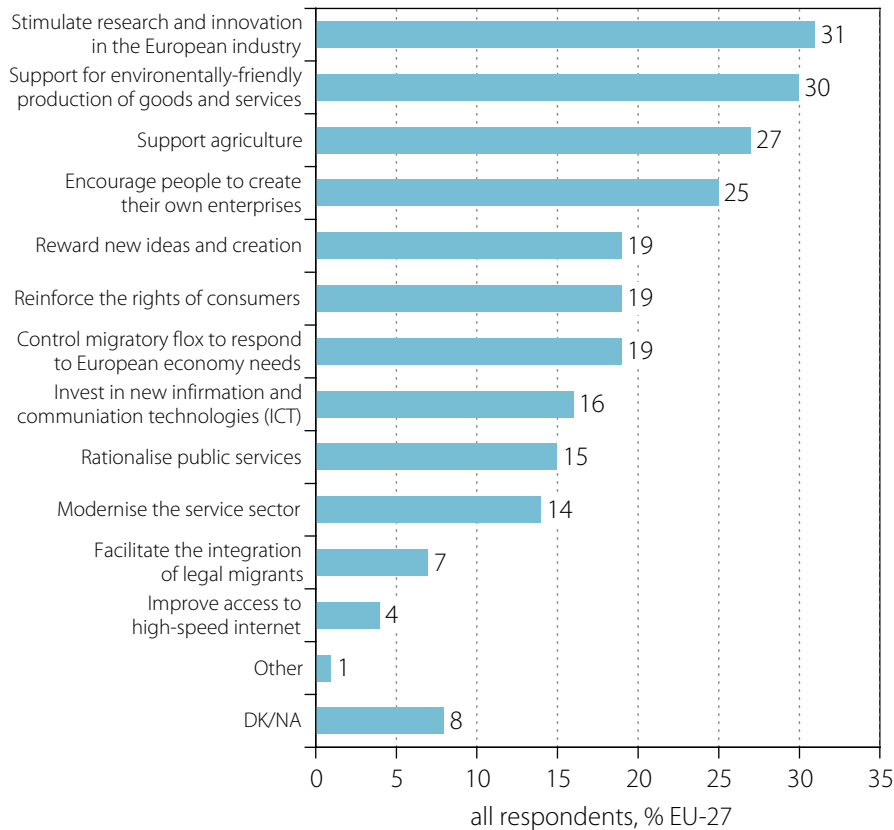
<sup>7</sup> Special Eurobarometer 322 on Europeans' attitudes towards climate change (conducted in August-September and published in November 2009)

<sup>8</sup> Special Eurobarometer 328 on civil protection (conducted in September/October 2009 and published in November 2009)

<sup>9</sup> In the graphs, DK means “Don't know” and NA means “No answer”

affects the environment". This indecision can be explained by the fact that a large proportion of European citizens consider that economic growth and the environment are not necessarily mutually exclusive: protecting the environment can have a positive impact on the economy.

In order to boost growth in a sustainable way, EU citizens think that in the European Union should be prioritised (max 3 answers):

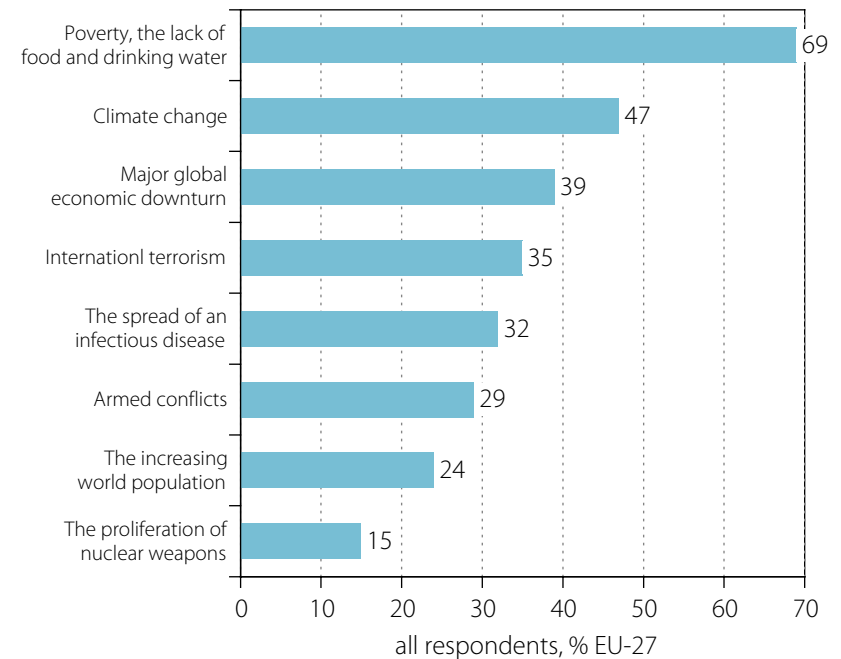


Source: Standard Eurobarometer 72 (conducted in October-November 2009 and published in December 2009).

In order to boost growth in a sustainable way, 30% of respondents opt for the environmentally-friendly production of goods and services in second place, just behind the stimulation of research and innovation in European industry (31%).

### Climate change

What is the most serious problem our world faces (max 3 answers):

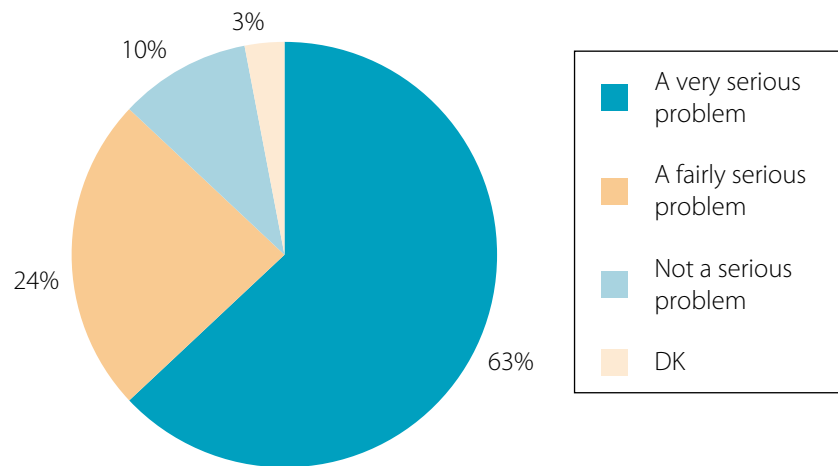


Source: Special Eurobarometer 322 on Europeans' attitudes towards climate change (conducted in August-September 2009 and published in November 2009).

Climate change is considered the second most serious problem faced by the world, (after "the poverty, the lack of food and drinking water", and before

“major global economic downturn”) and almost two thirds of Europeans think that climate change is a very serious issue. Moreover, the majority of Europeans (63%) agree that tackling climate change can have a positive impact on the European economy.

Europeans think that climate change is:

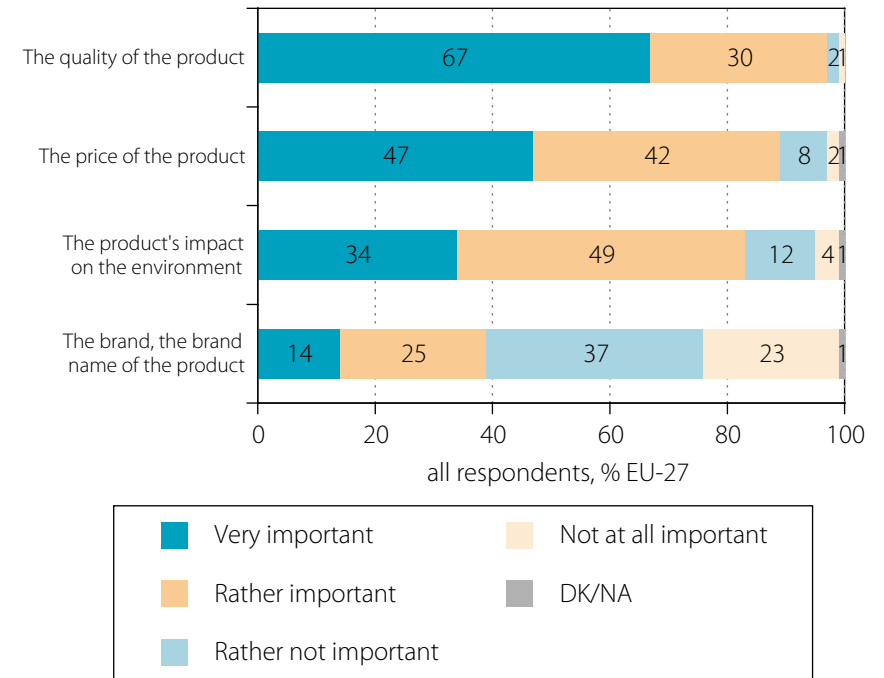


Source: Special Eurobarometer 322 on Europeans’ attitudes towards climate change (conducted in August-September 2009 and published in November 2009).

Most Europeans (63%) say they have taken personal actions to contribute to fighting climate change, with the most common actions being separating waste for recycling and reducing energy and water consumption at home.

### Sustainable consumption and production

Importance of various aspects of products when deciding which ones to buy



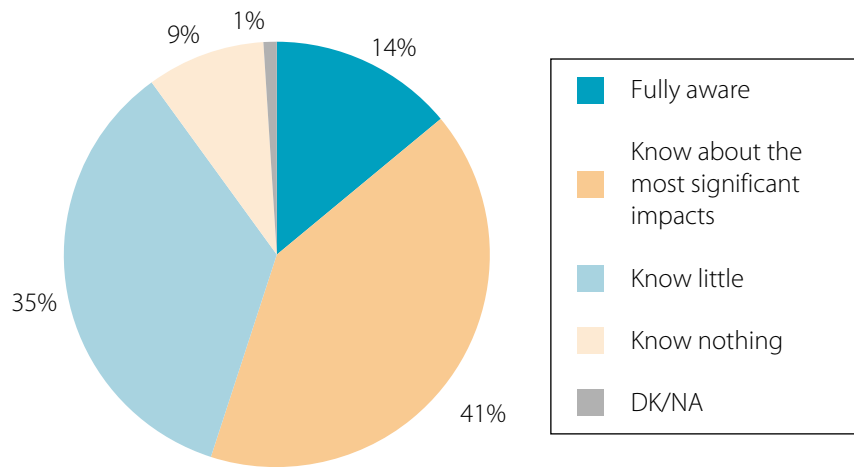
Source: Flash Eurobarometer 256 on Europeans’ attitudes towards the issue of sustainable consumption and production (conducted in April 2009 and published in July 2009).

Four out of five Europeans say they consider the environmental impact of the products they buy.

A slim majority (55%) of EU citizens say that, when buying or using products, they are generally fully aware of or know about the most significant impacts of these products on the environment.

At the same time, only one in two Europeans says they trust producers' claims about environmental performance.

Awareness of Europeans about the environmental impact of products bought or used:

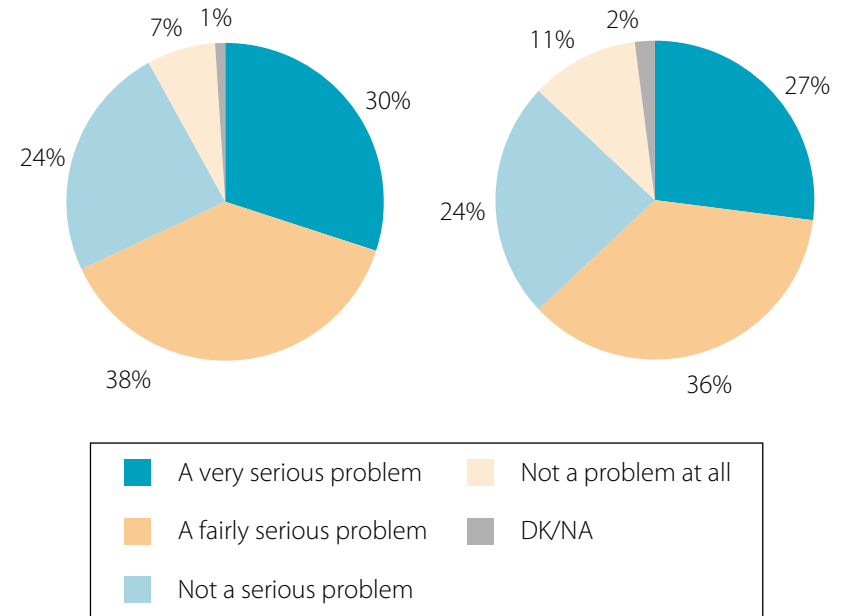


Source: Flash Eurobarometer 256 on Europeans' attitudes towards the issue of sustainable consumption and production (conducted in April 2009 and published in July 2009).

To promote eco-friendly products, Europeans are generally more favourable towards a taxation system based on *reducing* taxes for green products than one on *increasing* tax for environmentally-damaging products.

### Water

On the seriousness of water quality problems in their countries, EU citizens say it is:



Source: Flash Eurobarometer 261 on water (conducted in January 2009 and published in March 2009).

A majority of Europeans felt not well-informed about the problems facing rivers, lakes and – where relevant – coastal waters in their country. A majority (68%) of EU citizens think that water quality is a serious problem in their country (highest percentages in Greece and Romania).

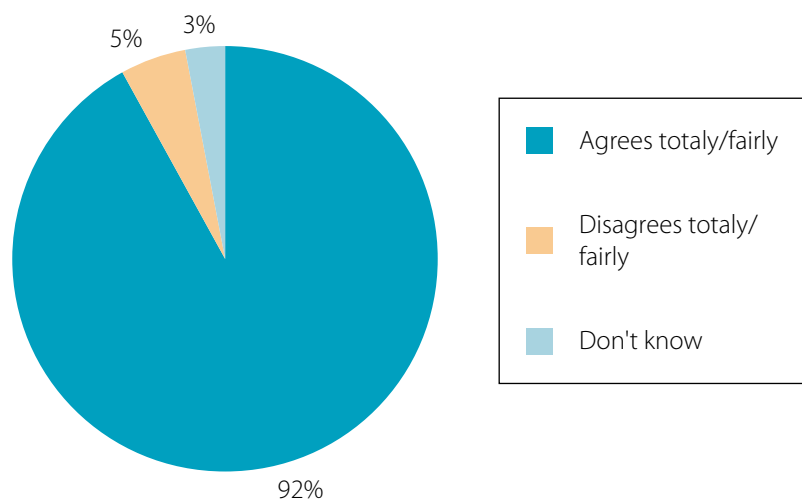
Around a quarter of EU citizens felt that the shortage or excess (such as floods) of water is a very serious problem in their country (highest percentage in Cyprus and Greece), while 59% said that this is a problem.

Industry (for the use of water and pollution) and agriculture (for the use of water, pesticides and fertilisers) are the factors that have a greater influence on the status of water, according to most Europeans.

A vast majority of EU citizens say that they have been actively trying to reduce water-related problems in the last two years: 84% by using less water (e.g. by not leaving taps running, by taking a shower instead of a bath, installing water saving appliances etc.); 78% have avoided using pesticides and fertilisers in private garden; 60% have used eco-friendly household chemicals.

### Civil protection

EU should do more to support EU Member States to respond to disasters (% EU citizens):



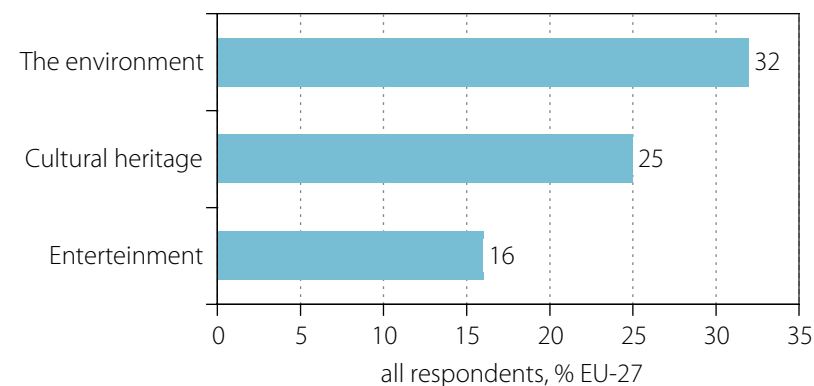
Source: Special Eurobarometer 328 on civil protection (conducted in September–October 2009 and published in November 2009).

The disasters most feared by Europeans are flooding (45%) and violent storms (40%). Over half (53%) of respondents prefer to turn to scientists when looking for information on possible disasters. A vast majority thinks that the European Union should give more support to Member States with respect to disaster prevention (90%), preparedness (90%) and response (92%, as shown in the graph).

Most Europeans (82%) agree that the EU needs a disaster management policy because natural disasters are increasing in number and intensity; they are also in favour of the EU setting up a reserve to help EU Member States respond to disasters.

### Tourism: reasons for choosing a destination

When deciding on a holiday destination, EU citizens replied that the factors that the most influence their choice of destination are:



Source: Flash Eurobarometer 291 on the attitudes of Europeans towards tourism (conducted in February 2010 and published in March 2010).

When deciding on holiday destinations, most Europeans mentioned the location's environment (e.g. its overall attractiveness) as the key consideration (32%). Cultural heritage (25%) and the options for entertainment (15%) were the second and third most widespread responses in regard to factors that influenced the choice of destination.

Table 1. Environmental indicators in Part 1

	Indicator	DPSIR*	Data Source	Latest available year	EU
<b>1</b>	<b>Climate change and energy</b>				
1.1	Global air temperature change	S	EEA, CRU, University of East Anglia	2009	☹ world
1.2	Concentrations of CO <sub>2</sub> in the atmosphere	P	IPCC, NOAA	2009	☹ world
1.3	Natural disasters linked to climate change	I	CRED	2009	☹
1.4	Total Kyoto greenhouse gas emissions	P	EEA	2008	😊
1.5	Share of energy produced from renewable energy sources in final energy consumption	R	EC, Eurostat	2008	😊
1.6	Electricity produced from renewable energy sources	R	EC, Eurostat	2008	☹
1.7	Combined heat and power generation	R	EC, Eurostat	2008	☹
1.8	Energy intensity	R	EC, Eurostat	2008	😊
1.9	Final energy consumption by transport	D	EC, Eurostat	2008	☹
1.10	Average CO <sub>2</sub> emissions from passenger cars	D	EC, DG Environment	2008	😊
1.11	Cumulative spent fuel from nuclear power plants	D	EC, DG Transport and Energy	2008	☹
<b>2</b>	<b>Nature and biodiversity</b>				
2.1	Common birds	S	EBCC/RSPB/Birdlife	2007	☹
2.2	Conservation status of habitats by habitat group	S	EEA, ETC on biodiversity	2007	☹
2.3	Conservation status of species by taxonomic grouping	S	EEA, ETC on biodiversity	2007	☹
2.4	Landscape fragmentation	P	EEA	2009	☹
2.5	Topsoil organic carbon content	S	JRC	1990	☹
2.6	Freight transport	D	EC, Eurostat	2008	☹
2.7	Area occupied by organic farming	R	EC, Eurostat and FIBL and others	2008	😊
2.8	Area under agri-environmental commitment	R	EC, DG Agriculture and rural development	2008	😊
2.9	Natura 2000 area (% terrestrial area)	R	EC, DG Environment	2009	

	Indicator	DPSIR*	Data Source	Latest available year	EU
<b>3</b>	<b>Environment and health</b>				
3.1	Urban population exposure to air pollution by particles	S	EC, DG Environment and EEA	2008	☹
3.2	Urban population exposure to air pollution by ozone	S	EC, DG Environment and EEA	2008	☹
3.3	Transport noise in urban agglomerations	P	EEA	2007	☹
3.4	Emission projections for air pollutants	P	EEA, UNECE	2008	☺
3.5	Air emissions of nitrogen oxides	P	EEA, UNECE	2008	☹
3.6	Water exploitation index	P	EEA	2007	☺
3.7	Production of toxic chemicals	P	EC, Eurostat	2008	☹
3.8	Production of environmentally harmful chemicals	P	EC, Eurostat	2008	☹
3.9	Pesticides residues in food	P	EC, DG Health and consumers	2007	☺
<b>4</b>	<b>Natural resources and waste **</b>				
4.1	Fish catches from stocks outside safe biological limits	S	EC, DG Marine affairs and fisheries, ICES	2008	☹
4.2	Total waste generated	P	EC, Eurostat	2006	☹
4.3	Municipal waste generated	P	Eurostat	2008	☺
4.4	Recycling of packaging waste	R	EC, Eurostat	2007	☺
<b>5</b>	<b>Environment and the economy</b>				
5.1	Environmental taxes	R	EC, Eurostat and DG Taxation and customs union	2008	
5.2	Green jobs	R	EC, DG Environment	2008	
5.3	Net electricity generating installations in EU	R	EWEA	2009	
<b>6</b>	<b>Implementation</b>				
6.1	Infringements of EU environmental legislation	Perf.***	EC, DG Environment	2009	

EC: European Commission, DG: Directorate General.

\* The causal framework for describing the interactions between society and the environment: driving forces, pressures, states, impacts and response.

\*\* The EC is currently developing other indicators to address the entire life cycle of natural resources, in particular on resource productivity, resource specific impacts and eco-efficiency.

\*\*\* Performance indicator.

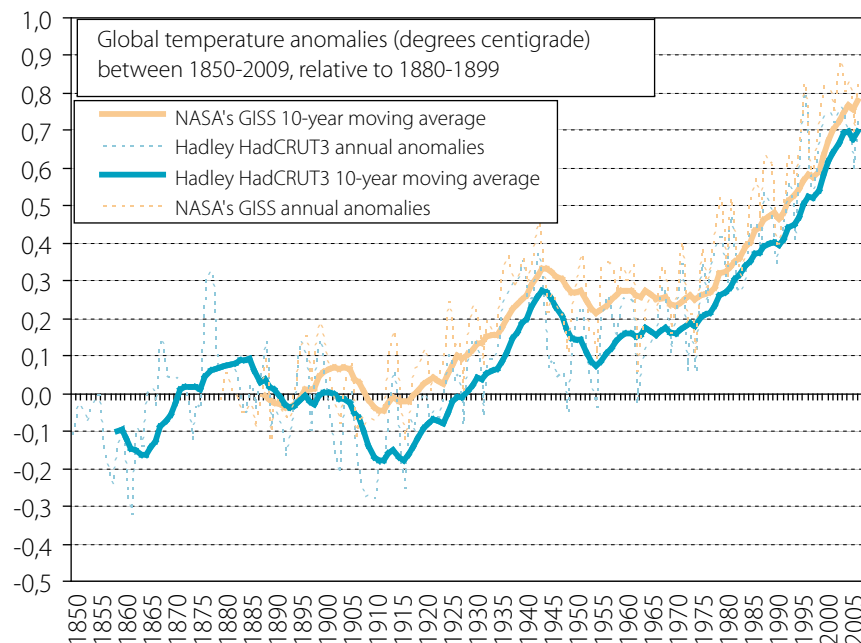
## Country codes used in the document

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom
EU-27	European Union as of 1 January 2007
EU-25	European Union, as of 1 May 2004 but before accession of Bulgaria and Romania
EU-15	European Union , as of 1 January 1995 but before enlargement in 2004
EU-12	The 12 Member States that have joined the EU since 2004
US	United States
JP	Japan



## 1. Climate change and energy

### 1.1. State indicator: Global air temperature change<sup>10</sup> (°C, as a temperature change compared to the mean 1880-1899) during 1850-2009



Source: EEA, based on Climate Research Unit HadCRU3 and NASA GISS datasets.

<sup>10</sup> Note: In blue, the source of the original anomalies is the MET Office Hadley Centre. The global mean annual temperature deviations are in relation to the base period 1961-1990. In red, the source of the original anomalies is NASA's GISS. The anomalies are in the source in relation to the base period 1951-1980. In both cases, the global mean annual temperature deviations have been adjusted to be relative to the period 1880-1899 (to have the same comparison basis). The trend lines show the 10-year moving average of the original anomalies for both datasets relative to the period 1880-1899. The dotted lines show the annual anomalies of the HadCRUT3 (blue) data set and GISS data set (red) respectively.

### Evidence of climate change

According to the Fourth Assessment Report (2007) of the Intergovernmental Panel on Climate Change (IPCC), climate change provokes, among others, a rise in global air temperature and an increase in the number of extreme weather events (e.g. droughts, floods, cyclones, hurricanes, snowstorms, heat waves and cold waves): "Warming of the climate system is unequivocal, as is evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level". There is clear evidence that human activities, in particular the emissions of greenhouse gases, are impacting the global temperatures and climate in all regions<sup>11</sup>.

### Change in 2009 compared to pre-industrial period

The graph shows that global mean temperature in recent years was between 0.7 and 0.8°C above pre-industrial levels.<sup>12</sup> The year 2009 ranks in the top 10 warmest years since the beginning of instrumental records in 1850, with a global air mean temperature of 14.3°C. The past decade (2000-2009) was also the warmest decade on record.

### Recent climate extremes

Climate extremes were recorded in many parts of the world. During 2009 extreme warm events were more frequent and intense in southern South America, Australia and southern Asia. China suffered its worst drought in five decades. At the end of January 2009, Spain and France were severely affected by the winter storm Klaus, the worst extra-tropical storm in a decade. The 2009 summer was also warmer than the long-term average in Europe, in particular

<sup>11</sup> Met Office of Hadley Centre (December 2009)

<sup>12</sup> Using 10-year moving averages and relative to the period 1880-1899. For further explanations on the NASA's GISS and Hadley HadCRUT3 data sets please see respectively: <http://data.giss.nasa.gov/gistemp/> and <http://hadobs.metoffice.com/hadcrut3/data/download.html>

over Southern Europe: Spain had its third warmest summer, while a heat wave in July affected Italy, United Kingdom, France, Belgium and Germany.<sup>13</sup> (WMO)

### *Effects of climate change*

Climate change is accelerating the melting of sea ice in the Arctic, according to early findings of a large-scale study that is part of the International Polar Year (IPY)<sup>14</sup>. According to this study, the Arctic is warming at twice the rate of the rest of the planet. In 2005 most models predicted that the Arctic would be ice-free during summer by the year 2100, but this is now expected to happen already between 2013 and 2030. A warmer Arctic may unlock vast stores of methane stored in the permafrost soil, this gas having about 21 times the global warming impact of carbon dioxide. Sea ice and snow reflect sunlight while melting of Arctic sea ice is already triggering a feedback of more warming because dark water revealed by the receding ice absorbs more of the sun's energy ("sea ice-albedo feedback").

### *Towards new evidence on climate change*

The International Panel on Climate Change (IPCC) is currently working on the fifth Assessment Report (AR5) which will come out in 2013/14. It will assess the most recent scientific literature and will provide a comprehensive update of knowledge related to climate change, and will focus on: the socio-economic

<sup>13</sup> World Meteorological Organisation (WMO), 2009 (press release No 869, available on [www.wmo.int](http://www.wmo.int))

<sup>14</sup> The International Polar Year is a project organized by WMO and the International Council for Science. The study "Arctic Treasure: Global Assets Melting Away" (February 2010) by the Pew Environment Group was the largest yet of the Canadian Arctic, involving more than 370 scientists from 27 countries researching aboard a vessel above the Arctic Circle. A summary of the study is available on : [http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Protecting\\_ocean\\_life/Arctic\\_Summary\\_FINAL.pdf?n=1822](http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Protecting_ocean_life/Arctic_Summary_FINAL.pdf?n=1822). More info on [www.oceansnorth.org](http://www.oceansnorth.org) [www.ocean-snorth/](http://www.ocean-snorth/) and <http://www.ipy.org/>

aspects of climate change and its implications for sustainable development; more precise regional information; address ethical and equity considerations; and matters related to the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

Between November 2009 and February 2010, several alleged errors in the IPCC Assessment Report have been reported, which gathered extensive press coverage. As a consequence, in March 2010 the UN and the IPCC decided that the InterAcademy Council (IAC) would conduct an independent review of the IPCC's processes and procedures to further strengthen the quality of the Panel's reports on climate change. The IAC is the umbrella organization for various national academies of science from countries around the world<sup>15</sup>. At this occasion, the UN Secretary-General emphasized "There were a very small number of errors in the Fourth Assessment Report. I have seen no credible evidence that challenges the conclusions of that report, which remain as strong as ever. Newer research indicates climate change is accelerating. The need for action is all the more urgent."

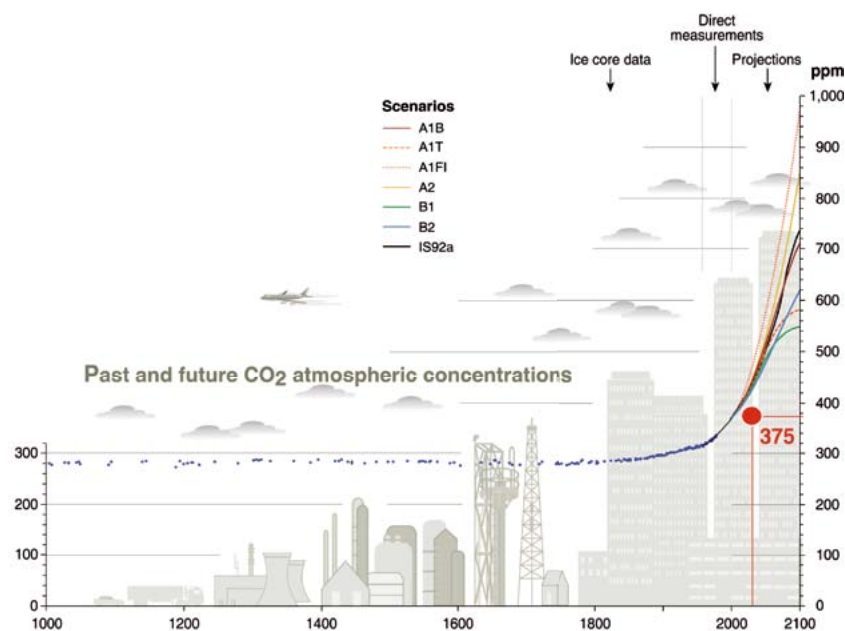
### *EU target becomes world target*

In view of combating climate change, the EU committed in March 2007 to an emission reduction target of 20% by 2020, compared with 1990 levels. The EU leaders also offered to increase the EU emission reduction to 30%, provided that other major emitters agree to take on their fair share of a global reduction effort. To achieve these objectives, the EU climate and energy package was agreed by the European Parliament and Council in December 2008. It was formally adopted in April 2009 and became binding law in June 2009.

<sup>15</sup> The review will examine every aspect of how the IPCC's reports are prepared, including the use of non-peer reviewed literature and the reflection of diverse viewpoints. The review will also examine institutional aspects, including management functions as well as the panel's procedures for communicating its findings with the public.

The EU's goal of limiting the increase of global temperature to 2°C above pre-industrial levels was endorsed for the first time at the global level at the UNFCCC COP-15 in Copenhagen in December 2009. More than 130 developed and developing countries, which account for over 80% of global greenhouse gas emissions, have agreed to the Copenhagen Accord. The EU formally notified its willingness to be associated with the Accord and submitted its emission reduction targets in January 2010.

## ☹ 1.2. Pressure indicator: Concentrations of CO<sub>2</sub> in the atmosphere



Source: IPCC, [http://maps.grida.no/go/graphic/past\\_and\\_future\\_co2\\_concentrations](http://maps.grida.no/go/graphic/past_and_future_co2_concentrations) and NOAA

Since pre-industrial times, the atmospheric concentration of greenhouse gases has grown significantly. Carbon dioxide (CO<sub>2</sub>) concentration has increased by

about 38%, methane concentration by about 157%, and nitrous oxide concentration by about 19% (WMO Greenhouse Gas Bulletin 2008)<sup>16</sup>.

### *Indicative target for CO<sub>2</sub> concentrations in the atmosphere*

Carbon dioxide (CO<sub>2</sub>) is the main greenhouse gas that results from human activities and causes global warming and climate change. According to the IPCC,<sup>17</sup> in order to have a chance of keeping warming below 2 degrees Celsius by 2100, CO<sub>2</sub> concentrations should be stabilised at a level in the range of 350 to 400 parts per million (ppm). Propelled by the news of the accelerating impacts of climate change (e.g. sea ice in the Arctic during summer has been rapidly decreasing), some of the world's leading climate scientists have proposed a stabilisation level for CO<sub>2</sub> of 350 parts per million: "if humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, paleoclimate evidence and ongoing climate change suggest that CO<sub>2</sub> will need to be reduced from its current 385 ppm to at most 350 ppm" according to a recent study<sup>18</sup>.

### *Trends in the last decades*

Atmospheric CO<sub>2</sub> levels have risen above 350 ppm since 1988. The concentrations of CO<sub>2</sub> in the atmosphere are increasing at an accelerating rate from decade to decade.

The graph shows the 2003 level of carbon dioxide concentration (around 375 parts per million) which was at that point the highest in 420,000 years, and probably the highest for the past 20 million years. Monthly updates for

<sup>16</sup> [www.wmo.int/pages/prog/arep/gaw/ghg/documents/ghg-bulletin2008\\_en.pdf](http://www.wmo.int/pages/prog/arep/gaw/ghg/documents/ghg-bulletin2008_en.pdf)

<sup>17</sup> IPCC 4th Assessment report, Synthesis report Table 5.1, 2007.

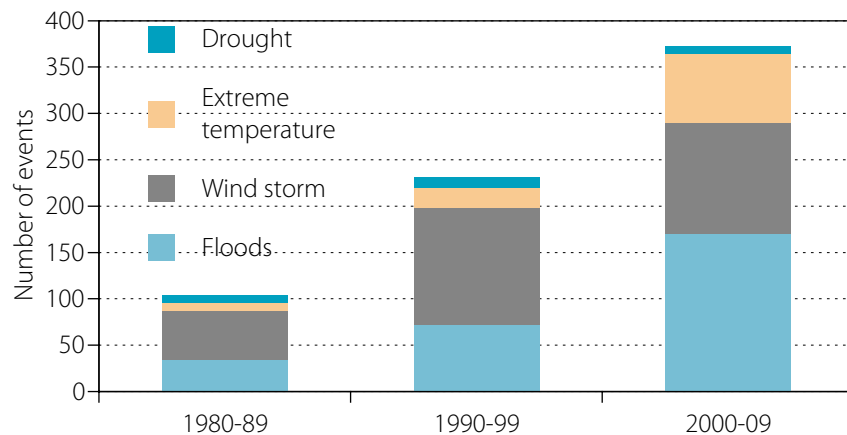
<sup>18</sup> NASA/Goddard Institute for Space Studies, 2008 "Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?", available on [http://pubs.giss.nasa.gov/docs/2008/2008\\_Hansen\\_etal.pdf](http://pubs.giss.nasa.gov/docs/2008/2008_Hansen_etal.pdf)

atmospheric CO<sub>2</sub> come from the Mauna Loa Observatory<sup>19</sup> show that concentrations have been increasing further since 2003.

In 2009, the average concentration for atmospheric CO<sub>2</sub> was 387.4 parts per million (ppm).

Since precise CO<sub>2</sub> measurements in the atmosphere were started in 1958, the annual mean concentration of CO<sub>2</sub> has been increasing every year. There has been no decrease in annual CO<sub>2</sub> levels since direct instrument measurements began.

### 1.3. Impact indicator: Natural disasters linked to climate change (floods, wind storms, extreme temperatures and droughts) in EU-27<sup>20</sup>



Source: EMDAT database (Emergency Events Database), maintained by CRED (Centre for Research on the Epidemiology of Disasters) at the Université catholique de Louvain.

<sup>19</sup> The world's most current data for atmospheric CO<sub>2</sub> is from measurements at the Mauna Loa Observatory in Hawaii and date back to March 1958. Today, the monthly average concentration of CO<sub>2</sub> in the atmosphere is published by the National Oceanic and Atmospheric Administration (NOAA) within a week after each month ends. The data are published at [www.CO2Now.org](http://www.CO2Now.org).

<sup>20</sup> CRED defines a disaster as "a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and

#### Trend in the last three decades

Natural disasters are causing significant loss of lives as well as substantial economic damage in the EU. About 90% of all natural disasters in Europe that have occurred since 1980 are directly or indirectly attributable to weather and climate, and about 95% of economic losses caused by catastrophic events have resulted from these weather and climate-related disasters.<sup>21</sup> The average number of annual disastrous weather and climate-related events in Europe and the damage caused by them has increased substantially in recent decades. An unknown share of this increase can be attributed to climate change, the rest to changes in the exposure and sensitivity of human and societal systems.

The reported increase in disasters differs between the two main data providers because they use different definitions and data sources. According to EMDAT, the number of reported natural disasters linked to climate change (i.e. floods, wind storm, extreme temperatures and droughts) in the EU have increased from around 100 in 1980-89 to 369 in 2000-2009; floods in particular have increased considerably, rising from 33 to 167 (according to the last EMDAT update in March 2010).

#### 2009

Natural disasters in the EU-27 linked to weather and climate-related events have caused economic damage of around 7.7 billion US\$ in 2009. Most of this was due to the winter storm Klaus in France and Spain (which caused damage of US\$ 5 billion), followed by a thunder storm in Austria and floods in United Kingdom. The events which caused the highest number of deaths were the

often sudden event that causes great damage, destruction and human suffering". For a disaster to be entered into the database, at least one of the following criteria must be fulfilled: 10 or more people killed, 100 or more people affected, declaration of a state of emergency, call for international assistance.

<sup>21</sup> EEA/JRC/WHO (2008): Impacts of Europe's changing climate — 2008 indicator-based assessment. EEA Report No 4/2008, JRC Reference Report No JRC47756

cold waves in Poland (211 deaths), the floods in Italy (35) and Czech Republic (13), the cold wave in Germany (14), the winter storm Klaus in Spain (14) and France (11). Other events causing more than 10 deaths occurred in Romania, which was affected by cold waves (11 deaths) and floods (11).

#### Decade 2000-2009

In the period 2000-2009 369 natural disasters linked to weather and climate-related events have been reported. These events have caused more than 1.5 million victims (more than 77 000 deaths and 1 472 601 affected<sup>22</sup>) and economic damage of around US\$ 93.8 billion. The most frequent event are floods (167, i.e. around 50% of total), followed by wind storms (111), extreme temperatures (84) and droughts (7). In the last decade floods have caused 612 deaths, affected 1.4 million people and have caused more economic damage, almost US\$ 49.6 billion, than any other natural disaster type. Wind storms caused 402 deaths, around 45 thousand people affected and economic damage for around US\$ 29.8 billion. Extreme temperatures have caused more deaths than any other type of disaster (76 034 people) and economic damage of around US\$ 12.2 billion.

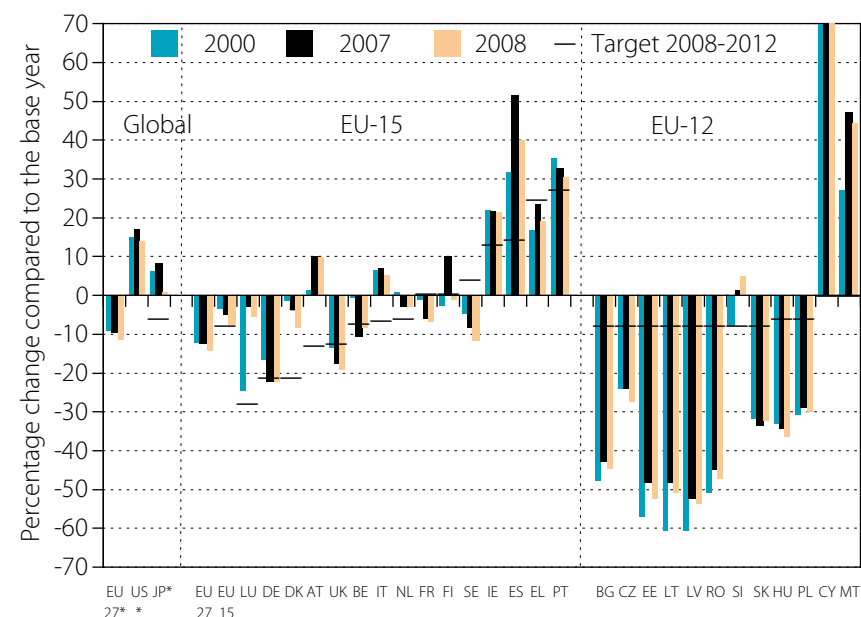
According to CRED, the increase in natural disasters during the last 30 years is due to many factors: the effects of climate change, the increase of environmental vulnerabilities of the population living in highly urbanised areas, deforested areas, or areas with high hydrological risk but the increase can also be attributed to better reporting.

Moreover, the extreme weather event figures are probably underestimated as drought impacts are not easily detected in disaster statistics. Droughts, which have long-term consequences on people and their assets, cause malnutrition and diseases mainly in African countries (they account for less than 20% of total

<sup>22</sup> "Affected" includes people requiring immediate assistance during a period of emergency, i.e. requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance (including injured and homeless).

disasters but are responsible for 80% of all people affected in Africa during 1970-2008).

#### 1.4. Pressure indicator: Total Kyoto greenhouse gas emissions (in CO<sub>2</sub> equivalents) as a percentage change of Kyoto base year emissions, with Kyoto targets / Burden-sharing agreement targets



Data source: European Environment Agency.

\*: change compared to 1990, for reasons of comparability of EU-27 with US and Japan.

#### EU objective

The EU-15 has the objective to reduce its greenhouse gas emissions by 8% compared to base year levels (mostly 1990) by 2008-2012, according to the Kyoto protocol. Almost all Member States (except Cyprus and Malta) have individual targets under the Kyoto protocol.

### *Trends during base year-2008 and 1990-2008*

In 2008 EU-15 greenhouse gas emissions were 6.9% lower than base year levels (and 6.5% lower compared to 1990), declining further compared to the previous year (-5.1% in 2007). Two activities are responsible for the largest shares of greenhouse gas emissions: road transport and the production of public electricity and heat from fossil fuels.

In EU-27 greenhouse gases emissions decreased by 14.3% between base year and 2008 (and by 11.3% during 1990-2008). Energy-related GHG emissions represent 80% of total GHG emissions in the EU-27. In the EU-27, most GHG emissions come from the production of electricity and heat, road transportation, fossil fuel combustion in households and in manufacturing industries, agriculture and the iron and steel industry.

In 2008 the EU-15 countries showing the most significant decrease compared to the base years are Germany (-22.3%) and United Kingdom (-19.1%), followed by Sweden (-11.3%) and Belgium (-8.6%). This decline in emissions in 2008 was due largely to lower CO<sub>2</sub> emissions from fossil fuel combustion in the energy, industry and transport sectors.

### *Trends during 2007-2008*

Between 2007 and 2008 total GHG emissions fell by 2% in the EU-27 and by 1.9% in EU-15, and 17 out of 27 Member States reduced their greenhouse gas emissions. About 33% of the EU-27 net reduction was accounted for by Spain (-30 Mt CO<sub>2</sub>-eq), while the largest emission reduction in relative terms occurred in Finland (-10.2%). Nevertheless, GHG emissions increased in 5 countries; the largest increases were in Belgium and Slovakia.

### *Projections of progress towards Kyoto target*

According to the latest projections from Member States, EU-15 will meet or even surpass its 8% reduction target. This will be achieved through a combination of existing and additional policies and measures and, in some

Member States, the use of the three Kyoto mechanisms (international emission trading, the clean development mechanism and joint implementation) and activities increasing carbon sinks (e.g. afforestation and reforestation).<sup>23</sup>

Fourteen of EU-15 Member States are on the track to reach their targets<sup>24</sup> and all ten EU-12 Member States that have a Kyoto target (Cyprus and Malta are the countries without Kyoto target) are projected to meet or surpass their Kyoto commitments<sup>25</sup>.

### *New EU targets in the climate and energy package*

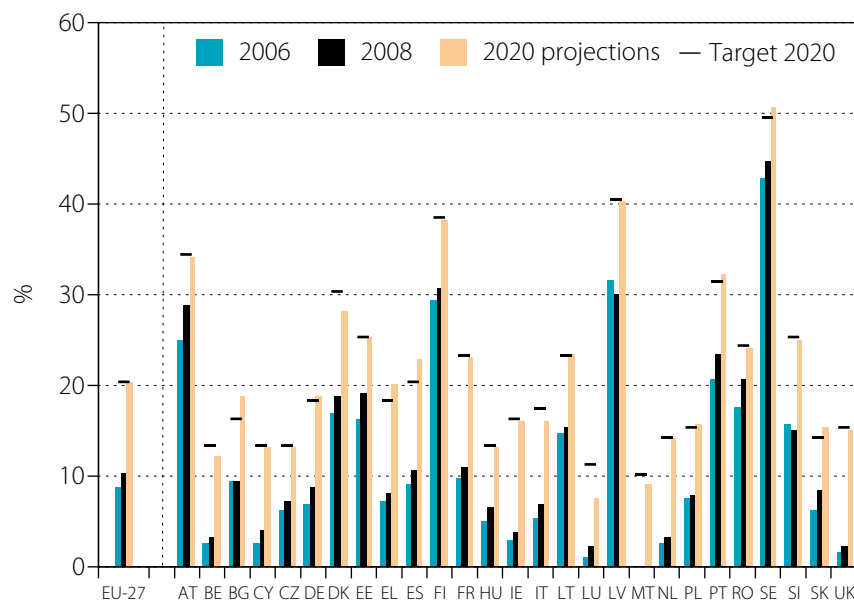
In order to achieve the EU target of a 20% emission reduction by 2020 compared to 1990, the EU climate and energy package distributes the reduction effort between the sectors covered by the EU Emission Trading System (EU ETS) and the other sectors. The revised EU ETS Directive introduces a single EU-wide emission target for power plants and large industrial emitters, 21% below 2005 levels by 2020. Companies will be able to purchase allowances through auctions or receive free allowances according to EU-wide harmonised allocation rules. Starting in 2012, emissions from aviation (including international aviation) will also be included in the EU ETS, with a cap at 5% below 2004–2006 levels for the period 2013–2020. For sectors not covered by the EU ETS (such as buildings, road transport and farming), the EU has targeted to reduce emissions by 10% below 2005 levels by 2020, with a sharing of the effort between Member States. Each Member State has a national target for its emissions not covered by the EU ETS, ranging from -20% to +20% by 2020 compared to 2005 levels.

<sup>23</sup> Progress towards achieving the Kyoto objectives. COM (2009) 630 and SEC (2009) 1581.

<sup>24</sup> Five countries (France, Germany, Greece, Sweden and the United Kingdom) with existing planned domestic actions, while nine with the additional domestic policies and measures, the use of Kyoto mechanisms and carbon sinks. In 2009, Austria was the only Member State projected to miss its Kyoto target.

<sup>25</sup> Slovenia projects to meet its Kyoto target when also accounting for planned additional policies, the use of Kyoto mechanisms and carbon sinks.

### 1.5. Response indicator: Share of renewable energy sources in gross final energy consumption



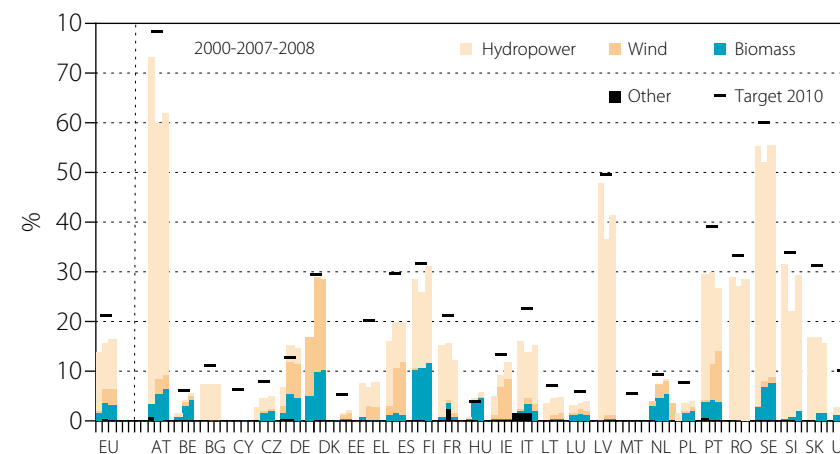
Data source: European Commission, Eurostat and DG Energy. Forecasts for Greece and Lithuania have been calculated by the Commission. Forecast for Luxembourg is 5-10 % (the graph indicates 7.5%) and forecast for Portugal is more than 31% (the graph indicates 32%).

Following the adoption of the climate and energy package in April 2009, the EU committed to achieve a share of energy from renewable sources in gross final energy consumption of 20% by 2020. All Member States have established 2020 targets, which vary from 49% for Sweden to 10% for Malta.

According to 2008 data, 10.3% of EU energy consumption comes from renewable energy sources. There are big differences among Member States: Sweden and Finland have a share of more than 30%, while 7 member States (Belgium, Cyprus, Ireland, Luxembourg, Malta, the Netherlands and United Kingdom) have a share of less than 5%.

According to Member States forecasts, EU will reach an overall share of 20.3% of renewables, thus overreaching its 20% target by 2020<sup>26</sup>. 10 out of 27 EU Member States are likely to exceed their national targets for renewable energy (in particular Spain and Germany forecast the largest surpluses in absolute terms), while 12 Member States set to meet their target with domestic sources only. 5 Member States expect to miss their target if only domestic sources are used (in particular Italy forecasts the largest deficit in absolute terms); these Member States thus require transfers from another Member State or third country, through the use of the cooperation mechanism according to Directive 2009/28/EC.

### 1.6. Response indicator: Electricity produced from renewable energy sources (% of gross electricity consumption)



Data source: European Commission, Eurostat. Data for Malta are missing. Indicative targets according to Directive 2001/77/EC on the promotion of electricity from renewable energy sources in the internal electricity market.

<sup>26</sup> European Commission, Press release IP/10/265 and European Commission Summary of the Member State forecast documents ([http://ec.europa.eu/energy/renewables/transparency\\_platform/doc/0\\_forecast\\_summary.pdf](http://ec.europa.eu/energy/renewables/transparency_platform/doc/0_forecast_summary.pdf))

### EU objective and 2008 data

The EU has a target to achieve 21% of electricity generated from renewable energy sources by 2010.

In 2008 the EU produced 16.7% of all electricity from renewable energy sources, which has increased compared to 2000 but is still far from the EU target. In 2008 most renewable electricity came from hydropower (9.7% of gross electricity consumption), followed by wind (3.5%) and biomass (3.2%).

### 2008 Member States data

In 2008 Austria had the highest share of electricity from renewables (62.0%), followed by Sweden (55.5%) and Latvia (41.2%) which has the highest share among EU-12 Member States. Six countries had less than 5% of electricity produced from renewable energy sources: Estonia, Lithuania, Luxembourg, Poland, Cyprus and Malta.

Germany and Hungary have over-reached their 2010 target.

According to 2008 data four Member States are close to reaching their 2010 target: the Netherlands (DTT-distance to target- is 0.1 p.p.), Denmark (DTT is 0.3 p.p.), Finland (DTT is 0.5 p.p.) and Belgium (DTT is 0.7 p.p.)

### Trends 2000-2008

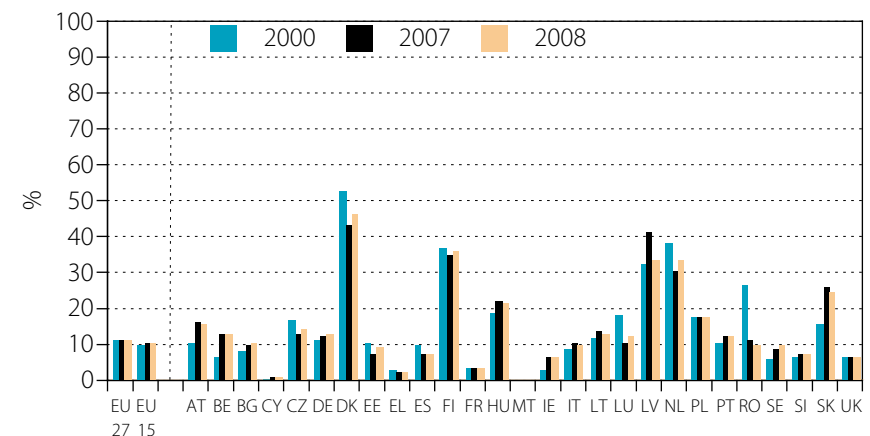
Between 2000 and 2008 the share of electricity from RES increased by almost 3 p.p., but the contribution of the different renewables energy sources has changed a lot.

The contribution of hydropower in the share of electricity has declined from 11.6% in 2000 to 9.7% in 2008. The countries which are mainly concentrating on hydropower have seen their total share decreasing during the period (e.g. Austria from 72.4% to 62.0%, Latvia from 47.7% to 41.2%, Slovenia from 31.7% to 29.1%). During 2000-2008 in Portugal the drop in electricity from hydropower (-13.1 p.p.) has been compensated by the big increase in wind power contribution (+10 p.p.).

Electricity produced from wind power has increased from 0.7% in 2000 to 3.5% in 2008. In 2008 four Member States had a share of wind power on total electricity of 8% or more: Denmark (18.3%)<sup>27</sup>, Portugal (10.4%), Spain (9.9%) and Ireland (8%). The countries which have shown the highest increase in the share of electricity from wind power are: Portugal (from 0.4% to 10.4%), Spain (from 2.1% to 10.6%), Ireland (from 1% to 8%) and Denmark (from 11.6% to 18.3%).

The share of biomass in EU has passed from 1.3% to 3.2%, mainly increasing in Denmark (+5.3 p.p.) and Sweden (+4.8 p.p.).

### 1.7. Response indicator: Combined heat and power generation (% of gross electricity generation) ☹️



Data source: European Commission, Eurostat. \*2004 for EU-27 and the following countries: BG, CY, CZ, EE, HU, MT, LT, LV, PT, RO, SI and SK.

<sup>27</sup> The important share of wind energy in Denmark can be partly explained by a proactive environment policy and by geographical conditions since the country is bordered by the Baltic and the North seas with a lot of potential for wind energy. Source: The Windpower, Wind Turbines and Windfarms database, Denmark: <http://www.thewindpower.net/fiche-pays-6-danemark.php>



Combined heat and power (CHP) or cogeneration is a technology through which heat and electricity are produced in one process, leading to better resource efficiency and reductions of greenhouse gas emissions. The potential benefits in terms of energy savings from cogeneration are estimated to be around 35 Mtoe per annum in EU-27 (equivalent to Austria's gross inland consumption). The potential CO<sub>2</sub> savings are estimated at about 100 Mt per annum.<sup>28</sup>

In 1997 the Commission established a target of doubling the share of cogeneration in total EU electricity production: from 9% in 1994 to 18% by 2010 for EU-15.<sup>29</sup> EU is still far from reaching this objective, as the contribution of CHP to electricity generation was 10.3% in 2008 for EU-15, and 11.0% for EU-27.

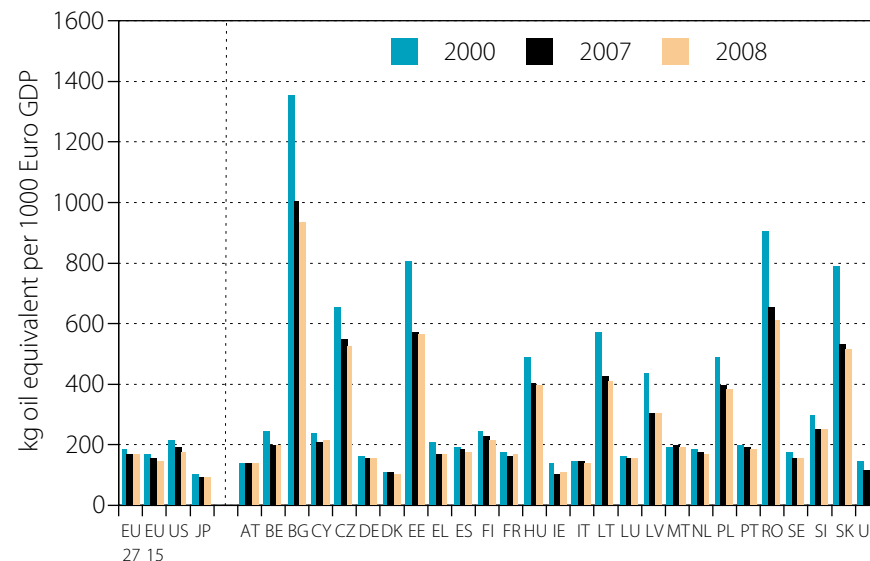
The graph shows that there was only a slight increase since 2000 for both EU-15 and EU-27. In most countries there were increases, however these have been counter balanced by relative large decreases in a few other countries.

There are big differences among Member States: some countries (Denmark, Finland, Latvia and the Netherlands) have a share of more than 30%, while 12 countries have a share of less than 10%. The best performers in 2008 are Denmark (46.1%) and Finland (35.6%), followed by Latvia and the Netherlands (33.6% both), At the bottom end, CHP accounts for less than 5% in France (3.1%), Greece (1.9%), Cyprus (0.3%) and Malta (0%).

<sup>28</sup> According to COM(2008) 771 final Europe can save more energy by combined heat and power generation, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0771:FIN:EN:PDF>

<sup>29</sup> Indicative target of the Community strategy to promote combined heat and power (CHP) and to dismantle barriers to its development, COM (97)514. The Directive 2004/8/EC on cogeneration does not include any target.

## 1.8. Efficiency indicator: Energy intensity (kilogram oil equivalent used per €1000 GDP)



Data source: European Commission, Eurostat

Improving energy efficiency can contribute to achieving the 2020 target on greenhouse gas emissions and would cut emissions by around 800 million tonnes CO<sub>2</sub> eq.<sup>30</sup>, while saving €220 billion per year<sup>31</sup>. Moreover, energy savings have other positive impacts as they reduce energy bills, create jobs in green industries, and may boost exports and innovation.

Energy intensity measures the energy consumption of an economy and is defined as the ratio of gross inland energy consumption divided by the gross domestic product (GDP in constant prices, base year 1995).

<sup>30</sup> COM(2008) 30 "20 20 by 2020 Europe's climate change opportunity":

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0030:FIN:en:PDF>

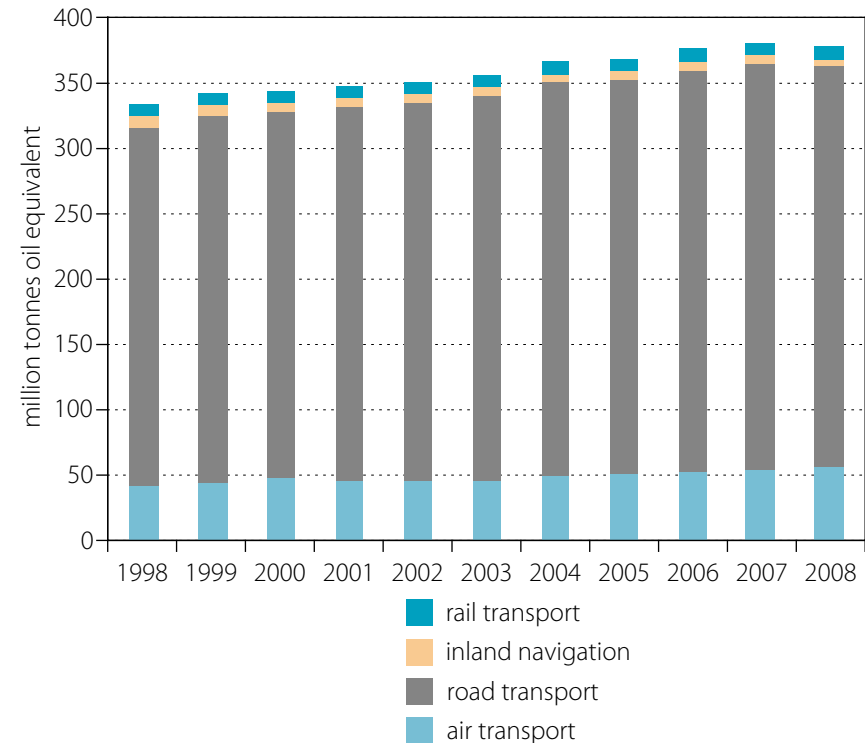
<sup>31</sup> COM(2008) 772 final

Energy intensity in EU-15 and EU-27 has decreased during 2000-2008, mainly in the Member States that joined the EU since 2004. In general, EU-12 countries have higher values compared to EU-15 countries. In 2008, Ireland and Denmark are the Member States with the lowest energy intensity (respectively 107 and 103 kgoe/€1000 GDP), followed by United Kingdom, Austria and Italy. Bulgaria, with more than 5 times the EU average, has the highest energy intensity, followed by Romania.

Ireland and United Kingdom have decreased energy intensity by more than 20% between 2000 and 2008, which is the most important decrease in EU-15 countries. On the other hand, in Italy and Austria, energy intensity decreased by less than 2% in the same period. In EU-12 Member States, the most important decrease took place in Bulgaria, Estonia, Romania and Slovakia, being more than 30%. Malta is the only country not decreasing its energy intensity.

During the last reported year, the countries showing the highest reductions are Finland (-4.5% in 2008 compared to 2007) in EU-15 and Bulgaria (-6.7%) in the new Member States.

### 1.9. Driving force indicator: Final energy consumption of transport (Mtoeq) ☹️



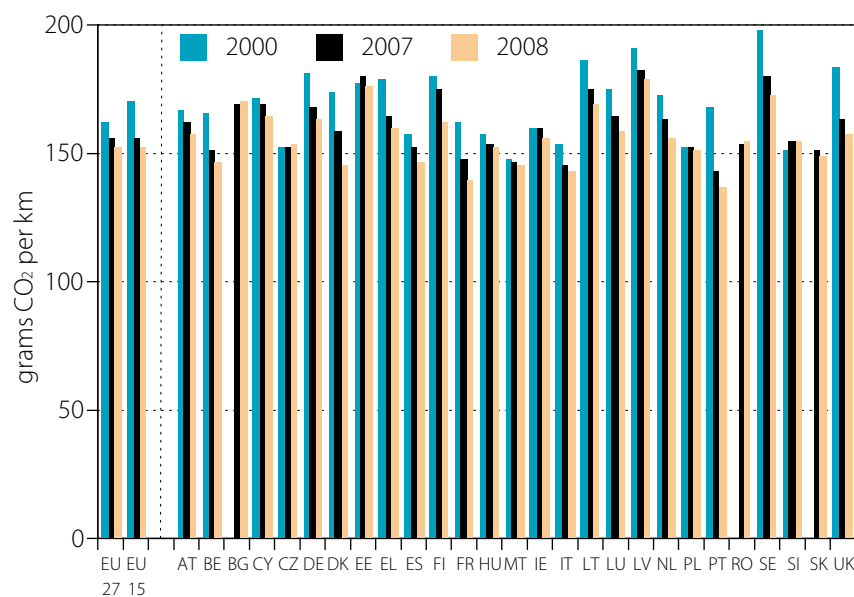
Data source: European Commission, Eurostat

In 2008, transport accounted for 19.5% of total greenhouse gas emissions. During the last decade (1998-2008), EU final energy consumption increased by 4.8% but in the transport sector (which accounts for around 32% of total EU energy consumption) it increased by 13.3% reaching 374 million tonnes oil equivalent in 2008. Energy use by air transport - the second highest energy consuming mode of transport with 14.5% of total energy consumption in transport - increased by more than 33%, while energy use in inland waterway transport and rail decreased.

In 2008 road transport accounted for more than 80% of total transport energy consumption. The share of road transport has been quite stable in the last decade due to the fact that increasing transport demand largely counterbalances the impact of improvements in fuel efficiency and fuel shift.

In the framework of the climate and energy package, the 2008 Directive on the promotion of the use of energy from renewable sources set the target for the Member States to increase the share of energy from renewable sources in all forms of transport to at least 10% of final energy consumption in transport by 2020.

### 1.10. Driving force indicator: Average CO<sub>2</sub> emissions from new passenger cars (grams CO<sub>2</sub> per km)



Data source: European Commission, DG Environment, COM (2009)713 and Monitoring Decision 1753/2000/EC.

\* 2004 for the following countries: CY, CZ, EE, HU, MT, LT, LV, PT, RO, SI and SK. Bulgaria and Romania reported data for 2007 and 2008 only.

In 2009 the EU set targets for CO<sub>2</sub> emissions from new passenger cars registered in Member States to an average emission limit of 130g CO<sub>2</sub>/km to be applied to 65 per cent of new cars in 2012, rising in steps to cover all passenger cars by 2015. It also set a 2020 target for new average car emissions of 95 g CO<sub>2</sub>/km<sup>32</sup>.

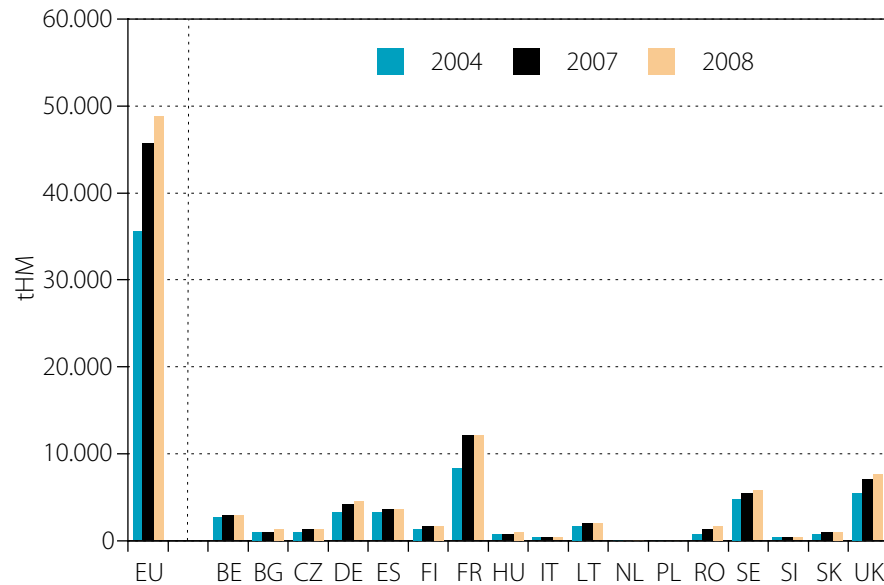
Average greenhouse gas emissions from new passenger cars registered in the Member States are decreasing in nearly all countries.

According to 2008 data, new passenger cars registered in Portugal, France and Italy rank as the least polluting (all with less than 145 gCO<sub>2</sub>/km), while those in Latvia and Estonia have the highest emission values (more than 175 gCO<sub>2</sub>/km). Compared to 2000, new cars registered in Portugal and Denmark had the most significant decrease in 2008 (more than 15% reduction). Czech Republic and Slovenia are the only countries where the CO<sub>2</sub> emissions in 2008 of newly registered cars were higher than in 2004 (first year for which data are available).

New passenger cars registered in the EU-15 in the year 2008 have lower average CO<sub>2</sub> emissions than new passenger cars in the new Member States for the first time since the beginning of monitoring the CO<sub>2</sub> emissions of new passenger cars.

<sup>32</sup> Regulation (EC) No 443/2009

1.11. *Driving force indicator: Cumulative spent fuel from nuclear power plants* (in te HM – tonnes equivalent Heavy Metal)



Data source: European Commission 2007 and 2008 data are based on estimation (intrapolation) using Member States official 2004 data and 2020 projections, as included in the 6th Situation report on "Radioactive waste and spent fuel management in the European Union", COM(2008) 542 and SEC(2008) 2416. NL and PL values are very limited.

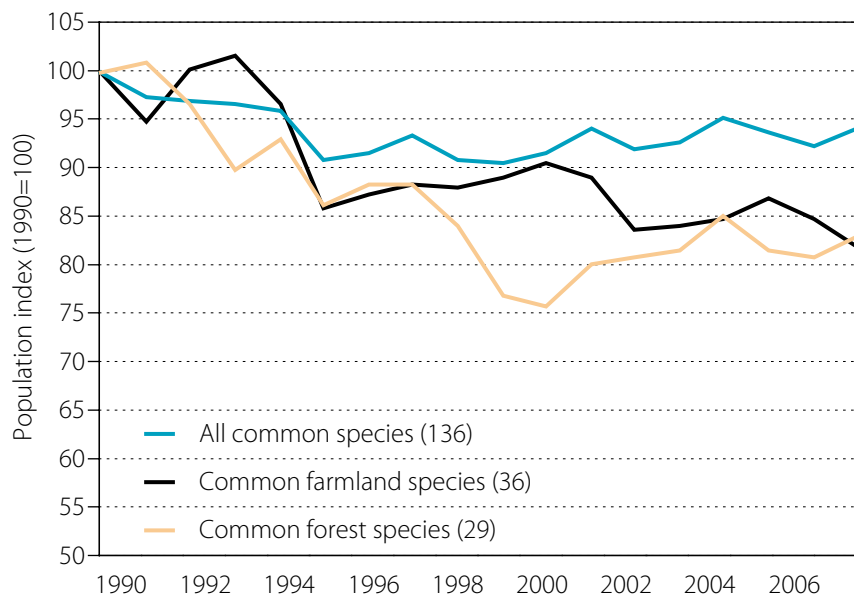
Nuclear energy accounts for about one third of EU electricity production and 14% of EU total energy consumption. Nuclear power is a low-carbon energy source with no direct CO<sub>2</sub> emissions. The indirect CO<sub>2</sub> emissions throughout the fuel cycle (from uranium mining to disposal of radioactive wastes and decommissioning of the nuclear installations) are comparable to those of off-shore wind. However, the nuclear fuel cycle produces significant amounts of radioactive waste which needs to be permanently isolated from the biosphere. Although some EU countries are already disposing of low and intermediate level waste in geological repositories, final solutions for high level radioactive waste have not yet been implemented anywhere in the EU and therefore this type of waste is currently accumulating in temporary dry or pool storage facilities.

According to official data, the total quantity of spent nuclear fuel in temporary storage at the end of 2004 was 38 000 te HM (Heavy Metal), most of which originated from the UK and France; of these at least 24 000 te (HM) is or will be placed in long-term storage for eventual direct disposal. In 2020, a total of around 90 000 te HM is expected to be in temporary storage waiting for reprocessing or direct disposal in the EU<sup>33</sup>. The graph shows that France has the biggest amount of cumulative nuclear waste in EU, about 25% of the total. Around 78% of its electricity is produced from nuclear energy.

<sup>33</sup> 6th Situation report on "Radioactive waste and spent fuel management in the European Union", COM(2008) 542 and SEC(2008) 2416

## 2. Nature and biodiversity

### 2.1. State indicator: Common birds<sup>34</sup>

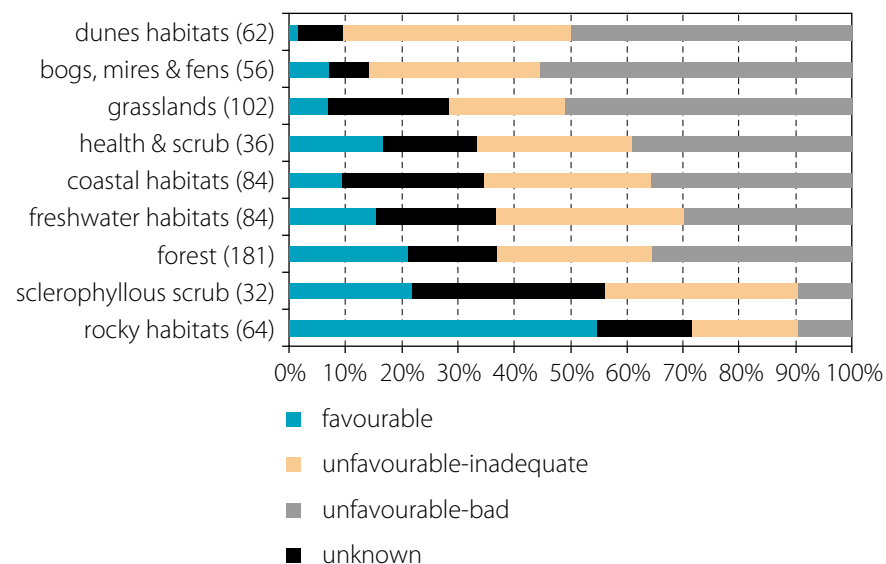


Source: EBCC/RSPB/BirdLife/Statistics Netherlands

<sup>34</sup> The Common birds index is based on data from the European Bird Census Council (EBCC, <http://www.ebcc.info>), the Pan-European Common Bird Monitoring scheme (PECBM), BirdLife International and Statistics Netherlands. The methodology has recently improved and the index covers 135 species of common birds, among which 36 species of common farmland birds and 29 species of common forest birds, from 21 countries (Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom). The list of species is available at: <http://www.ebcc.info/index.php?ID=340>.

The EU is going to miss the target to halt the loss of biodiversity by 2010. The populations of common birds are highly representative of biodiversity and the integrity of ecosystems. Since 1990, European Union's common farmland birds declined by around 20% and during the same period, common bird populations decreased by around 10%. Between 1990 and 2007, European Union's common forest birds declined by around 20%.

### 2.2. State indicator: Conservation status of habitats under Natura 2000, by habitat group



Source: European Commission, Composite Report on the Conservation Status of Habitat Types and Species as required under Article 17 of the Habitats Directive, COM(2009) 358<sup>35</sup>

<sup>35</sup> The report, which covers the period 2001-2006, is the first and most comprehensive survey of EU biodiversity ever undertaken and is a point of reference for assessing future trends. It is based on monitoring activities in the Member States and the outcome of the assessments

Annex 1 to the Habitats Directive includes a wide variety of habitats (216 habitat types) which are divided into nine groups of related habitat categories, such as forests or grasslands. The graph summarises the results of the assessments carried out for each of these nine habitat groups, covering the period 2001-2006.

Only a small proportion of the habitats of Community interest are in a favourable conservation status.

Grasslands, wetlands and coastal habitats face the greatest threats, mainly due to the decline of traditional patterns of agriculture, tourism development and climate change.

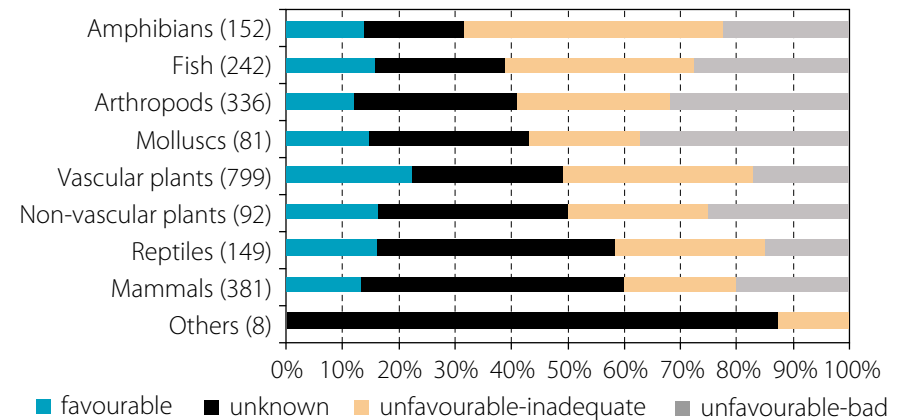
The majority of grassland habitats in Europe require active management. The abandonment of traditional management practices has resulted in a loss of biodiversity in some locations whereas in others the shift towards more intensive agricultural practices is the root of the problem. Bogs, mires and fens require specific hydrological regimes. Dune habitats are under severe pressure throughout the EU with almost no favourable assessments. Member States identify coastal tourism development as the main threat.

Rocky habitats and sclerophyllus shrubs (e.g. different types of screes) tend to have more positive assessments than other habitat groups. One clear exception to this general rule is the habitat type 'permanent glaciers'. This is because glaciers are under threat throughout the EU due to climate change. With regard to forest habitat types, the situation is quite varied and general trends are less evident.

Overall, some 13% of regional habitat assessments were reported as "unknown".

made on the conservation status of a habitat or species is presented in one of four categories: 'favourable' (green), 'unfavourable inadequate' (amber), 'unfavourable bad' (red) or 'unknown' (grey). The full report is available on (<http://biodiversity.eionet.europa.eu/article17>).

### 2.3. State indicator: Conservation status of species by taxonomic grouping ☹️



Source: European Commission, Composite Report on the Conservation Status of Habitat Types and Species as required under Article 17 of the Habitats Directive, COM(2009) 358

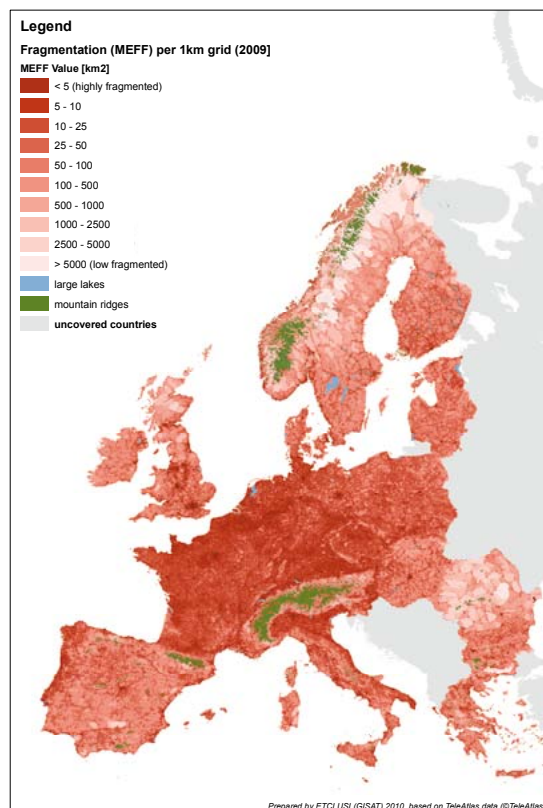
Annex 1 to the Habitats Directive includes a large number of species (1182) which are divided into nine taxonomic groups, such as amphibians and mammals. The graph summarises the results of the assessments carried out for each of these 9 species groups, covering the period 2001-2006.

Only a small proportion of the species of Community interest are in a favourable conservation status. Amphibians, fish and arthropods face the greatest threats, mainly due to the decline of the habitats they live. In particular, wetland habitats continue to be converted to other types of land use and also suffer from the effects of climate change.

Some of the species protected under the Habitats Directive, such as the wolf, Eurasian Lynx, beaver and otter, are showing signs of recovery in parts of the EU but for these and a majority of other species we are a long way from achieving healthy, sustainable populations.

The conservation status of about 27% of regional species was reported as "unknown".

## 2.4. Pressure indicator: Landscape fragmentation in 2009<sup>36</sup>



Source: European Environment Agency, based on TeleAtlas 2009 (areas of high fragmentation are dark; areas of high connectivity are bright)<sup>37</sup>

<sup>36</sup> The map shows the Effective Meshsize (MEFF), a geo-statistical measure, which converts the probability that randomly selected points in an area are connected into the size of an unfragmented patch, measured in km<sup>2</sup>. The smaller the meshsize, the higher the landscape fragmentation and vice versa. MEFF measures landscape “connectivity” that is the inverse of fragmentation.

<sup>37</sup> Landscape Fragmentation in Europe. Jochen A.G. Jaeger and Luis F. Madriñán (Concordia University, Montreal, Canada); Tomas Soukup (GISAT, Prague, Czech Republic); Christian Sch-

According to recent data, about 3.7 % of Europe’s land is covered by artificial surfaces such as housing and industrial sites; which equals 0.12% of land outside urban and industrial areas is taken up by transport infrastructures<sup>38</sup>. It has to be outlined that artificial surfaces such as urban areas and transport infrastructure have expanded by nearly eight percent between 1990 and 2006. Structure and distribution of transport and urban infrastructure lead to the fact that thirty percent of EU-27 land is highly or very highly fragmented. As a result of these changes, 70% of species are threatened by loss of their habitat, an extraordinarily high proportion.<sup>39</sup>

Territory fragmentation, caused by transport infrastructure and human settlements, affects the integrity of habitats and ecosystems, with negative effects on biodiversity conservation.

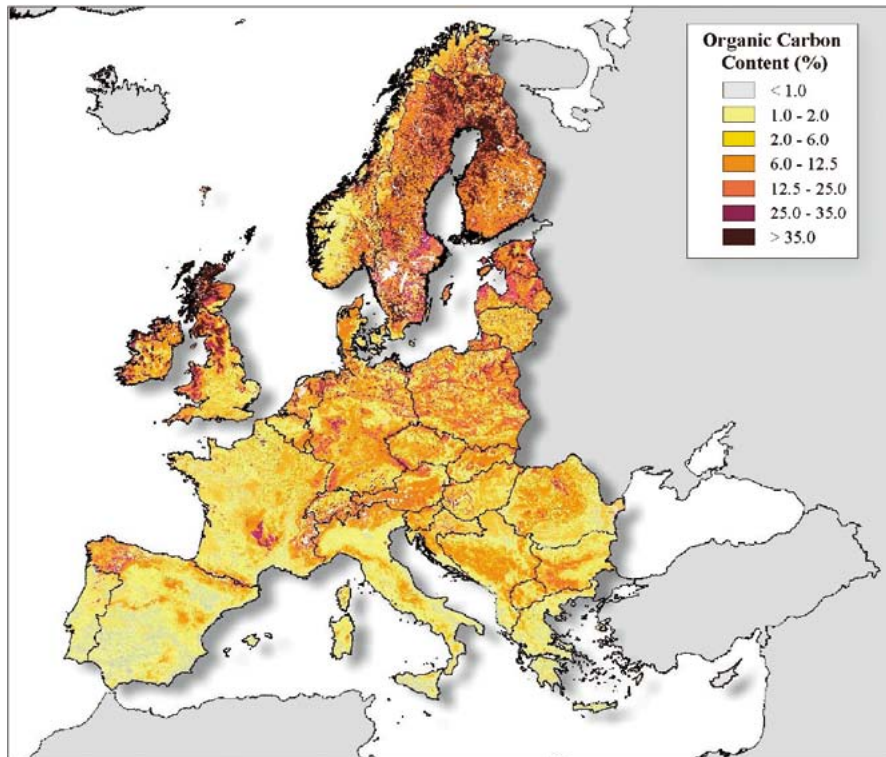
In the map, which illustrates the fragmentation of EU territory, a dark colour indicates areas which are highly fragmented, while a light colour marks areas with low fragmentation.

wick (Die Geographen Schwick & Spichtig, Zurich, Switzerland); Hans-Georg Schwarz-von Raumer (University of Stuttgart, Germany) and Felix Kienast (Swiss Federal Research Institute WSL, Birmensdorf & ETH Zürich, Switzerland). Funded by the Swiss Federal Office for the Environment, Berne, in collaboration with the European Environment Agency, Copenhagen. Support group: Dr. T. Klingl, Mr. N. Perritaz, and Dr. G. Thélin (Swiss Federal Office for the Environment). Time frame: 02/2009 –02/2011.

<sup>38</sup> However it has to be taken into account that CORINE Land Cover is technically not designed to catch the state of transport network infrastructure. Its minimum measurement unit is of 100 m, this means that only highways of more than 100 m width are classified as transport network. All other roads or railways are not captured by this classification, which aims at analysing spatial patterns but not linear features. Furthermore, the classes „Housing, services, recreation“ and „Industrial, commercial units, constructions“ are including important shares of transport infrastructure as well.

<sup>39</sup> <http://www.eea.europa.eu/publications/eu-2010-biodiversity-baseline/>.

## 2.5. State indicator: Topsoil organic carbon content



Source: European Commission, DG Joint Research Centre

Globally, soil is the biggest terrestrial carbon pool. Soils contain around twice the amount of carbon in the atmosphere and three times the amount to be found in vegetation. The decay of soil organic matter results in the release of greenhouse gases, mainly CO<sub>2</sub>, into the atmosphere. Thus, preserving existing carbon stocks in the soil and fighting the depletion of humus (the most stable soil organic matter fraction) are of utmost importance for our environment.

Moreover, managing soil carbon is important to sustain soil fertility and to mitigate climate change. Mainly in form of soil organic matter it is a source of food for soil life and contributes to soil biodiversity. It drives the majority of soil functions, supports soil structure and enhances water retention capacity, reducing erosion and compaction.

The total soil carbon stock in the EU-27 is estimated to be around 75 billion tonnes. The map above shows the distribution of estimates of soil organic carbon (SOC) content for 1990 in the upper 30 cm of soils in Europe<sup>40</sup>. Roughly half of it is located in the north of Europe, mainly in Sweden, Finland and the United Kingdom, countries with a large share of peat.

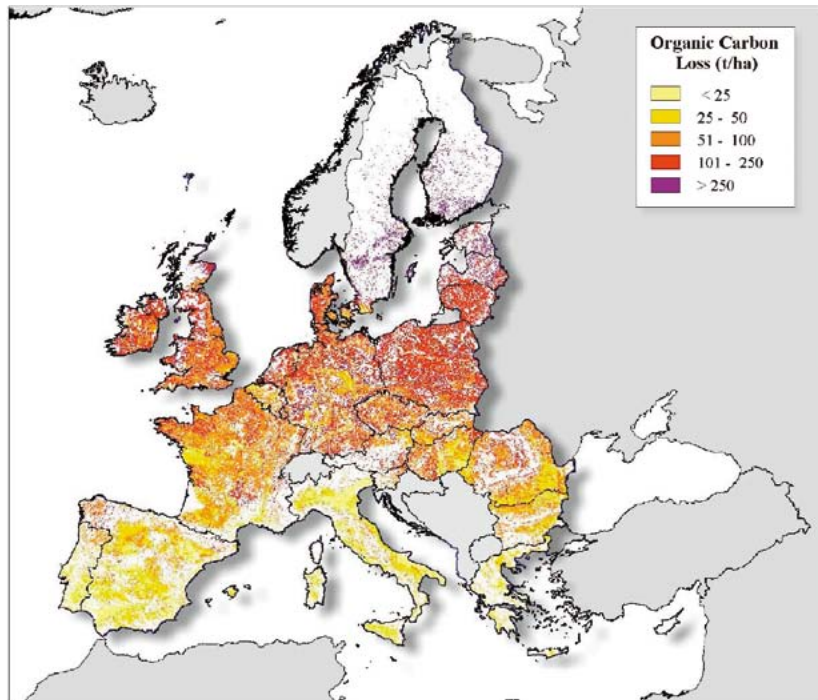
The difference between the actual and the minimum SOC content - which is the lowest amount of carbon that a soil typically stores - displays the potential to lose carbon.

According to the map below the highest rates of potential future losses (more than 150 tonnes of carbon per hectare) on agricultural lands are located in northern Europe while southern Europe has a potential loss rate of less than 50 tonnes of carbon per hectare, due to the low actual content.

<sup>40</sup> Information on soil properties were taken from the Soil Geographic Database of Eurasia. Effects of vegetation and land cover as well as temperature conditions have been taken into account in the calculations. Additional information is available at: [http://eussoils.jrc.ec.europa.eu/ESDB\\_Archive/octop/octop\\_data.html](http://eussoils.jrc.ec.europa.eu/ESDB_Archive/octop/octop_data.html).



### Potential Losses of Soil Organic Carbon on Agricultural Land



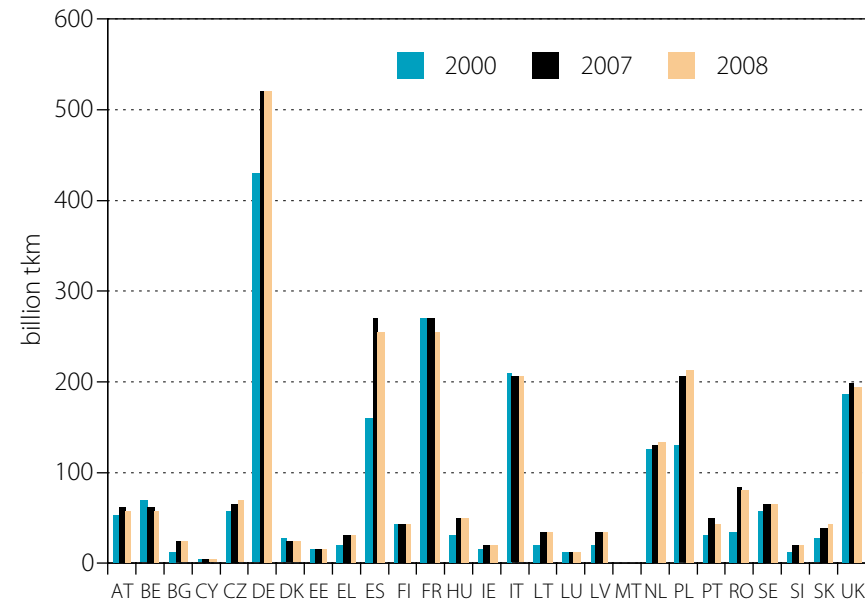
Source: European Commission, DG Joint Research Centre

The drainage of peatlands as well as the conversion of forests or grasslands to croplands results in large emissions of greenhouse gases<sup>41</sup>. Together with an overall depletion of SOC in agricultural lands and its serious threat to soil fertility, these emissions would pose an additional risk for climate change.

<sup>41</sup> The continued drainage of Europe's remaining peatlands could release 30 million tonnes of carbon annually, equivalent to additional 40 million cars on Europe's road (SoCo project: Sustainable Agriculture and Soil Conservation, Fact Sheet No. 3, Organic Matter Decline, European Commission, Joint Research Centre, <http://soco.jrc.ec.europa.eu/documents/ENFactSheet-03.pdf>).

To ensure that soils can sustain their functions and provide many vital ecosystem services, the European Commission aims at achieving an effective soil protection policy in Europe through the adoption and implementation of a Soil Framework Directive<sup>42</sup>.

### 2.6. Driving force indicator: Freight transport (by road, rail and inland waterways) in billion tkm<sup>43</sup>



Data source: European Commission, Eurostat. Data for Malta are not available, estimates for IT and UK in 2008.

Freight transport is a cross-cutting issue with implications for climate change, human health and biodiversity. Freight transport is a *driving force* behind the

<sup>42</sup> COM (2006)232, 22.9.2006 ([http://ec.europa.eu/environment/soil/index\\_en.htm](http://ec.europa.eu/environment/soil/index_en.htm)).

<sup>43</sup> Oil pipelines are not included in the graph/analysis.

demand for more transport infrastructure (causing habitat fragmentation) and can result in negative impacts on biodiversity due to soil sealing, pollution and noise.

The graph shows that in 2008 Germany had the highest volume of freight transport, followed by Spain, France, Poland and Italy. During the period 2000-2008 freight transport increased by more than 20% in EU-27, and mainly in the EU-12 Member States. It has more than doubled in Romania, Slovenia and Lithuania, and it has increased by more than 50% in many other countries (Bulgaria, Latvia, Poland, Hungary, Spain and Greece).

In EU-27 road accounts for most freight transport and its share of the total has increased from 74% in 2000 to 77% in 2008. During the same period the share of rail freight transport has decreased by more than 2 p.p. and in 2008 accounted for around 17% of total. The share of inland waterways has also decreased and represented 6% of the total in 2008.

The modal split of freight transport and trends are very different among Member States.<sup>44</sup> Among EU-15, six Member States have a share of road transport of more than a 90% (Ireland, Luxembourg, Denmark, Portugal, Spain and Greece), five countries have a share of less than 70% (Belgium, Germany, the Netherlands, Austria and Sweden) and the others are in between. In the new Member States, apart from Malta and Cyprus which have 100% of road freight transport (for geographical reasons), Slovenia has the highest share (82%), followed by Poland and the Czech Republic (77%). The three Baltic states have the lowest share of road freight transport - Latvia (39%), Estonia (55%) and Lithuania (58%) - and the highest share of rail - more than 40% of total, with Latvia having more than 60%.

During the period 2000-2008, the share of road freight transport has remained constant in EU-15, while it has increased considerably in the EU-12 Member States, from 57% in 2000 to 72% in 2008. The most important absolute increases

took place in Romania (+ 28 p.p.), Slovakia, Poland, Estonia and Bulgaria. The share of freight transport by rail has decreased a lot in the same Member States. One of the main reasons is that new Member States have tended to invest much more in the development of road networks than in rail between 2000 and 2008.

On a methodological issue, data for road freight transport record the transport performed by vehicles registered in the reporting countries, while data for rail and inland waterways transport are reported according to the territory (country) where the performance takes place<sup>45</sup>. Even though these methodological differences exist between the transport modes, some conclusions can still be drawn about the trend evolution 2000-2008.

A decrease of the share of road transport during 2000-2008 occurred in only a few Member States, such as in Belgium (-8.3 p.p.), the Netherlands, Austria and Finland (at least -2 p.p.).

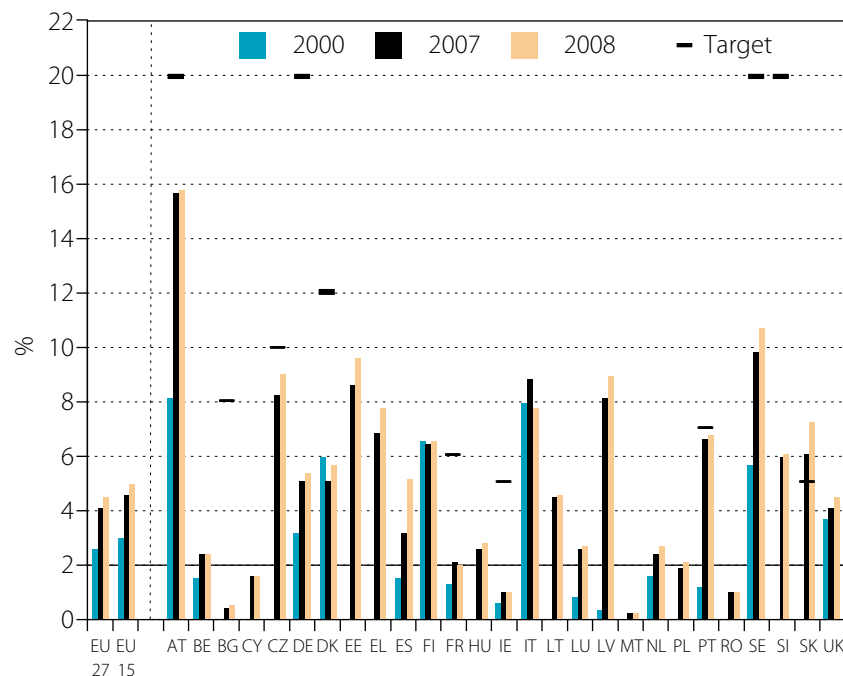
In 2009 the Commission presented a strategy on sustainable transport<sup>46</sup>, aiming at establishing a sustainable transport system that meets society's economic, social and environmental needs and is conducive to an inclusive society and a fully integrated and competitive Europe. The strategy recognises the need for further action to tackle the undesired environmental consequences of transport activity such as on noise, air pollutant emissions and greenhouse gas emissions.

<sup>44</sup> More details on inland freight transport are available in Part 3.

<sup>45</sup> The Commission services are working to generate new data to overcome these methodological difficulties which should allow that road freight transport data are in the near future also based on the territory instead of the nationality of vehicles.

<sup>46</sup> COM(2009) 279 "A sustainable future for transport: Towards an integrated, technology-led and user friendly system": <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0279:FIN:EN:PDF>

2.7. *Response indicator: Area occupied by organic farming* (percentage of organic farming in Utilised Agricultural Area)<sup>47</sup>



Data source: European Commission – Eurostat, and Institute of Rural Sciences, University of Wales, Aberystwyth, Eurostat, Research Institute of Organic Agriculture FiBL, CH-Frick and Central Market and Price Report Office ZMP, DE-Bonn. The 2008 share is calculated on the basis of 2008 organic area and 2007 total utilised agricultural area (as 2008 is not available). Data for Austria: 2007 and 2008 includes alpine pastures, while 2000 does not include alpine pastures. 2008 data: Malta (2006), Cyprus and Portugal (2007). 2007 data: Malta and Denmark (2006). Targets are indicative national targets (see part 3).

<sup>47</sup> Farming is only considered to be 'organic' if it complies with Council Regulation (EC) No 834/2007. The data on organic area excludes unutilised land.

Organic agriculture supports food security, climate change adaptation and biodiversity conservation. According to IFOAM (International Federation of Organic Agriculture Movements) markets world-wide continue to demand more organic products despite the economic turbulence.

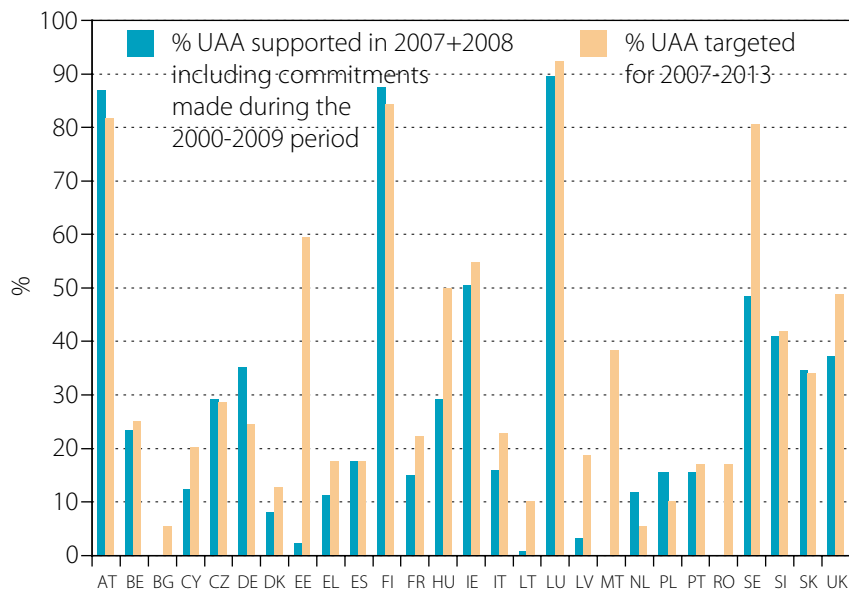
The EU's Common Agricultural Policy supports the organic farming methods, which use less input of chemically-synthesised nutrients and pesticides, and have a positive impact on biodiversity, on soil and water resources, and preserve energy, thus positively contributing to fight climate change.

In 2008 EU-27 had around 7.6 million ha under organic farming, i.e. around 22% of the total area cultivated organically in the world. EU-27 share of organic farming in utilised agricultural area in 2008 was 4.5%, further increasing compared to 2007 (4.1%).

With 15.8% of organic farming, Austria had the highest share in 2008, followed by Sweden (10.8%), Latvia and Czech Republic (around 9%). In 2008 Spain passed Italy out and has the largest organic area (almost 1.3 million ha, i.e. more than 17% of total organic farming area in EU-27), followed by Italy (almost 1.0 million ha, i.e. 13%) and Germany (0.9 million, i.e. 12%). Many countries have a minor share of organic farming, of less than 4% of their utilised agricultural area (Belgium, Bulgaria, Cyprus, France, Hungary, Poland, Ireland, Luxembourg, the Netherlands, Romania and Malta).

The total organic area in EU-27 continues to show an upward trend, and has increased by 7.4% in 2008 compared to the previous year. From 2007 to 2008, Belgium, Bulgaria, Greece, Spain, Hungary, Slovakia and the United Kingdom recorded a growth of over 10%, while Italy (that has ranked first in recent years) saw a fall by around 13%.

## 2.8. Response indicator: Area under agri-environmental commitment (percentage of Utilised Agricultural Area)



Data source: European Commission, DG for Agriculture and Rural Development.

The figure compiles two different data sources in order to provide the most representative state of play available for the period 2007-2008. Data for AT, LU, FI, SI and SE concerns the commitments made from 2007 onwards only and therefore their values can be slightly underestimated. Data for the other Member States includes all the commitments. In those cases, some overlaps are possible. Therefore, values could be slightly overestimated.

The EU Common Agriculture Policy promotes sustainable agriculture by i.a. providing financial support for agri-environment measures. These measures<sup>48</sup>,

<sup>48</sup> These include: Organic farming (conversion and/or maintenance); reduction or better management of fertilisers; reduction, better management of plant protection products, including integrated production, diversification of crop-rotations; maintenance of set-aside areas; creation, upkeep of landscape/ecological features (e.g., field margins, buffer areas, green

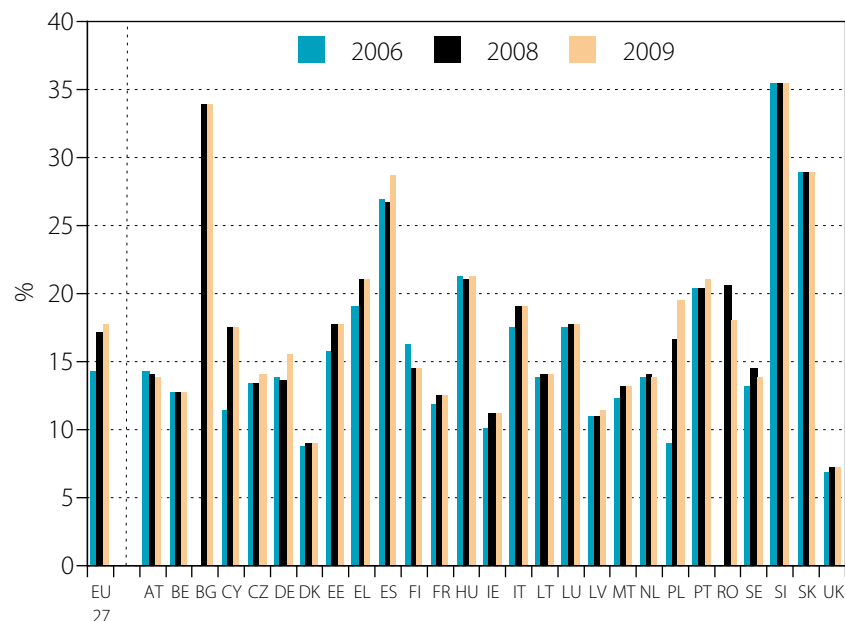
designed to encourage farmers to protect and enhance the environment on their farmland, aim to reduce environmental risks associated with modern farming, and preserve nature and cultivated landscapes. Agri-environment commitments have to go beyond the baseline which is made of cross-compliance (set of obligations and standards including the ones of the environmental nature) and minimum requirements for fertilisers and plant protection products use and other relevant mandatory requirements. This ensures that those commitments deliver higher environmental benefits than what is required by legal obligations.

The dark grey bars on the graph show, for each Member State, the percentage of net agricultural area under agri-environment scheme in 2008, including areas contracted from 2007 to 2008 (in the context of the 2007-2013 rural development programming period) as well as existing contracts from the previous programming period. The light grey bars show the target figure for coverage by agri-environmental measures for the period 2007-2013.

There are big differences among Member States: three countries (Austria, Finland and Luxembourg) have a share of more than 80% of area under agri-environmental commitment, followed by Ireland, Slovenia and Sweden with more than 40%. Six countries have a share of less than 10%. It should be noted, however, that as the years 2007 and 2008 are the first years of implementation of the new programmes for 2007-2013 period, there has only been a limited number of new contracts under agri-environmental schemes and thus a limited contracted area.

cover, hedgerows, trees); reduction of irrigated areas and/or irrigation rates, limitation of drainage; actions to conserve soil (e.g. labour techniques to prevent/reduce soil erosion, green cover, conservation agriculture, mulching); actions to maintain agricultural habitats favourable for biodiversity (e.g., leaving of winter stubbles land, adaptation of mowing dates); maintenance of landscape features (e.g., stonewalls, terraces, small wood); management of pastures (e.g., limits on livestock stocking rates, adoption of low-intensity practices) and creation of pastures (including conversion of arable crops); maintenance of local endangered varieties and breeds.

## 2.9. Response indicator: Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area<sup>49</sup>



Source: European Commission, DG Environment. Data based on GIS (Geographical Information System), without overlapping surfaces of SPAs and SICs. The 2006 data for EU refers to EU-25 (it excludes Bulgaria and Romania).

Member States have to designate nature sites, “Special Protection Areas” under the Birds Directive and “Special Areas of Conservation” under the Habitats

<sup>49</sup> This indicator has not been assessed as there is no target percentage of national territory to be included in Natura 2000. This depends on the biological richness of each Member State, which must contribute to the Natura 2000 network in proportion to its responsibility for the protection of species and habitats of EU conservation concern. It should be stressed that not only the quantity of protected areas is important, as protected areas should be also managed effectively.

Directive, for inclusion in the Natura 2000 network. The sites can be terrestrial or marine areas, and cover the different biogeographical zones across Europe. The graph shows the Natura 2000 area as a percentage of total terrestrial area, according to the Geographical Information System<sup>50</sup>.

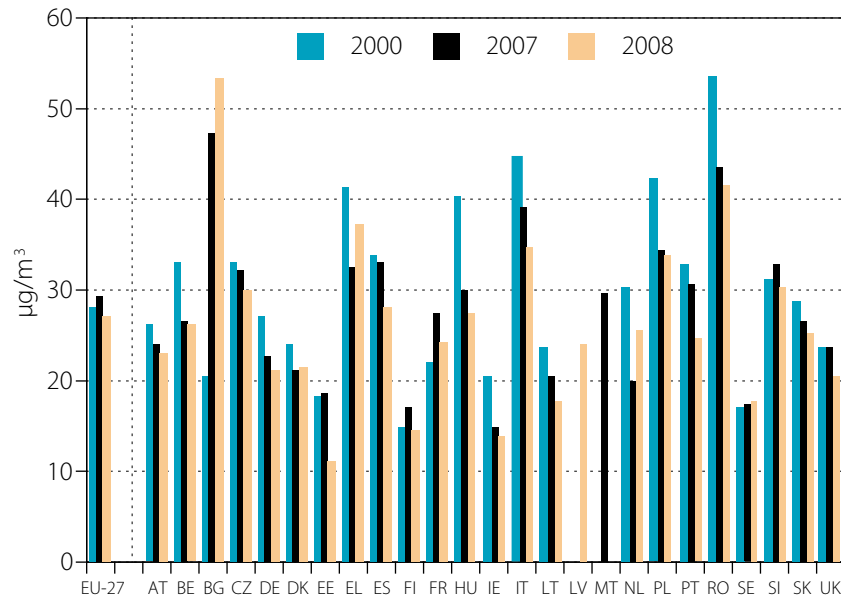
At the end of 2009, 17.6% of the terrestrial area in EU-27 was part of Natura 2000, i.e. around 755.000 km<sup>2</sup>; further increasing compared to 17% in 2008. Slovenia and Bulgaria are the countries which rank first, with a share of more than 30% which is around twice the EU average. Spain and Slovakia follow with a share of around 29%. Spain accounts for more than 19% of the EU’s Natura 2000 terrestrial area, with a surface of almost 145 000 km<sup>2</sup>.

Compared to 2008, in 2009 Spain, Poland and Germany have the most significant increase of the Natura 2000 terrestrial area (by adding 10 000 km<sup>2</sup>, 9 000 km<sup>2</sup> and 6 000 km<sup>2</sup> respectively), while Romania and Sweden have decreased their own surface of Natura 2000 protected areas.

<sup>50</sup> GIS-based public Natura 2000 Viewer is available on <http://natura2000.eea.europa.eu/>; and the respective Natura 2000 database is available on <http://www.eea.europa.eu/data-and-maps/data/natura-2000/>

### 3. Environment and health

#### 3.1. State indicator: Urban population exposure to air pollution by particles ( $\mu\text{g PM}_{10}/\text{m}^3$ )<sup>51</sup>



Source: European Commission, DG Environment and EEA. Mandatory reporting by Member States under the Air Quality Framework Directive 96/62/EC, its daughter directives and on the Council Decision 1997/101/EC on the Exchange of Information and data on ambient air quality. Data not available for Cyprus and Luxembourg. 2000 refers to 2001 data for EE, FR, EL, IE, to 2002 for DK and SI, to 2003 for HU and to 2004 for LT and RO.

<sup>51</sup> Population weighted annual mean concentration of particulate matter (PM10 or particulate matter with a diameter smaller than 10  $\mu\text{m}$ ) at urban background locations in agglomerations. To ensure comparability only data from measurement stations operating in all three years is used. This requirement limits the coverage to only 23 Member States.

A clean air supply is essential to our own health and that of the environment. The quality of the air we breathe has deteriorated considerably - mainly as a result of human activities, such as industrial and energy production, and transport.

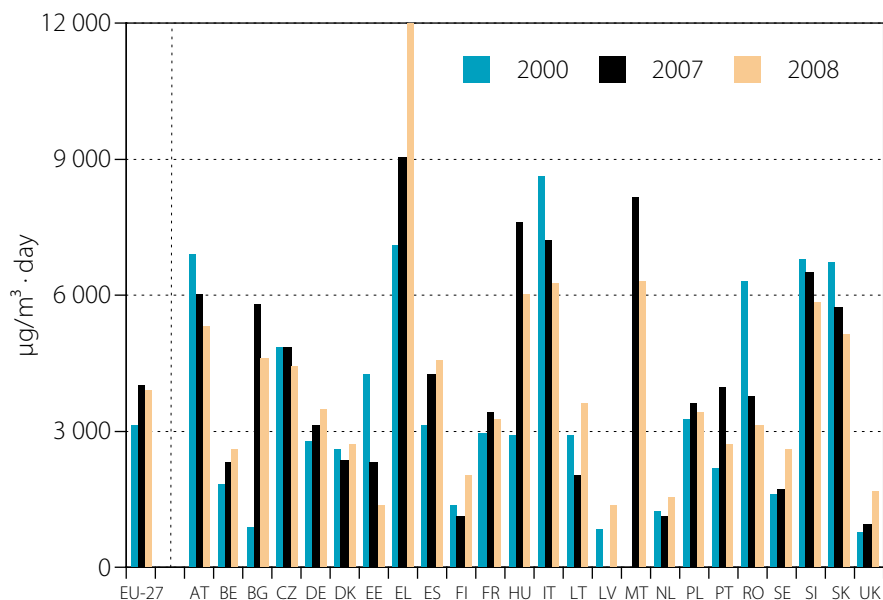
Particulate matter ( $\text{PM}_{10}$ ) cause illness and reduce life expectancy: when these particles are inhaled, they penetrate into the lungs where chemicals and physical interactions can lead to irritation or damage. Deteriorated air quality in urban areas mainly originates from transport and domestic heating, with the energy sector and industry contributing in individual instances. The later remain important contributors to elevated regional background concentration levels of particulate matter throughout EU.

Thanks to the existing EU legislation, much progress has been achieved to tackle some air pollutants, but nevertheless the air quality in urban areas is generally not good. Even if there has been a slight improvement on particulate matters during 2000-2008 in a majority of the Member States, this trend is not observed everywhere and the pollution levels are still high.

According to 2008 data, Bulgaria and Romania have the highest levels of urban population exposure, however both have opposite trends compared to 2001. Estonia, Finland and Ireland have the lowest. In 2008, 6 countries had a value higher than  $30 \mu\text{g}/\text{m}^3$  (upper interim target "IT-3" as suggested by the World Health Organisations), compared to 9 in 2007.

In 2008, in most countries the exposure of urban population to PM particulates has decreased compared to 2000. Amongst those countries exceeding  $30 \mu\text{g}/\text{m}^3$ , the situation in Bulgaria and Italy is opposite. Compared to 2007, the exposure level has decreased in all countries except in Bulgaria and Greece. These changes are also influenced by the meteorology of that particular year.

### 3.2. State indicator: Urban population exposure to air pollution by ozone ( $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )<sup>52</sup>



Source: European Commission, DG Environment and EEA. Mandatory reporting by Member States under the Air Quality Framework Directive 96/62/EC, its daughter directives and on the Council Decision 1997/101/EC on the Exchange of Information and data on ambient air quality. Data not available for Cyprus, Ireland and Luxembourg. 2000 refers to 1999 LV, 2001 BG and EE, 2002 DK and 2004 HU, LT and RO.

While ozone in the Earth's atmosphere occurs naturally and, when in the stratosphere (the upper layer of the atmosphere), even protects us significantly from UV radiation, it is however a powerful respiratory irritant and is harmful

when people are exposed at ground level. It causes lung inflammation, transient decreases in lung function, shortness of breath, chest pain, wheezing, coughing and exacerbation of respiratory illnesses: vulnerable groups such as asthmatics, children and the elderly are generally more concerned. In addition, ozone has negative effects on environment as it causes damage to ecosystems, materials and agricultural crops.

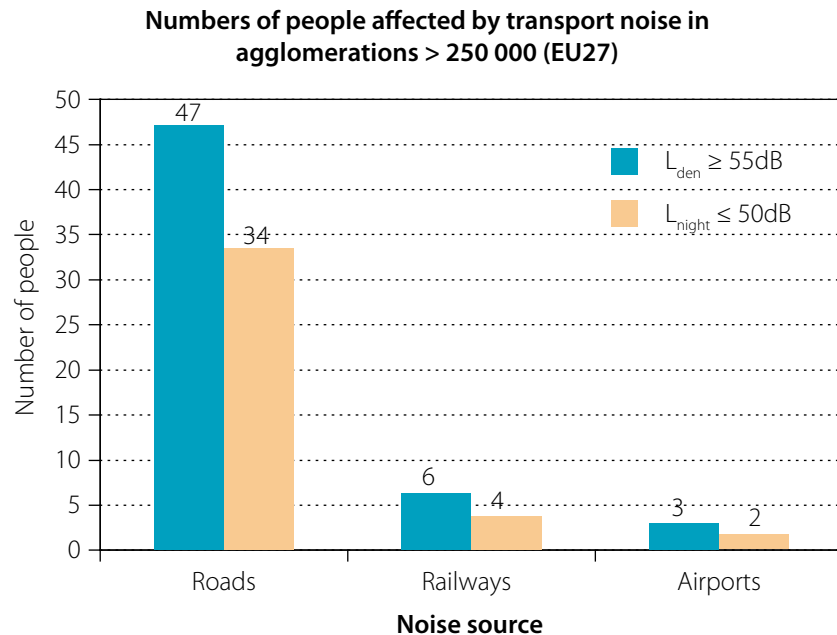
Ozone at ground level is produced from nitrogen oxides and volatile organic compounds in the presence of sunlight. It is therefore influenced by anthropogenic emissions as well as the intensity of solar radiation and high temperatures of the summer. Anthropogenic emissions from other areas in the northern hemisphere, such as North America and Asia, also have an important influence on the ozone concentration levels in Europe.

In 2008, the exposure of urban population to ozone was highest in Greece, Hungary, Italy and Malta.

Data from 2008 show a deterioration for EU-27 compared to 2000, and different trends among Member States, such as a worsening in many countries (in particular in Hungary and Greece). At the same time data show an improvement compared to 2000 in seven Member States (Austria, Czech Republic, Estonia, Italy, Romania, Slovenia and Slovakia). The formation of ozone is very much depending on meteorological parameters and may show strong variations from year to year.

<sup>52</sup> Population weighted annual mean concentration of ozone (SOMO35: Sum of Means Over 35 ppb ozone) at urban background locations in agglomerations. To ensure comparability only data from measurement stations operating in all three years is used. This requirement limits the coverage to 23 Member States.

3.3. *State indicator: People affected by transport noise in urban agglomerations (at least 250 000 inhabitants) in EU-27*<sup>53</sup>



Source: EEA ETC-LUSI. Figures should be taken as preliminary estimations by the EEA of the exposure of transport noise in 2007, based on incomplete data sets reported by the EU27 member states under the directive 2002/49/EC. The analysis does not depict the full exposure to transport noise in EU.

Recent research makes a clear link between exposure to night noise and health impacts. Noise can aggravate serious health problems beyond damage to hearing. This is especially observable through the effects of noise on sleep and

<sup>53</sup>  $L_{den}$  and  $L_{night}$  indicate the daily noise levels during day and night respectively. 55dB is the lower benchmark for daily noise indicator while 50dB is the lower benchmark for night time noise.

the relations between sleep and health. When people are asleep, their ears, brain and body continue to react to sounds even if they don't perceive it. Sleep disturbance and annoyance are the first effects of night noise and can lead to mental disorders. Moreover, noise effects can even trigger premature illness and death: night noise from aircraft can increase the blood pressure even if it does not wake the sleeper. The health effects are more harmful at early night and early morning. Children, the chronically ill and the elderly are more vulnerable to noise.

There is increasing evidence that noise also has effects on the cardiovascular system, mental health and school performance in children.

The main sources of noise are transport noise, industrial noise, construction noise and building services. Data is only available at EU level on noise from the major sources of infrastructures (roads, railways, airports and industrial sites), therefore this indicator has been chosen. The preliminary data on transport noise suggest that road noise is by far the most predominant source of exposure to transport noise in large European agglomerations both during 24-hour and night periods.

In 2007 more than 47 million people (i.e. 52% of the population living in agglomerations with more than 250,000 inhabitants) were exposed to daily road noise levels exceeding 55 dB  $L_{den}$  (the lower benchmark for the combined noise indicator). People exposed to daily railway and airport noise were fewer, but still significant, with respectively nearly 6.5 and 3.7 million exposed to each. The number of people exposed to levels exceeding 50 dB  $L_{night}$  (the lower benchmark for night time noise) to road noise was 33.7 million<sup>54</sup>.

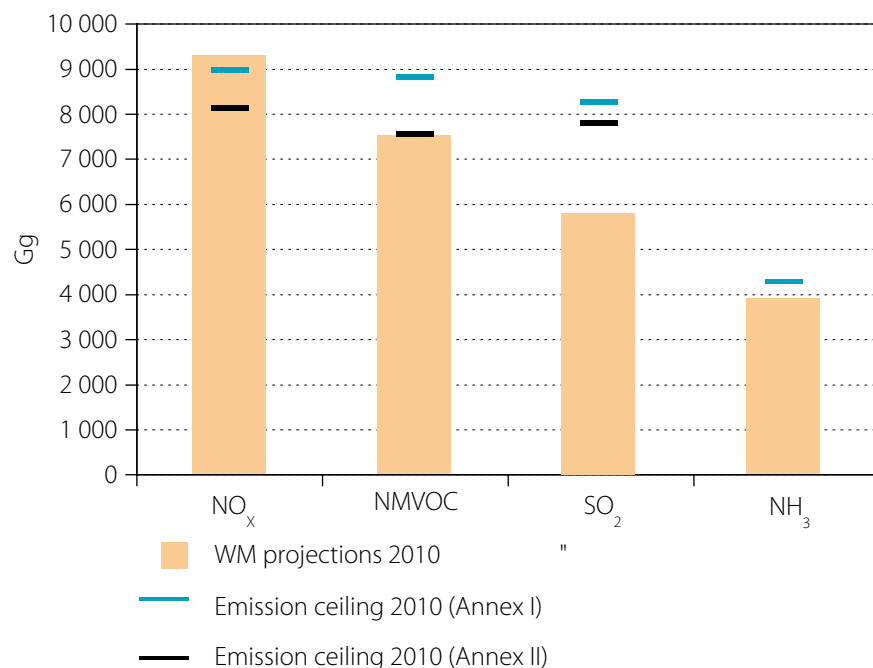
<sup>54</sup> The number of agglomerations included in each calculation are:

- in case of roads: 113 agglomerations out of the 164 expected
- in case of railways: 118 agglomerations out of the 164 expected
- in case of airports: 98 agglomerations out of the 164 expected



The European Union is taking the lead in tackling noise. The Environmental Noise Directive<sup>55</sup> requires countries to map hotspots of noise and reduce exposure. However, the Directive does not set any limit values.

☺ **3.4. Pressure indicator: Emissions projections for certain atmospheric pollutants: nitrogen oxides (NO<sub>x</sub>), non-methane volatile organic compounds (NMVOCs), sulphur dioxides (SO<sub>2</sub>) and ammonia (NH<sub>3</sub>)**



Source: EEA. WM means "With existing Measures". EU-27 WM projections are aggregates of the projections reported by individual Member States (excluding data from Luxembourg which were not reported). The emission ceilings reported are defined in Annex I and II of the NEC Directive.

<sup>55</sup> Directive 2002/49/EC

The four main air pollutants - nitrogen oxides (NO<sub>x</sub>), non-methane volatile organic compounds (NMVOC), sulphur dioxides (SO<sub>2</sub>) and ammonia (NH<sub>3</sub>) – harm both human health and the environment. On one side they increase sickness and premature death and on the other side they contribute to formation of ozone and particulate matter in the air and, when deposited in soils and water, they contribute to acidification and eutrophication. The National Emission Ceilings (NEC) Directive<sup>56</sup> establishes that the EU and the Member States must reduce air emissions of noxious gases to reach the 2010 targets.

According to the latest projections the EU will not fully comply with the NECD targets, missing in particular the target for NO<sub>x</sub>. Considering the NO<sub>x</sub> control measures in place in the Member States, the EU NO<sub>x</sub> emissions are projected to be 4% above the aggregated emission ceiling (known as the Annex I ceiling) and 14% above the stricter ceiling for EU (the Annex II ceiling) set for 2010.

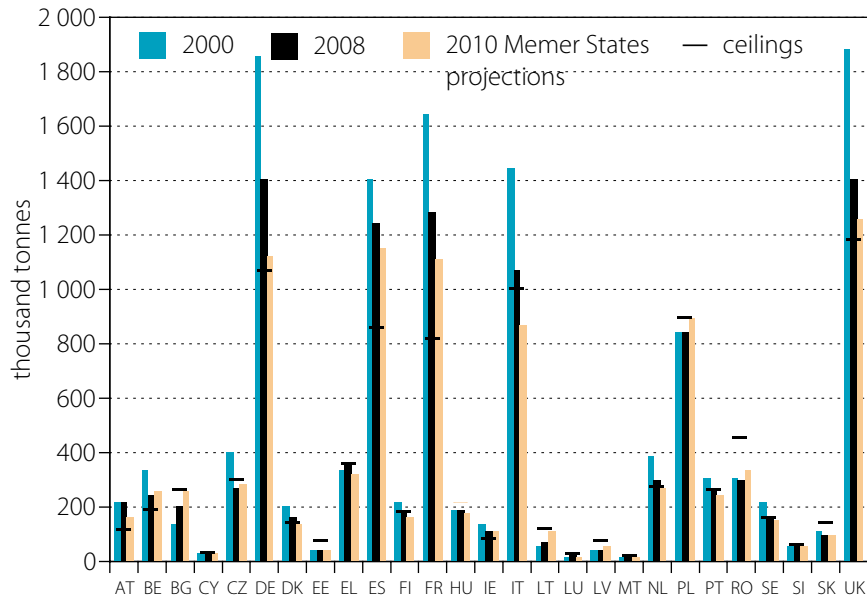
The EU is expected to achieve substantial reductions of the other pollutants (SO<sub>2</sub>, NMVOC, NH<sub>3</sub>) below the levels required by the NECD ceilings. NMVOC projections for the EU-27 are 15% below the Annex I ceiling, and meet the stricter Annex II ceiling. The EU-27 SO<sub>x</sub> are projected to be 30% below the Annex I ceiling and 25% below the Annex II ceiling. NH<sub>3</sub> emissions in EU-27 are projected to be 9% below the Annex I emission ceiling.

Despite significant emission reductions in recent years, only 14 Member States expect to remain below the emission targets for all four air pollutants, while 13 Member States projected they will miss at least one of the 4 ceilings.

The 2005 EU Thematic Strategy on Air Pollution aims to reduce levels of these and other air pollutants further by 2020.

<sup>56</sup> Directive 2001/81/EC

3.5. *Pressure indicator: Air emissions of nitrogen oxides (NO<sub>x</sub>)* (thousand tonnes)



Source: EEA.

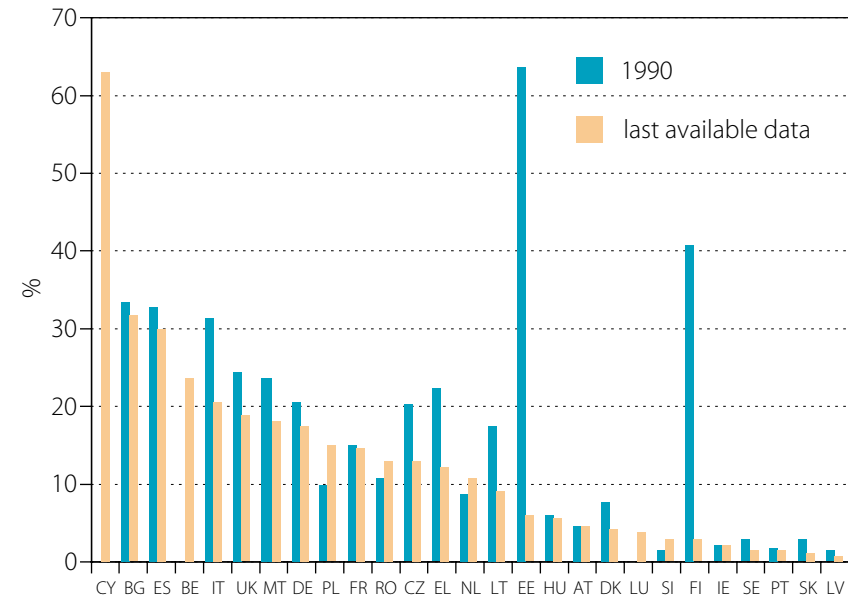
In 2008 EU-27 NO<sub>x</sub> emissions were 10.4 million tonnes, decreasing by 3.6% compared to 2007 (11.2 million tonnes)<sup>57</sup>. According to the latest projects, the EU will miss the 2010 target of 9.5 million tonnes.

For many Member States the 2010 emission ceiling for NO<sub>x</sub> remains the most challenging, mainly due to road transport which has grown faster than anticipated. United Kingdom, Spain, France and Germany are the main NO<sub>x</sub> emission producers, with more than 1.2 million tonnes in 2007.

<sup>57</sup> Air pollutant emissions data viewer (NEC Directive) is available on: <http://dataservice.eea.europa.eu/PivotApp/pivot.aspx?pivotid=468>

While emissions have decreased in most Member States during 2000-2008, few countries have shown an increase, e.g. Bulgaria, Lithuania, Greece, Luxembourg and Malta. While sixteen Member States had emissions above 2010 ceiling in 2008, eleven anticipate they will miss the 2010 NO<sub>x</sub> ceiling (in particular Ireland, Austria, Belgium and France by more than 30%).

3.6. *Pressure indicator: Water exploitation index*<sup>58</sup>



Source: EEA. UK only refers to England and Wales. Latest available year varies among Member States (see also part 2).

The water exploitation index (WEI) measures the amount of water used compared to the available long-term freshwater resource in a country or

<sup>58</sup> The indicator is defined as annual total water abstraction as a percentage of the available long-term freshwater resources.

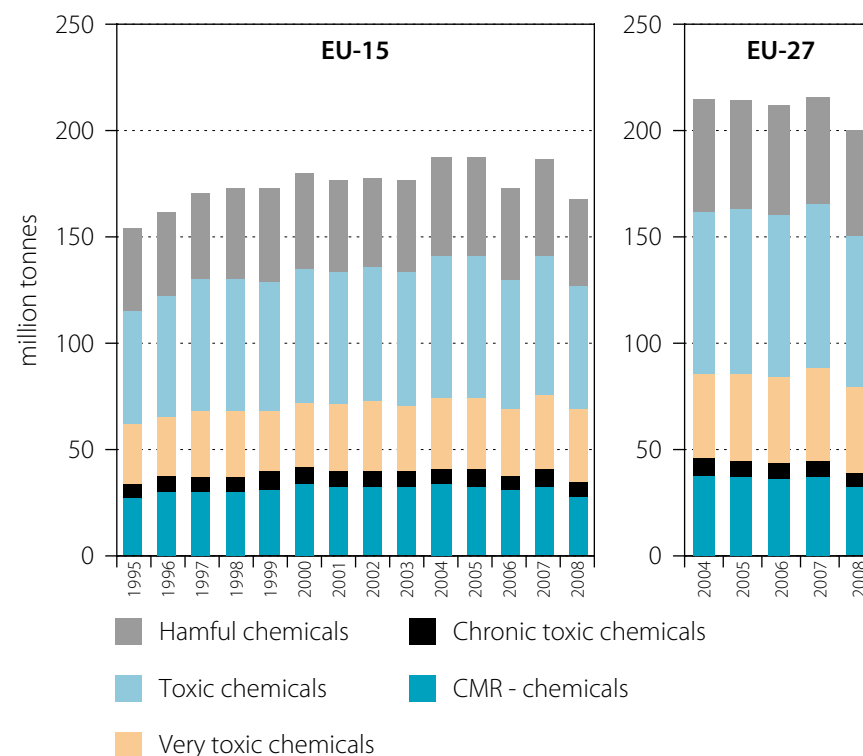


region. An index of 20% or more indicates water scarcity, while a value of over 40% signals a severe problem.

The graph shows that five Member States are facing a problem of water scarcity (in decreasing order of severity): Cyprus, Belgium, Spain, Italy and Malta, with an index of more than 20%. In general, southern Member States are more affected by this problem as they suffer more from droughts and high temperatures (exacerbated by climate change), however the graphs shows that northern countries are also affected<sup>59</sup>. Climate change will also affect the water supply from the Alps, which is currently feeding many of the major rivers of continental Europe.

It should be noted that WEI values - as shown in the graph - mask regional and seasonal variations. Some countries with a WEI of less than 20% have regions subject to very high levels of water scarcity, in particular in Southern Europe<sup>60</sup>. Furthermore, during summer in southern Europe, agricultural and tourist water-demand peaks exactly when water resources become scarce. In addition, the analysis of the totals of water resources and water abstraction may mask problems that are specific to surface or groundwater resources.

### 3.7. Pressure indicator: Production of toxic chemicals (million tonnes), by toxicity class<sup>61</sup>



Source: European Commission, Eurostat

<sup>59</sup> The high value for Belgium comes from water abstraction for energy (cooling water).

<sup>60</sup> For example, the regional water exploitation index in Portugal is extremely variable per river basin (Sado river basin 132%, Leca river basing 82%, Minho river basin 1%, Lima river gasin 5%) but at country level is averaged at 15%.

<sup>61</sup> The classes are derived from the Risk Phrases assigned to the individual substances in Annex 6 of the Dangerous Substance Directive (Directive 67/548/EEC as last amended in 2001). The substances making up this index comprise a wide range of uses: from intermediates – used for the production of even non-toxic chemicals, products and articles (with potential human exposure limited to workers during their production and subsequent synthesis, and to the environment through potential releases during processing or transportation) – to household chemicals intended for consumer use.

The graph presents the aggregated production volumes of toxic chemicals, divided into five toxicity classes. The most dangerous ones are the CMR chemicals (carcinogenic, mutagenic and reprotoxic), followed by chronic toxic chemicals, very toxic chemicals, toxic chemicals and harmful chemicals.<sup>62</sup> The indicator monitors progress in shifting production from the most toxic to less toxic chemicals.

The total production of chemicals in EU-15 grew between 1995 and 2007 by 26% to the highest value (313 million tonnes) and decreased by 26 million tonnes (-8.3%) in 2008 (EU-15). The production of toxic chemicals (all five classes) increased by 22% to the highest values in 2004-05, decreased slightly in 2006-07 and fell by 10% in 2008 (EU-15).

In EU-27 the total production of chemicals increased continuously between 2002 and 2007 (+6.9%) to the highest value (362 million tonnes) and fell by 26 million tonnes (-7.2%) in 2008. The production of toxic chemicals (all five classes) also grew until 2007 by 6.9% to the highest value of 218 million tonnes, and fell by 17 million tonnes in 2008 (-7.8%).

The 12 new Member States produced in 2008 49 million tonnes i.e. 14.6% of the industrial chemicals, and 16.4% of the toxic chemicals in EU-27.

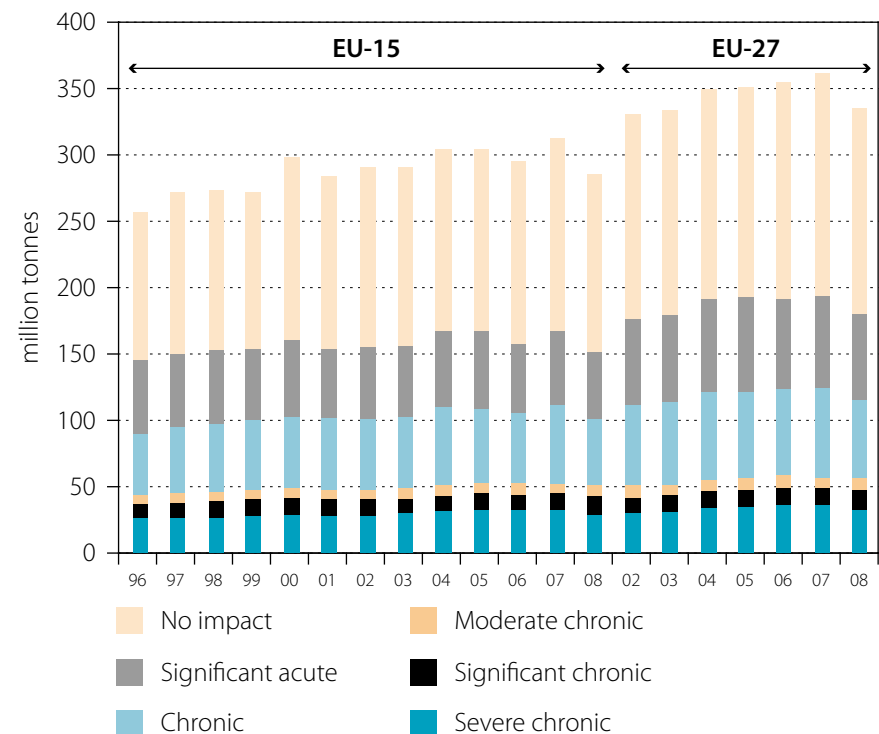
In 2008 the share of toxic chemicals (all five classes) in total production was around 60% in EU-27 (58% in EU-15) compared to 61.8% in 2002. The share of the most toxic (CMR) substances in total chemicals production fell from 10.6% in 2002 to 9.4% in 2008 in EU-27 (from 11.3% to 9.8% in EU-15 during 1995-2008).

The share of the most toxic (CMR) substances within the group of toxic chemicals fell from 17.1% in 2002 to 15.8% in 2008 in EU-27 (from 18.1% to 16.6% in EU-15 during 1995-2008).

<sup>62</sup> The indicator does not provide information on risks from the use of chemicals: production and consumption are not synonymous with exposure, as some chemicals are handled in closed systems, or as intermediates in controlled supply chains.

In 2008, the chemicals legislation REACH - Registration, Evaluation, Authorisation and restriction of Chemicals - entered into operation. It is expected that in the coming years its implementation will speed up the substitution of the most dangerous substances with safer alternatives where these are economically and technically viable.

### 3.8. Pressure indicator: Production of environmentally harmful chemicals (million tonnes), by aquatoxicity class<sup>63</sup>



Source: European Commission, Eurostat

<sup>63</sup> The indicator is based on the production quantities extracted from the PRODCOM database (which includes approximately 400 substances and groups of substances), the current EU-

The indicator on the production of environmentally harmful chemicals takes into account the inherent ecotoxicity of the chemical substances, their potential for bioaccumulation and persistence in the environment. For this purpose, substance specific data on ecotoxicity, biodegradability and bioaccumulation potential have been used.

The indicator is a proxy for the potential exposure of substances to the environment and focuses on impacts to aquatic toxicity.

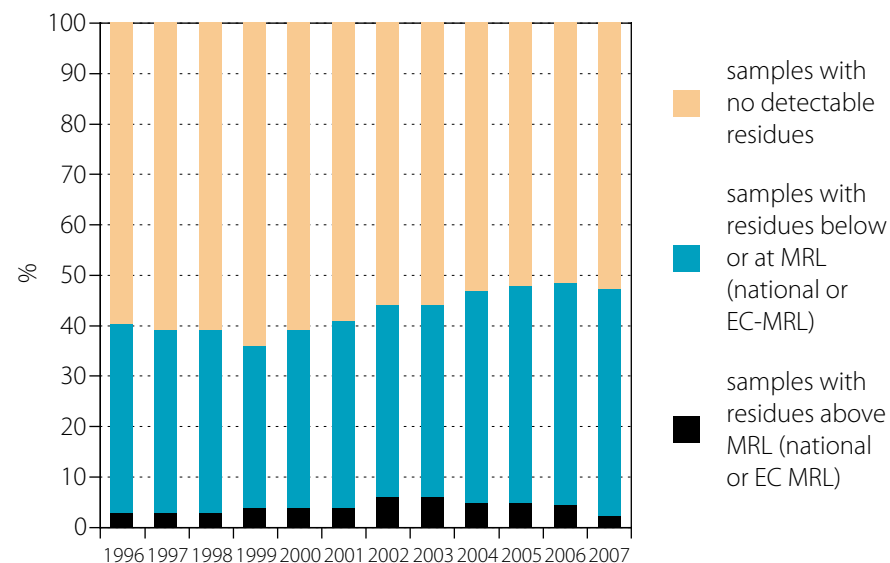
In the EU-27, the share of the production of classified environmentally harmful chemicals in the EU total chemical production has remained stable at 53-54% from 2002 to 2008.

The longer trend in EU-15 shows a slight reduction in the production of classified environmentally harmful chemicals. The overall share decreases from approximately 56% in 1996/1997 to 53% in 2007/2008.

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classification system (R-phrases) and the coming GHS-classification system of the substances. The indicator, which is mainly based on the environmental classification of the substances, includes certain R-phrases related to chronic human toxicity. Impact categories such as climate change, formation of photooxidants, acidifying substances and eutrophication are already covered by other existing indicators and are not included in the suggested indicator.

### 3.9. Pressure indicator: Pesticides residues in food<sup>64</sup>



Data source: Data for 2007 from European Food Safety Authority "2007 Annual Report on Pesticides according to Article 32 of Regulation (EC) No 396/2005", previous years from European Commission Staff Working Documents "Monitoring of pesticides residues in products of plant origin in the European Union, Norway, Iceland and Liechtenstein", in line with provisions under Regulation (EC) No 396/2005 on maximum residue level of pesticides in food products for human consumption and animal feeding stuffs.

Pesticides are used to protect crops from infestation and damage by pests and plant diseases, which may result in residues present in the treated products. In order to protect human health, EU legislation sets a maximum residue level (MRL), which is the highest possible level of a pesticide residue that is legally tolerated in food and feed. MRLs help to protect consumers from exposure to unacceptable levels of pesticides residues in food and feed.

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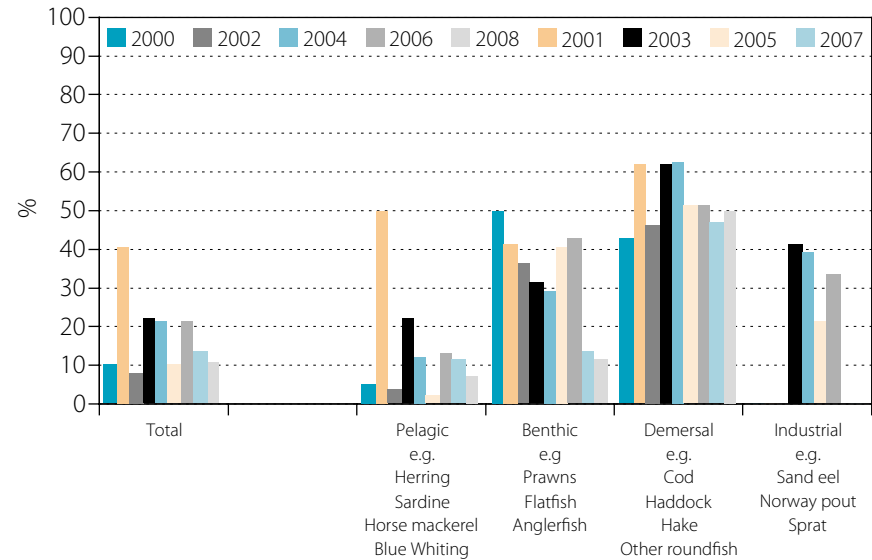
<sup>64</sup> The comparability of the total data between years is limited because increased number of countries and samples analysed over the years.

The percentage of food and feed samples in which unwanted residues of pesticides exceed maximum residue levels has dropped from around 5% in recent years to 4% in 2007. The graph also shows that, since 1996, the number of samples without any residues of pesticides has decreased since 1999 from 60% to 53% in 2007. However, it should be noted that the number of detectable pesticides and of samples and the sensitivity of analytical methods increased over the years. The data indicate that MRLs are exceeded more often in samples imported from Third Countries (6.8%) than in EU products (2.3%).

In order to control the variety of pests, weed and diseases effectively and to minimise the risk of resistance, farmers increasingly vary pesticides and apply pesticide mixtures. This may be one reason amongst others why an increased number of samples was found that contain multiple residues i.e. with residues of more than one pesticide (from 15.5% in 1997 to 26.2% in 2007). In 2007 samples containing three or more pesticides accounted for 15.6% of samples with multiple residues.

## 4. Natural resources and waste

### 4.1. State indicator: Percentage of fish catches from stocks outside safe biological limits<sup>65</sup>



Data source: European Commission, Maritime Affairs and Fisheries DG, International Council for the Exploration of the Sea (ICES)

In 2008 more than 10% of total catches were outside safe biological limits, showing a light improvement in recent years, but still higher compared to 2000. Demersal and benthic stocks were generally in poor condition throughout the observed period, even if the situation improved in the two latest years for benthic stocks.

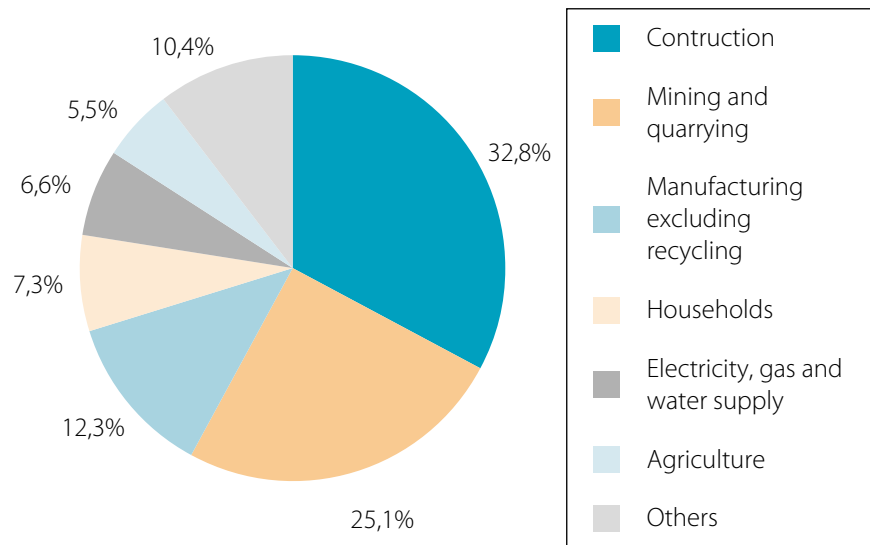
<sup>65</sup> It is considered that a stock is within safe biological limits if its current biomass is above the precautionary level advocated by the International Council for the Exploitation of the Sea (ICES), which ensures a high probability that the stock will be able to replenish itself.

In 2003 some important pelagic stocks, which normally sustain large catches, fell outside safe biological limits for the first time, causing the large variation in the indicator for this year. The fall in industrial stock catch in 2007 is due to a ban on fishing for sand eel.

One should also be aware of the limitation of this indicator which, in some cases, may become misleading. For instance, if fish stocks were fished dramatically down and there were so few fish left to catch that a larger fraction of the total (overall reduced) catch came from stocks in safe biological conditions, this indicator would appear to improve, although the underlying cause for the reduction in catches from threatened stocks would actually still indicate a very severe situation.

 4.2. Pressure indicator: Total waste generated

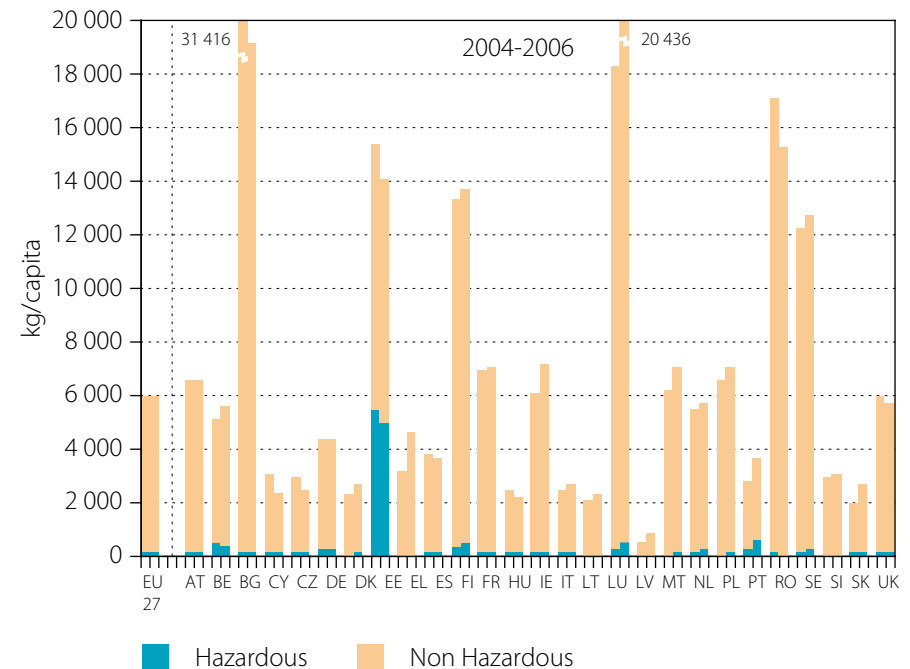
Total EU waste generation by economic sector, 2006



Data source: European Commission, Eurostat.

In 2006 the European Union produced in total around 2.9 billion tonnes of waste, i.e. almost 6 tonnes per capita on average. The economic sectors contribute differently to waste generation: Construction is the sector which generates most waste (around 33%) followed by mining and quarrying (around 25%). Manufacturing accounts for around 12% of total waste, while more than 7% of total waste is produced by households.

Total waste generated (kg per person) by type "hazardous/non hazardous"



Data source: European Commission, Eurostat.

According to the Directive 91/689/EEC, hazardous waste represents a greater risk for the environment and human health than non hazardous wastes and therefore requires a stricter control.<sup>66</sup>

Around 3% (89 million tonnes) of the waste generated was hazardous waste, meaning that it is harmful for human health or the environment. Out of the 6 tonnes per capita produced on average by each EU citizen in 2006, 180 kg were hazardous waste.

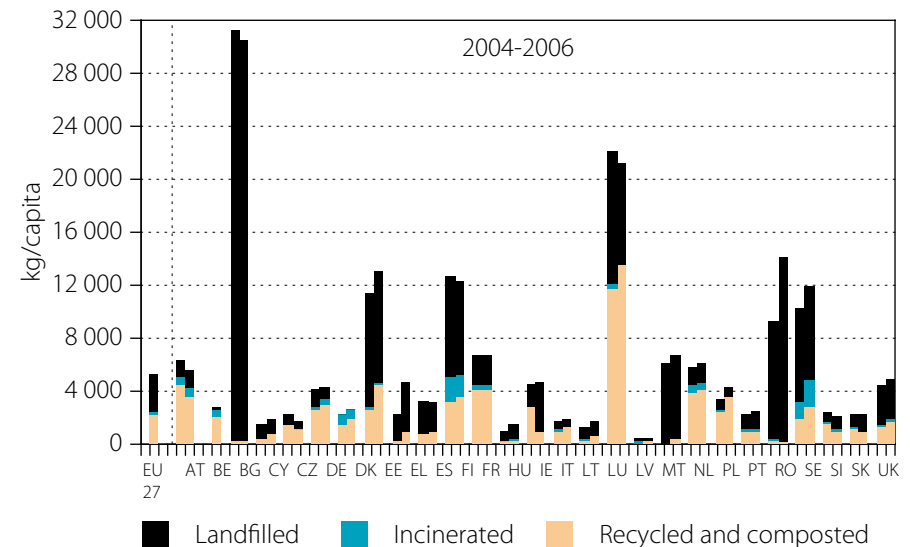
The graph shows that total waste generated per capita varies a lot among Member States, from 32 tonnes in Bulgaria and 20 tonnes in Luxembourg to 810 kg in Latvia. The share of hazardous waste also varies a lot: from 35% of Estonia and 16% of Portugal to 0.3% of Bulgaria and Romania.

While total waste generated in EU increased by 0.5% in 2006 compared to 2004, most countries have increased the amount of waste generated and only 8 have decreased it. The data show that Cyprus and the Czech Republic have seen the highest decrease (-25% and -16% respectively), while 4 countries have increased their amount of waste generated by more than 30%: Latvia (+49%), Greece (+46%), Slovakia (+36%) and Portugal (+31%).

In the period 2004-2006 the amount of hazardous waste at the EU level slightly increased from 2.7% to 3% of the total waste generated. Only a few countries managed to decrease their waste generation and only three - Cyprus, Estonia and Romania - managed also to decrease their production of hazardous waste.

<sup>66</sup> The classification into hazardous and non hazardous waste is based on the system for the classification and labelling of dangerous substances and preparations, which ensures the application of similar principles over their whole life cycle.

### Total waste treated (kg per person)



Data source: European Commission, Eurostat. 2004 data not available for Belgium and the EU.

EU waste management policy is based on a hierarchy of principles: the best being waste prevention, followed by re-use, recycling and other recovery, safely incineration, and disposal being the least favourable.

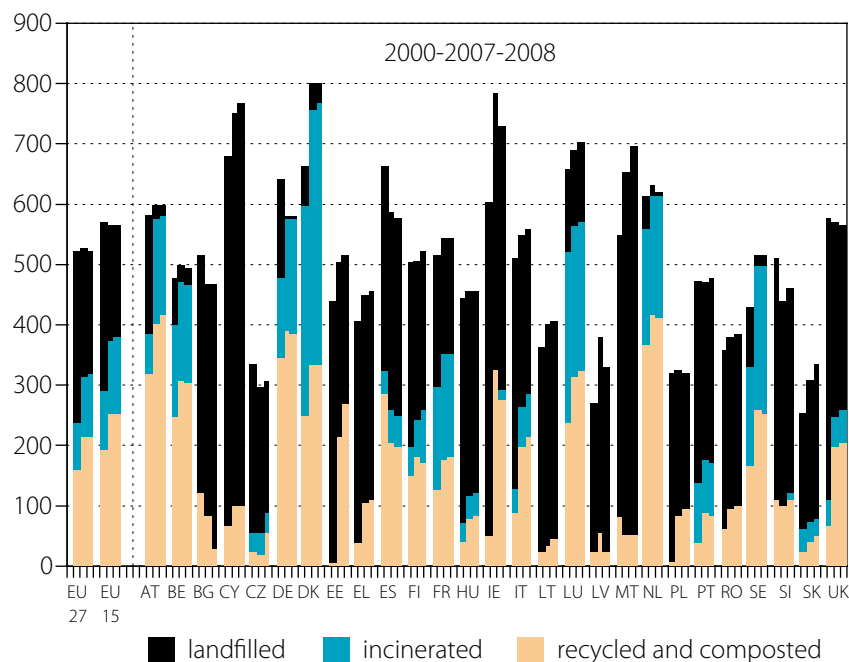
The graph shows that the treatment of waste in EU varies a lot among member States. While on average the share of landfilled waste in EU is 51.6% (2006 data), few countries (Bulgaria, Malta and Romania) put more than 90% of their collected waste in landfills.

In 2006 the recovery rate for EU was 43.5%, but few countries (Poland, Belgium, Denmark and Germany) have a share of more than 70%.

The share of incineration is almost 5% for EU, and Denmark has the highest share with 21.5%. Some countries (Austria, Belgium, Slovenia, Finland and Sweden) have a share of more than 10%.



### 4.3. Pressure indicator: Municipal waste generated (kg per person)



Data source: European Commission, Eurostat.

Municipal waste<sup>67</sup> represents about 9% of all waste produced (2006).

In 2008 the EU-27 produced almost 261 million tonnes of municipal waste, most of which (85%) coming from EU-15. On average, each EU citizen produced 524 kg of municipal waste, but there are big differences among Member States. EU-15 Member States generally produce more municipal waste than the new

<sup>67</sup> Municipal waste consists of waste generated by households, and other wastes similar in nature and composition which are collected and managed by or on behalf of municipal authorities. The bulk of this waste stream is from households, though similar wastes from sources such as commerce, offices and public institutions are included.

Member States. In 2008, while the Czech Republic, Latvia, Slovakia and Poland produce less than 350 kg of municipal waste per capita, Denmark and Cyprus produce more than 750 kg per capita.

The EU shows no sign of reversed trend since 2000 when around 252 million tonnes were produced. While most countries have increased their municipal waste generation since 2000, few show a clear declining trend (e.g. Spain and United Kingdom). In particular, six countries have increased municipal waste generation by more than 20% (Slovakia, Malta, Latvia, Ireland, Denmark and Sweden), while Spain and Slovenia have decreased it by more than 10%.

The way municipal waste is treated also varies a lot:

23% of municipal waste was recycled and 17% was composted in 2008 (a slight improvement compared to 2007), 19% was incinerated and the rest (around 40%) was still disposed of in landfill sites. Member States have very different policies of waste management. Some countries have prioritised recycling and composting as the main waste management stream, e.g. Germany, Austria and the Netherlands have a recycling share of at least 65% with a share of landfilled waste of around 3% or less (Germany less than 1%).

On the other side, landfill is the most used destination for others such as Bulgaria, Romania, Lithuania, Latvia and Malta. Denmark has the highest share of incineration, used for more than 50% of total municipal waste production, followed by Sweden.

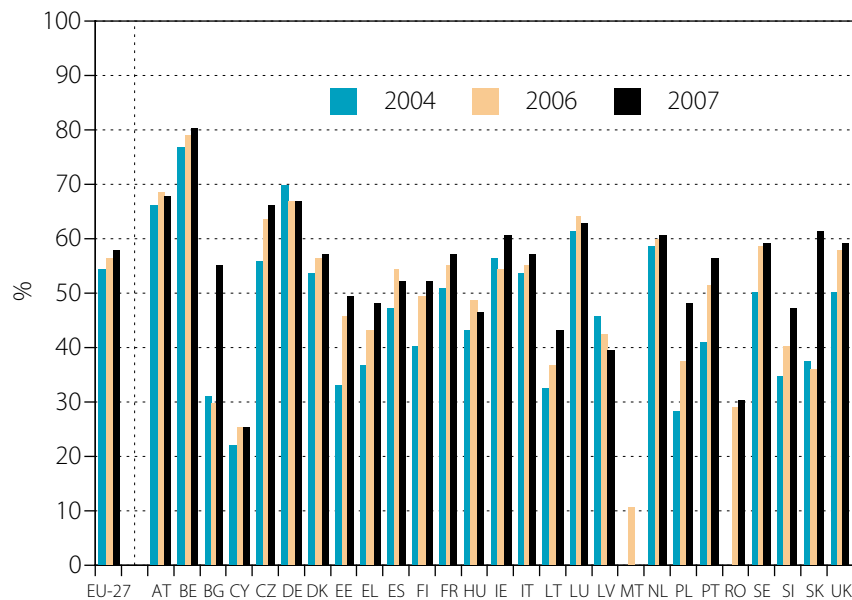
Although, at EU-27 level, landfill is still the first treatment mode, it has been steadily decreasing since 1995 (-30%). Incineration went up 56% while composting and recycling boomed, growing by 217% and 155% respectively in the same period.

This can be partially explained by the implementation of the Packaging and Packaging Waste Directive and of the Landfill Directive, which aimed to

increase the recycling and recovery of packaging waste and to divert biodegradable municipal waste away from landfill.

Landfilling, however, accounts for more than 50% of the municipal waste treated in 19 out of 27 countries.

😊 **4.4. Response indicator: Recycling rates of packaging waste** (as percentage of total packaging waste)



Data source: European Commission, DG Environment. Mandatory reporting by Member States under Commission Decisions 97/138/EC and 2005/270/EC; EU data for 2004 refer to EU25; Malta has not reported data for 2004 and 2007; 2004 BG refers to 2005.

Recycling contributes to improving our resource efficiency by replacing virgin materials, and in addition avoids material being put in landfills or incinerators. Packaging waste accounts for roughly 5% of total waste generation.

The Directive on packaging and packaging waste<sup>68</sup> establishes the EU target of recycling between 55% as a minimum and 80% as a maximum of packaging waste by 2008.<sup>69</sup> In 2007 EU-27 recycled 58.0% of packaging waste, increasing from 53.9% in 2004.

Belgium ranks first<sup>70</sup>, with 80.4% of packaging waste recycled in 2007, followed by Austria and Germany (with around 67%). In total, 15 Member States have met the target of having recycled at least 55% of their packaging waste in 2007. In any case, a few countries are far from achieving their target, in particular Cyprus with around 25% of packaging waste recycled.

While most countries have shown an increasing trend since 2004, some do not show a clear trend (Austria, Bulgaria, Germany, Spain, Hungary, Ireland, Luxembourg and Slovakia), while only Latvia is continuously decreasing its share.

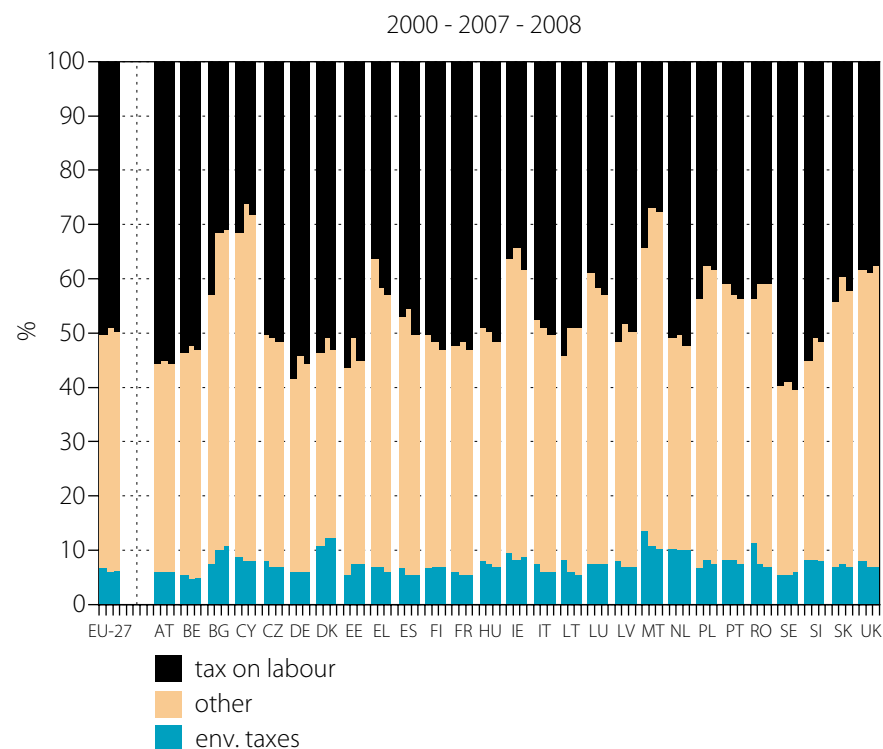
<sup>68</sup> Directive 94/62/EC as amended by Directive 2004/12/EC

<sup>69</sup> Some Member States are allowed to achieve this by a later year. See in Part 2 the target year for each country.

<sup>70</sup> One reason for Belgium's high performance in terms of recycling of packaging waste is its long tradition (since the late 1980s) of separating, collecting and recycling, thanks to a well developed separate collection and recycling system in most of the municipalities. There is a close cooperation between the public actors, the accredited organisations and the industry and a balanced sharing of responsibilities, and economic instruments are also applied favouring separate collections.

## 5. Environment and the economy

### 5.1. Response indicator: Environmental taxation: share of environmental taxes in total tax revenue compared to taxes on labour (percentage)<sup>71</sup>



Data source: European Commission, Eurostat 2010<sup>72</sup>, DG Taxation and Customs Union

<sup>71</sup> This indicator has not been assessed as it is not related to a high or poor environmental performance in an unambiguous way.

<sup>72</sup> Taxation trends in the European Union. Data for the EU Member States and Norway. 2010.

Environmentally related taxes (for convenience also referred to as environmental taxes) can contribute to meet environment policy objectives and they include energy taxes, taxes on pollution and resources and transport taxes.

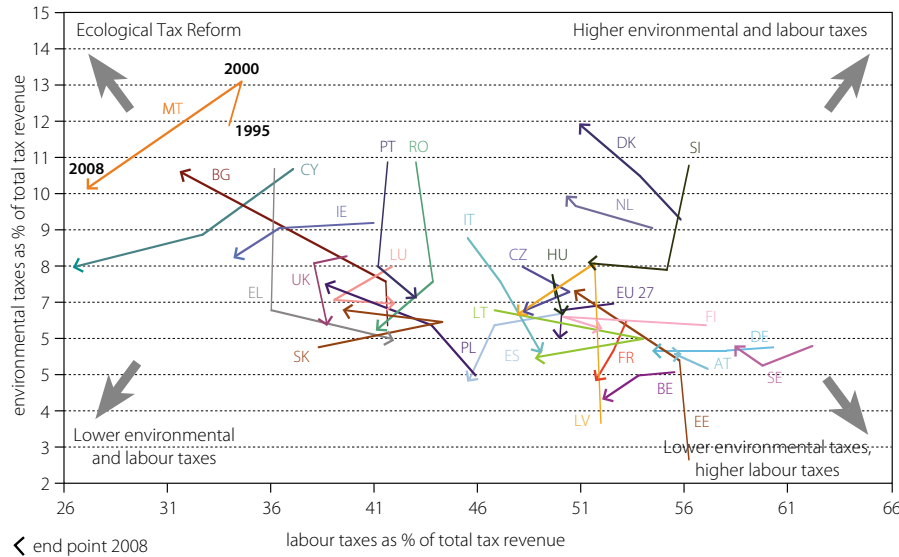
The share of environmental taxes in total tax revenue decreased for the EU-27 as a whole during the period considered reaching 6.1% in 2008 (from 6.8% in 2000) while at the same time, the share of taxes on labour also decreased slightly (from 50.1% in 2000 to 50.0% in 2008).<sup>73</sup> However, one can observe that this does not hold in all Member States and some of them (Bulgaria, Denmark, Estonia, Poland) have increased the share of environmental taxes while decreasing taxes on labour.

The graph shows that the share of environmental taxes in total taxation varies among the Member States: e.g. in 2008 the share was more than 10% in Denmark, Bulgaria and Malta, while it was less than 6% in Belgium, Germany, Spain, France, Austria, Italy, Lithuania and Sweden. During the period 2000-2008 trends were also different among countries: Romania had the greatest decrease in the share of environmental taxes (from 11.4% to 6.3%), followed by Malta and Lithuania, while Bulgaria registered the highest increase (from 7.5% to 10.6%), followed by Estonia and Denmark.

Out of the 6.1% share of environmental taxes for EU-27, energy taxes represent 4.4%, transport taxes 1.4% and taxes on pollution and resources only 0.3%.

The graph below presents the changes in the share of environmental and labour taxes in total tax revenue in a different way and covering a longer period (since 1995).

<sup>73</sup> The share of 'other' taxes increased marginally (from 43.1% in 2008 to 43.9% in 2008).



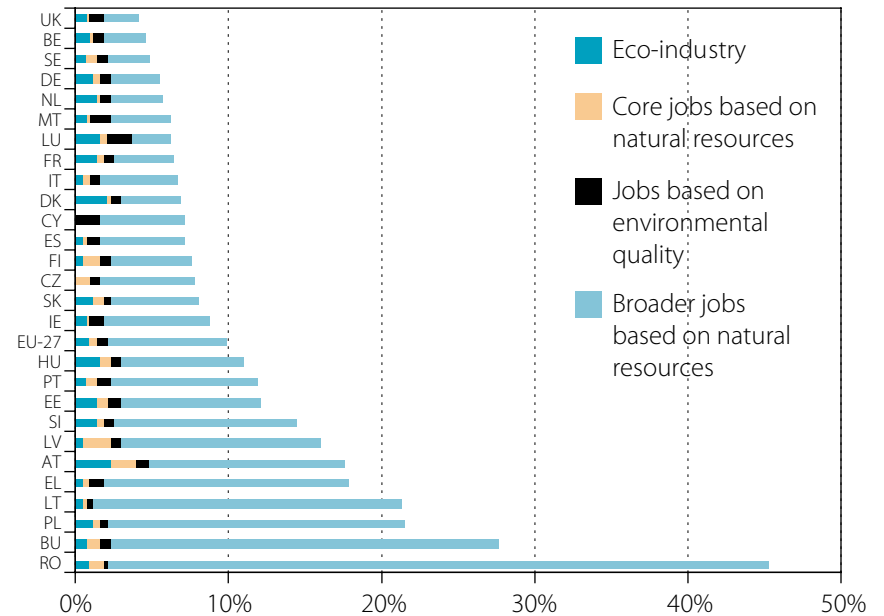
Data source: European Commission, Eurostat, DG Taxation and Customs Union. Data for all countries: 1995, 2000 and 2008, except Bulgaria (1998, 2000 and 2007).

During the period 1995-2008 EU-27 shares of environmental taxes and labour taxes in total tax revenue decreased, by 0.9 p.p. (percentage points) and 2.6 p.p. respectively. The share of 'other' taxes in total tax revenue increased during the same period.

While in the period 1995-2008, some Member States redirected taxation from labour to environmental impact (for example Estonia, Bulgaria, Denmark, Latvia and Poland), other countries did the opposite (Italy, Portugal and Greece). Estonia, which had a share of environmental taxes of only 2.7% in 1995 increased this to 7.3% in 2008 (+4.6 p.p.), while decreasing by 5.5 p.p. its share of taxes on labour. Greece, which had a share of environmental taxes of 10.7% in 1995 decreased it to 6.0% in 2008 (i.e. -4.7 p.p.) and increased its share of taxes on labour by 5.7 p.p.

Slovakia increased the shares of both taxes in the period 1995-2008, while many Member States lowered both environmental and labour taxes as a share of the total tax revenue, (including Belgium, Cyprus, Denmark, Finland, France, Ireland, Malta, Romania, Spain, Slovenia and United Kingdom).

5.2. Response indicator: Employment in the eco-industry (as percentage of total employment)<sup>74</sup>



Data source: GHK, Cambridge Econometrics, Institute for European Environmental Policy "Links between the environment, economy and jobs" (2007); and Ecorys and Idea "Competitiveness of the EU eco-industry" (2009).

<sup>74</sup> The different categories in the graph apply both a narrow and a wider classification, for example 'Eco-industry' applies the OECD/ESTAT definition which focuses on prevention and treatment of pollution; 'Core jobs based on natural resources' includes also organic agricul-

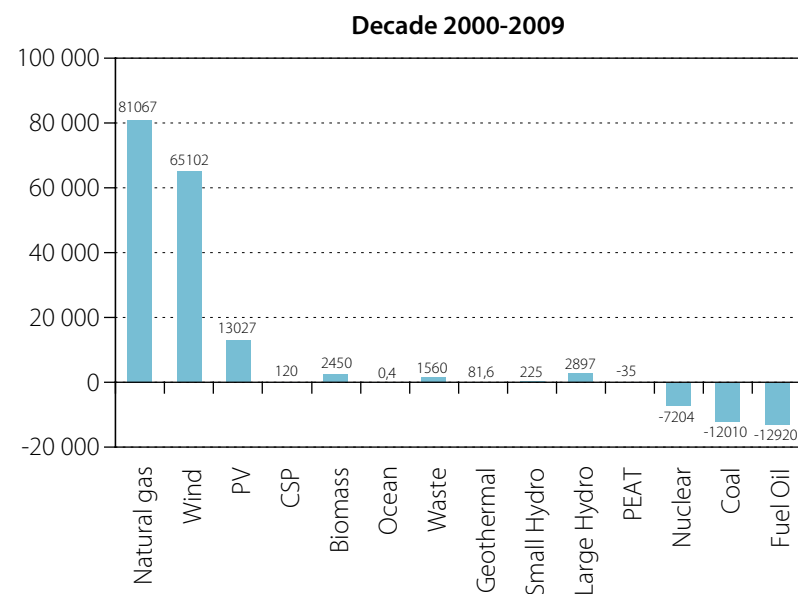
There are strong links between the economy and the environment: a good quality environment supports many sectors in the economy, in terms of added value and employment.

According to a 2007 study, in 2006 the total turnover in the European economy linked to the environment was €405 billion along with 4.4 million jobs, of which 1.8 million are associated with environmental protection and management.

According to a recent study<sup>75</sup>, in 2008 around 5.6 million people were directly employed in jobs related to the environment, and 3.4 million people (i.e. 1.5% of total employed) were directly employed in the EU eco-industry. The jobs related to the environment include jobs in sectors that depend on a good quality environment as an input – such as people working in organic agriculture, sustainable forestry, and tourism that depends on environmental quality.

In 2008 eco-industry turnover in EU-27 was 2.5% of total GDP, i.e. over more than €300 billion a year and, on average, its productivity is growing faster than the manufacturing industry.

### 5.3. Response indicator: Net electricity generating installations in EU (MW)



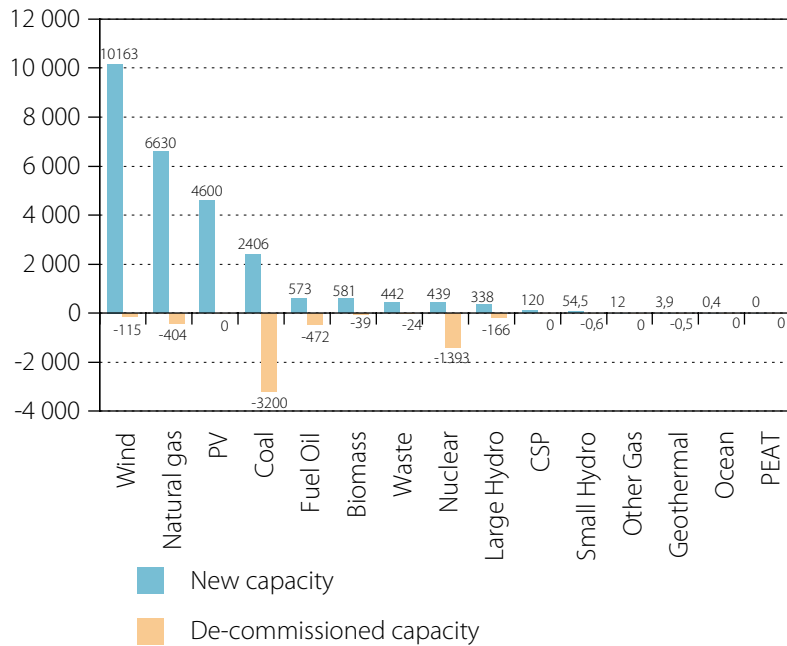
Data source: EWEA (the European Wind Power Association) "Wind in power: 2009 European statistics", 2010

There have been big changes in EU net installed capacity for the different electricity generating technologies during the period 2000-2009: while natural gas and wind power have much increased, fuel oil, coal and nuclear power have decreased.

ture, sustainable forestry, renewable energy and water extraction and supply. 'Jobs based on environmental quality' covers environment related tourism and 'Broader jobs based on natural resources' covers all agriculture and forestry, fishing, mining and quarrying, all electricity generation and water supply and extraction. Data are a mix of 2000 and 2008. The studies are available at <http://ec.europa.eu/environment/enveco/studies.htm>

<sup>75</sup> ECORYS (2009) "Study on the competitiveness of EU eco-industry": available at: [http://ec.europa.eu/environment/enveco/eco\\_industry/pdf/report%20\\_2009\\_competitiveness\\_part1.pdf](http://ec.europa.eu/environment/enveco/eco_industry/pdf/report%20_2009_competitiveness_part1.pdf) and [http://ec.europa.eu/environment/enveco/eco\\_industry/pdf/report%20\\_2009\\_competitiveness\\_part2.pdf](http://ec.europa.eu/environment/enveco/eco_industry/pdf/report%20_2009_competitiveness_part2.pdf)

**New installed capacity and de-commissioned capacity in 2009 (MW)**

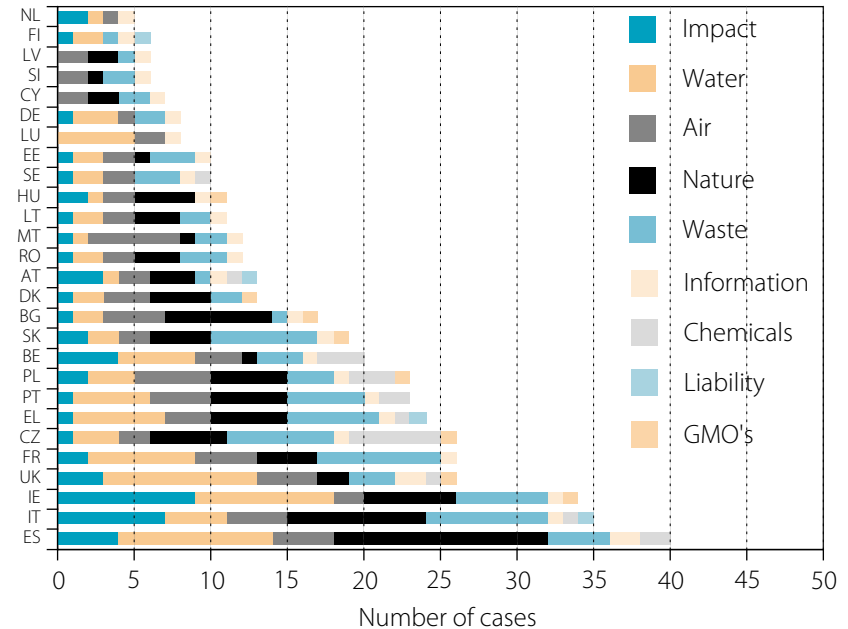


Data source: EWEA (the European Wind Power Association) "Wind in power: 2009 European statistics", 2010

When looking at the 2009 new power capacity installed, wind power comes first, with 10 thousand MW (39% of total new capacity installed in 2009), followed by natural gas (6.6 thousand MW, i.e. 26%) and photovoltaic (4.2 thousand MW, i.e. 16%). Europe decommissioned more coal and nuclear capacity than it installed in 2009. Investment in new European wind farms in 2009 reached €13 billion, including €1.5 billion offshore (EWEA).

**6. Implementation**

**6.1. Performance indicator: Infringements of EU environmental legislation by Member State and by sector (as of 31 December 2009)<sup>76</sup>**



Data source: European Commission, DG Environment (Impact = Environmental Impact Assessment and Strategic Impact Assessment)

At the end of 2009, there were a total of 1860 infringements<sup>77</sup> of EU legislation. Of these, 451 (24.3%) related to EU environment legislation (compared to 481 at

<sup>76</sup> This indicator has not been assessed since each infringement procedure is in itself an indicator of unsatisfactory or likely unsatisfactory performance.

<sup>77</sup> This means that the Commission sent an official letter of formal notice to the Member State.

the end of 2008). Altogether 60 cases concern possible non-implementation of European Court of Justice judgements, compared to 64 at the end of 2008.

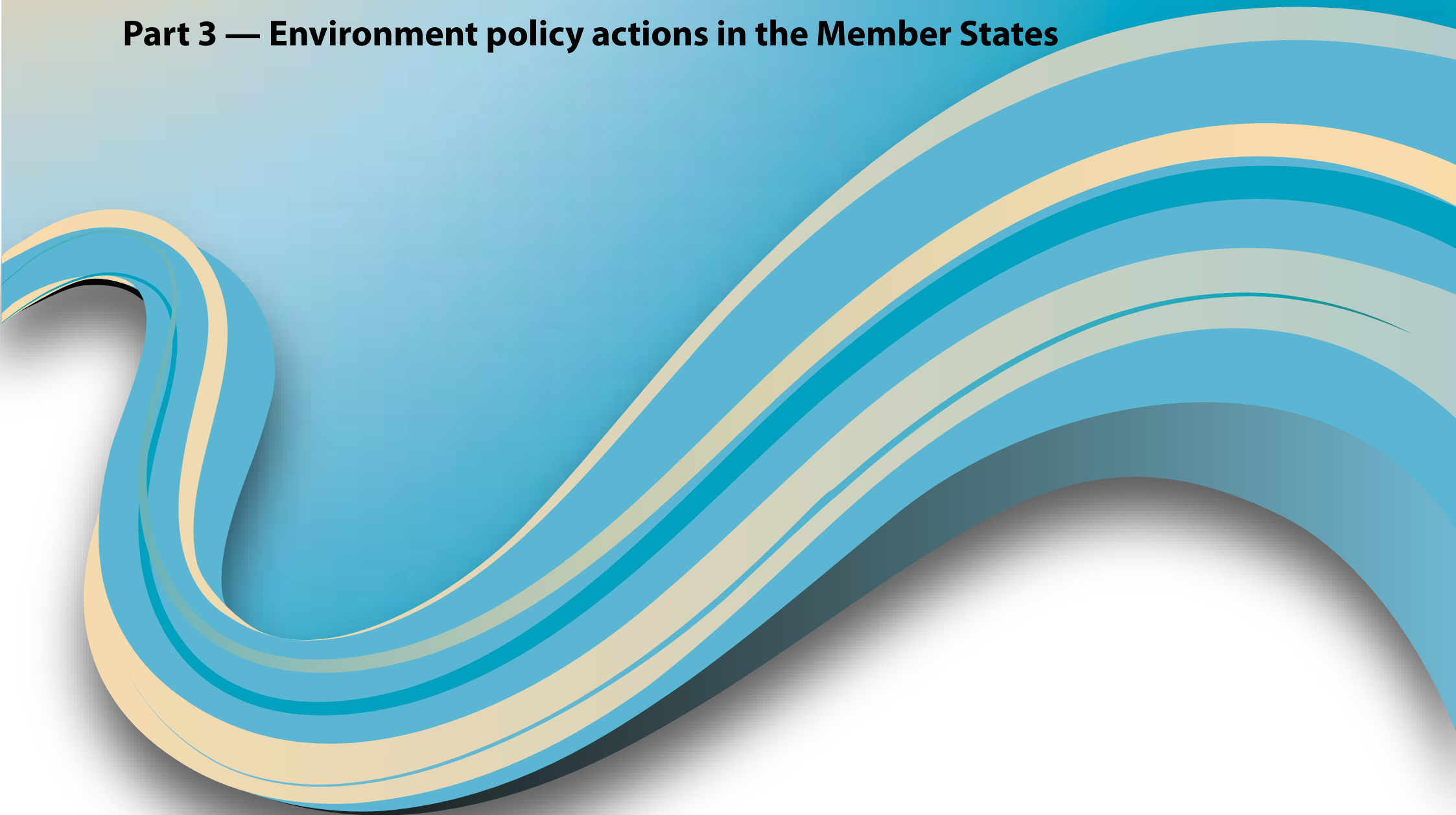
Waste and nature account for 85 and 91 cases respectively. There are 90 open infringements on water matters, 72 on air and 52 on environmental impact assessment.

At the end of 2009, Spain had the highest number of ongoing infringements cases (40), most relating to nature legislation (14) followed by water legislation (10). Italy and Ireland have more than 30 open infringements each. The Netherlands has the lowest number of infringements in EU-15.





## **Part 3 — Environment policy actions in the Member States**





Part 3 contains the Commission's summary of the major environment policy developments in the Member States. The policy actions listed are by no means exhaustive but rather present a snapshot of actions that took place during 2009 as well as upcoming initiatives. The information is gathered with support of an external consortium and input of Member States' officials. This part also includes data tables providing a more complete picture on the environmental situation in each Member State.

## Note to the reader

Additional information guiding the data tables:

### 1. Member States targets

Indicator	Legal instrument
Total Kyoto GHG emissions – million tonnes (Mt) CO <sub>2</sub> eq. – trend	Kyoto Protocol agreement
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	Regulation (EC) No 443/2009
Energy from renewable energy sources (% gross final energy consumption)	Directive on the promotion of the use of energy from renewable sources, Directive 2009/28/EC
Electricity produced from renewable energy sources (% gross electricity consumption)	Directive 2001/77/EC
Combined heat and power generation (% gross electricity generation)	Community strategy to promote combined heat and power, COM(97) 514 (i)
Sufficiency of site designation under the Habitats Directive	Directive 1992/43/EC
Area occupied by organic farming (% of Utilised Agricultural Area)	National Organic Farming Plans (ii)
Urban population exposure to air pollution by particles (annual mean concentration, µg/m <sup>3</sup> )	EC, DG Environment (iii)
Urban population exposure to air pollution by ozone (SOMO35 level, µg/m <sup>3</sup> .day)	EC, DG Environment (iv)
Air pollutant emissions (thousand tonnes) – sulphur dioxides (SO <sub>2</sub> ) – nitrogen oxides (NO <sub>x</sub> ) – non-methane volatile organic – ammonia (NH <sub>3</sub> )	National Emissions Ceiling (NEC) Directive, Directive 2001/81/EC

Indicator	Legal instrument
Recycling of packaging waste (as % total packaging waste)	Directive 1994/62/EC and Directive 2004/12/EC (v)

- (i) Establishing an indicative target for EU-15.
- (ii) IFOAM (International Federation of Organic Agriculture Movements) provided indicative targets when included in the National Organic Farming Plans.
- (iii) The indicative target corresponds to the WHO interim target-3 (IT-3), which roughly reflects the ambition of the current EU policy tackling air pollution.
- (iv) The 2005 Thematic Strategy on Air Quality (TS AQ) outlines interim objectives on the reduction of acute mortality due to ozone which can be translated into targets for each country for 2020. This target has no legal character and is calculated from the year 2000 country indicator and the relative reduction indicated in TS AQ. Targets for BG, EE, HU, LV and RO are not available due to data constraints.
- (v) Targets for EU-15 are set in Directive 1994/62/EC, while targets for EU-12 are set in Directive 2004/12/EC. Target year is 2008 for most Member States (all except EL, IE, PT, CZ, EE, CY, LT, HU, SK, SI, MT, PL, LV)

## 2. Country ranking of indicators

When relevant, country rankings of indicators are provided. The ranking is based on the environmental performance of an indicator in a specific country: 1=best environmental performance, 27=worst environmental performance. For instance the country with the lowest greenhouse gas emissions per capita scores 1; the country with the lowest share of electricity from renewables scores 27, etc. The ranking is done for the last available year.

The country ranking for the 'municipal waste' indicator is only indicative as Member States' municipal waste collection schemes differ strongly (e.g. contrary to some other Member States, a significant part of Austria's municipal waste comes from small and medium-sized enterprises, and not from households).

## 3. EU-27 average and EU-27 total

For most indicators, the EU-27 average or EU-27 total is also indicated. It always refers to the last reported year of the indicator (2007, 2008 or 2009).

## 4. Information on indicators

- The two indicators on renewable energy sources are different as one refers to the share of renewable energy in gross final energy consumption and the other refers to electricity generation from renewable energy sources in gross electricity consumption. Both indicators are also different as they are calculated following the methodology as described under two different Directives (respectively Directive 2009/28/EC and Directive 2001/77/EC).
- Projections of greenhouse gas emissions (energy and climate change section): as general approach in the *Communication "Progress towards achieving the Kyoto objectives"* (COM (2009) 236), no detailed analysis of non-ETS emissions was carried out for EU-12. Most of EU-12 Member States did not submit differentiated emission projections for the EU ETS and non-ETS sectors.
- Sufficiency of site designation under the Habitats Directive (Nature and biodiversity section): this indicator measures the effective compliance with the Habitats Directive by Member States, so all Member States should have reached 100%. Data for 2009 are expected to be available by end 2010.
- Freight transport (Nature and biodiversity section): freight transport is a cross-cutting issue with implications on climate change, human health and

biodiversity. It is a driving force behind the demand for more transport infrastructure (causing habitat fragmentation) and can result in negative impacts on biodiversity due to soil sealing, pollution and noise. The indicator refers to inland freight transport, measured in tkm, and includes transport by road (nationality of the vehicle), rail and inland waterways (both on the territory of the Member State).<sup>1</sup>

- Water exploitation index (Environment and health section): this indicator measures total water abstraction as a percentage of available long-term freshwater resources.

<sup>1</sup> The Commission services are working to generate new data to overcome these methodological difficulties which should allow that road freight transport data are in the near future also based on the territory instead of the nationality of vehicles.

- Municipal waste generated (Natural resources and waste section) consists of waste generated by households, and other wastes similar in nature and composition which are collected and managed by or on behalf of municipal authorities. The bulk of this waste stream is from households, though similar wastes from sources such as commerce, offices and public institutions are included. Municipal waste accounts for around 9% of the total amount of waste generated in the European Union.
- Differences between “total waste generated” and “total waste treated” may occur due to pre-treatment processes changing the characteristics, volume and/or weight of the waste; imports and exports of waste; storage leading to time lags in treatment and double-counting of secondary waste.

## 5. Data sources

Indicator	Source
Total Kyoto GHG emissions	European Environment Agency (EEA)
Projected 2010 emissions trend * – with existing measures, Kyoto mechanisms and carbon sinks – with existing and additional measures, Kyoto mechanisms and carbon sinks	EEA on the basis of Member States data, as presented in COM (2009) 236.
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	EC, DG Environment
Energy from renewable energy sources (% gross final energy consumption)	EC, Eurostat (methodology under Directive 2009/28/EC)
Electricity produced from renewable energy sources (% gross electricity consumption)	EC, Eurostat (methodology under Directive 2001/77/EC)
Combined heat and power generation (% gross electricity generation)	EC, Eurostat
Energy consumption per capita (kg oil eq.)	EC, DG Environment based on Eurostat data
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	EC, Eurostat
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area	EC, DG Environment

Indicator	Source
Sufficiency of site designation under the Habitats Directive	EEA
Area occupied by organic farming (% of Utilised Agricultural Area)	EC, Eurostat, Institute of Rural Sciences, University of Wales Aberystwyth, FiBL and others
Freight transport (billion tkm)	
– % road	EC, Eurostat
– % rail	
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	EEA
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	EEA
Air pollutant emissions (thousand tonnes)	
– sulphur dioxides ( $\text{SO}_2$ )	
– nitrogen oxides ( $\text{NO}_x$ )	EEA
– non-methane volatile organic compounds (NMVOC)	
– ammonia ( $\text{NH}_3$ )	
Water exploitation index	EEA
Total waste generated (kg per capita)	
– % hazardous/not hazardous	
– % landfilled on total waste treated	EC, Eurostat
– % incinerated on total waste treated	
– % recycled on total waste treated	
Municipal waste generated (kg per capita)	
– % landfilled	EC, Eurostat
– % incinerated	
Recycling of packaging waste (as % total packaging waste)	EC, Eurostat
Infringements of EU environmental legislation	EC, DG Environment
Share of environmental taxes in total tax revenue	EC, Eurostat and DG Taxation and customs union

\* These data include the Member States projections submitted in 2008 and relevant 2009 updates.

## EU-27 Indicators

The tables below show indicators relevant to the 6 EAP. It follows the same structure as the data tables presented in the review of Member States' environment policy actions. When a target for EU-15 exists, the table also includes data for EU-15.

	EU-27			
	2000	2007	2008	target
Total Kyoto GHG emissions	5 065.3 EU27	5 038.8 EU27	4 939.7 EU27	3 923.8 EU15
– million tonnes (Mt) CO <sub>2</sub> eq.	4 114.5 EU15	4 046.2 EU15	3 970.5 EU15	(by 2008-12)
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	3 962.1	3 978.0	3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	915.4	979.4	961.8	
Total Kyoto GHG emissions	EU-27			
– per capita (tonnes CO <sub>2</sub> eq.)	10.5	10.2	9.9	
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	550.0	471.3	458.8	
– trend (% change compared to base year)	-12.2% EU27 -3.5% EU15	-12.5% EU27 -5.1% EU15	-14.3% EU27 -6.9% EU15	-8.0% EU15 (by 2008-12)
– trend (% change compared to 1990)	-9.1% EU27 -3.1% EU15	-9.5% EU27 -4.7% EU15	-11.3% EU27 -6.5% EU15	-20.0% EU27 (by 2020)
Projected 2010 emissions (cf. progress report towards Kyoto targets)*				
– with existing measures, Kyoto mechanisms and carbon sinks			-15.0% EU27 -11.5% EU15	-8.0% EU15 (by 2008-12)
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-16.5% EU27 -13.1% EU15	-20.0% EU27 (by 2020)
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	163.4 (2004)	158.7	153.5	130.0 by 2012-15

	EU-27			
	2000	2007	2008	target
Electricity produced from renewable energy sources (% gross electricity consumption)	13.8%	15.6%	16.7%	21.0%
– from hydropower	11.6%	9.2%	9.7%	(by 2010)
– from wind	0.7%	3.1%	3.5%	
– from biomass	1.3%	3.0%	3.2%	
– solar	0%	0.1%	0.2%	
– geothermal	0%	0.2%	0.2%	
Energy from renewable energy sources (% gross final energy consumption)	8.8% (2006)	9.7%	10.3%	20% (by 2020)
Combined heat and power generation (% gross electricity generation)	10.5% (2004) 9.6% EU15	10.9% EU27 10.3% EU15	11.0% EU27 10.3% EU15	18.0% by 2010 for EU-15
Energy consumption per capita (kg oil eq.)	3 572	3 650	3 616	
Energy intensity – Energy consumption per 1000€ GDP (kg oil eq.)	187	169	167	

\* EU-15 projections also include allowance and credit acquisition by EU ETS sectors

## Nature and biodiversity

	EU-27			
	2000	2007	2008	2009
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		16.3%	17.0%	17.6%
Sufficiency of site designation under the Habitats Directive				100%
Area occupied by organic farming (% of Utilised Agricultural Area)	3.2% (2002)	4.1%	4.5%	
Freight transport (billion tkm)	2032.5	2507.6	2469.6	
– % road	73.7%	76.4%	76.7%	
– % rail	19.7%	18.0%	17.4%	



## Environment and health

	EU-27			
	2000	2007	2008	target
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	27.7	29.0	26.8	30.0
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	3 125	3 989	3 884	2 698 for EU-25
Air pollutant emissions (thousand tonnes)				(by 2010)
– sulphur dioxides ( $\text{SO}_2$ )	10 248	7 339	5 867	8 300
– nitrogen oxides ( $\text{NO}_x$ )	12 692	11 151	10 397	9 000
– non-methane volatile organic compounds (NMVOCs)	10 899	8 567	8 296	8 800
– ammonia ( $\text{NH}_3$ )	4 198	3 876	3 799	4 300
Water exploitation index*	n.a.	n.a.	n.a.	

\* No EU value available. See part 1.

## Natural resources and waste

	EU-27		
	2004	2006	target
Total waste generated (kg per capita)	5 960	5 987	
– % hazardous	2.7%	3.0%	
– % landfilled on total waste treated*	n.a.	51.6%	
– % incinerated on total waste treated*	n.a.	4.9%	
– % recycled , on total waste treated*	n.a.	43.5%	

	2000	2007	2008	target
Municipal waste generated (kg per capita)	523	525	524	**
– % landfilled	55.1%	40.4%	39.5%	
– % incinerated	15.1%	19.0%	19.5%	
	2004	2006		
Households waste (kg per capita)	n.a.	436		
	2000	2006	2007	
Packaging waste recycled (as % total packaging waste)		56.5 %	58.0%	55%-80% (by 2008)

\* see Note to the reader

\*\* The EU has missed the 2000 target of stabilising municipal waste generation to 300 kg/per capita set by the 5th Environment Action Programme (5EAP)

## Better regulation and implementation

	EU-27		
	31/12/2007	31/12/2008	31/12/2009
Infringements of EU environmental legislation	479	481	451

## Use of market-based instruments

	EU-27		
	2000	2007	2008
Share of environmental taxes in total tax revenue	6.8%	6.2%	6.1%



## Austria

### Highlights in 2009

One of the major challenges facing Austria today is meeting its Kyoto targets. In 2008, Austrian emission levels were 9.6 % above those in base year whereas they should be reduced by 13%. Thus, environmental policy in 2009 focused largely on climate change and renewable energies in order to come closer to

the Kyoto target. After a previous draft of such a law had been rejected by the *Länder* in 2008, the decision was made among the federal and *Länder* governments to draft a new general climate protection law, involving all important levels of policy making. As regards renewable energies, an amendment to the “green electricity” act was adopted by the parliament in September 2009. The amendment was in response to concerns of the European Commission on certain provisions of the act, which may favour large energy consumers and possibly infringe the EU state aid rules.

Another major policy focus was better regulation and implementation. In this context, an amendment to the Environmental Impact Assessment Law was passed by the Austrian parliament which brought about the obligation to develop climate and energy concepts for projects and a simplification and expedition of administrative procedures.

### Climate change and energy

	Austria				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	80.3	87.0	86.6	68.8 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	59.1	65.5	64.7		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	19.1	23.8	22.5		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	10.0	10.5	10.4		9.9	15
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	432.4	354.6	336.5		458.8	5
– trend (% change compared to base year*)	+1.6%	+10.0%	+9.6%	-13% (by 2008-12)	-14.3%	21

	2000	2007	2008	target	EU-27 average	rank in EU-27
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			1.3%	-13%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-0.1%	(by 2008-12)	-16.5%	

\* Base year is 1990.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Austria only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment.

	Austria				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	168.0	162.9	158.1	130 (by 2012-15) for EU-27	153.5	16
Electricity produced from renewable energy sources (% gross electricity consumption)	72.4%	59.6%	62.0%	78.1% (by 2010)	16.7%	1
– from hydropower	69.6%	51.4%	52.7%		9.7%	
– from wind	0.1%	2.9%	2.8%		3.5%	
– from biomass	2.8%	5.4%	6.4%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	24.8% (2006)	26.6%	28.5%	34.0% (by 2020)	10.3%	4
Combined heat and power generation (% gross electricity generation)	10.4%	15.6%	15.3%	18% (by 2010) for EU-15	11.0%	8
Energy consumption per capita (kg oil eq.)	3 639	4 090	4 075		3 616	18
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	140	141	138		167	4

In 2008, Austria's greenhouse gas emissions were 9.6 % higher than the base year level, well above its Kyoto target of -13% for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. However, despite the implementation of additional measures, projected removals from carbon sink activities and the large intended use of Kyoto mechanisms by the government, Austria is projected to have difficulties with meeting its non-ETS part of the target.

Following the adoption of the climate and energy package in April 2009, Austria agreed to reduce greenhouse gas emissions by 16 % by 2020 compared to 2005 levels for sectors such as buildings, road transport and farming<sup>2</sup>. Furthermore, Austria has committed to achieving a share of energy from renewable sources in gross final energy consumption of 34% by 2020.

In June 2009, the federal and *Länder* governments in Austria agreed that a new draft of a climate protection law was necessary, after the previous draft had been rejected by the *Länder* in 2008. The development of this new law which divides competences between the federal and *Länder* level was launched in 2009. Further, an amendment to the Austrian Emission Allowance Act voted by the parliament in July 2009 included air transport in the EU Emission Trading Scheme, implementing the relevant Directive. This will be valid for all flights

that start or end at an EU-airport from 2012 onwards, but monitoring commitments begin from January 2010.

As regards renewable energies, an amendment to the "green electricity" act was adopted by the parliament in September 2009. The amendment was in response to concerns of the European Commission on certain provisions of the act, which may favour large energy consumers and possibly infringe the EU state aid rules. The amendment puts also into effect other aspects decided by the Austrian parliament in 2008: raising of global subsidy funds for new renewable energy installations to EUR 21 million per year as well as prolonging the guaranteed duration of feed-in tariffs to 13 years and to 15 years for installations based on solid or liquid biomass or biogas. The funding for photovoltaics in private households has been raised from EUR 18 to 35 million per year from 2010.

In 2009, an energy strategy was prepared by the Ministry for Economic Affairs and the Ministry for the Environment. It aims to achieve compliance with the targets agreed to in the EU climate and energy package and will build the basis for the development of a sustainable energy system by guaranteeing the provision of energy for private persons and enterprises in line with the EU requirements. The finalisation of the energy strategy is planned for 2010.

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<sup>2</sup> i.e. sectors not covered by the EU Emission Trading System (ETS). For ETS sectors - i.e. power plants and large industrial emitters - an EU-wide reduction target is set at 21% below 2005 levels in 2020.

## Nature and biodiversity

	Austria			target	EU-27 average	rank in EU-27
	2000	2007	2008			
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		13.7%	13.8%	13.8%	17.6%	
Sufficiency of site designation under the Habitats Directive	87.3% (2004)	88.3%	88.8%	n.a	100%	
Area occupied by organic farming (% of Utilised Agricultural Area)	8.2%	15.7%	15.8%	20%* (by 2010)	4.5%	1
Freight transport (billion tkm)	54.2	61.4	54.9		EU total 2469.6	
– % road	64.8%	60.9%	62.6%		76.7%	5 of 26
– % rail	30.6%	34.8%	33.1%		17.4%	5 of 26

\* Indicative target according to the Austrian Action Plan for Organic Farming 2008-2010 (Aktionsprogramm Biologische Landwirtschaft 2008-2010).

In 2009, the Federal Minister of Environment launched two campaigns to raise awareness and increase education in the fields of nature protection and biodiversity conservation. In January 2009, the Federal Minister for the Environment launched a biodiversity campaign “living diversity” („vielfaltLEBEN“) to raise awareness on the matter. It was supported by nature conservation associations in Austria and established also business and biodiversity partnerships and a local biodiversity network. In June the “Forest Week” campaign drew attention to biodiversity in the woods and in this context a series of events took place.

Organic farming plays an important role in Austria. In 2008 almost 16% of utilised Agricultural Area was farmed organically. The Ministry for the Environment has issued in this context an action programme for 2008-2010, which is a continuation of previous programmes. The main target is to increase the share of agricultural territories cultivated in an organic manner to 20 % by 2010. In addition, the programme specifies instruments to raise or maintain customer awareness of organic products, such as targeting campaigns at key groups such as young mothers or mothers-to-be.

## Environment and health

	Austria				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	25.9	23.8	22.9	30.0	26.8	9 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	6 894	6 043	5 326	4 161	3 884	20 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	32	25	22	39	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	207	221	207	103	10 397	
– non-methane volatile organic compounds (NMVOCs)	177	165	163	159	8 296	
– ammonia ( $\text{NH}_3$ )	65	64	63	66	3 799	
	1990	1999	2007			
Water exploitation index	4.5%	4.4%	n.a.			10*

\* The ranking is based on the data of the last available year.

'Noise Maps' have recently been created, the evaluation of which have revealed that a considerable number of Austrians are currently subject to levels of noise which exceed those deemed acceptable by the EU. For example, about 1 million Austrians live in spaces where the road traffic exceeds the day-evening-night limit. As a consequence, action programmes are being developed to reduce the noise exposure of citizens. These action programmes are designed by regional authorities depending on the source of the noise. Action

programmes include better protection from noise by imposing noise protection walls, imposition of traffic and speed limits and management of parking in cities.

Austria carried out consultations on draft River Basin Management Plans required by the Water Framework Directive in 2009, and published the plans with a slight delay in April 2010.

## Natural resources and waste

	Austria			target	EU-27 average	rank in EU-27
	2004	2006				
Total waste generated (kg per capita)	6 512	6 577			5 987	17
– % hazardous	1.9%	1.8%			3%	
– % landfilled on total waste treated*	18.9%	24.3%			51.6%	6
– % incinerated on total waste treated*	10.6%	12.3%			4.9%	
– % recycled , on total waste treated*	70.5%	63.4%			43.5%	9
	2000	2007	2008			
Municipal waste generated (kg per capita)	581	598	601		524	21
– % landfilled	33.7%	3.3%	3.2%		39.5%	4
– % incinerated	11.2%	29.3%	27.1%		19.5%	
	2004	2006				
Households waste (kg per capita)	423	450			436	19
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	69%	68.4%	67.2%	55%-80% (by 2008)	58.0%	2 of 26

\* see Note to the reader



Austria updated its national waste management plan in response to the new EU Waste Shipment Regulation, which lays down administrative requirements for the import/export (shipment) of waste. An update of the plan was published in November 2009 and guidelines have been suggested in order to ensure a coherent enforcement of this regulation.

Austria and Germany concluded a treaty on trans-frontier waste shipment which took effect in July 2009 targeting shipments of waste from the border territory in one state to a waste treatment installation in the border territory of the other state. The treaty includes certain administrative simplifications in the shipment of certain waste streams (e.g. construction waste or excavated soil above 1,000 tons and under certain conditions sewage sludge, manure, etc.).

Further, the new Landfill Ordinance adopted in 2008 includes new requirements for landfill operators, in order to comply with the Landfill Directive. For example, the Landfill Ordinance specifically stipulates obligatory electronic reporting and registration as from January 2009, e.g. concerning data of the operator and the installation (e.g. input-output reporting).

### Better regulation and implementation

	Austria			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	12	11	13	451

The amendment to the Environmental Impact Assessment Law was adopted in July 2009 by the Austrian parliament. It is intended to put Austrian law in line with the Environmental Impact Assessment Directive and should bring about improvements in environmental protection, legal clarity for project developers

and a simplification and expedition of procedures, for example via electronic submission of necessary documents.

### Use of market-based instruments

	Austria			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	5.6%	5.8%	5.6%	6.1%

### Environmental technologies

The Federal Minister of the Environment launched an initiative to promote environmental technologies. Through this initiative, the government intends to assist in countering job losses in the wake of the economic and financial crisis. The environmental technology market is to be stimulated at home and abroad, inter alia on the basis of the domestic 34 % target of renewable energies by 2020.

### Green economy initiatives in the economic recovery plan

As a part of the green economy initiatives in the economic recovery package, the Austrian parliament adopted the Ecological Bonus Law in March 2009, which targeted the scrapping of end-of-life vehicles and their replacement by new cars over the time span 1 April to 31 December 2009. The Ecological Bonus was paid for the first 30 000 vehicles within the mentioned time span but funds were exhausted earlier. The bonus amounted to 1500 euro and was financed by the Austrian federal government and the respective Austrian car

dealer selling the new car. The Ecological Bonus only applied to passenger cars which are registered for private persons in Austria. In order to avail of the Ecological Bonus the new cars have to comply with at least the EURO 4 norm.

Further 100 million euro was reserved as subsidies for the energy refitting of private residential buildings /companies or the change of boilers. 50 million euro each was foreseen for subsidies to private persons and companies to insulate buildings and change boilers. With the support of the Ministry for the Environment, the private manager of electric and electronic waste UFH incentivised fridge and freezer swaps for more energy-saving models.

## Outlook for 2010

One of the most important pieces of new legislation foreseen for 2010 is the Federal Climate Protection Law. The law will lay down legally binding responsibilities for climate protection at the different political levels. This process will be conducted within the framework of the "Kyoto-Forum", a body with representatives from both the federal and *Länder* level. Due to the federal structure of Austria, competences over policies and measures related to climate change mitigation are distributed between different levels of administration. A new law is also expected for the use of renewable energies in the thermal

sector. Further, an amendment to the Emission Protection Law will be discussed in the parliament, in order to comply with requirements of the Air Quality Directive such as on PM 2,5. In 2010, the Austrian government intends also to further assist enterprises in exporting technologies via the Austrian competence centre for Environmental Technologies (ACT). The export will focus on the markets in Central, Eastern and Southern Europe as well as on South-East Asia and Russia. In order to trigger corporate identity, it is envisaged that the Competence Centre will develop the label "Clean Tech made in Austria".



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## Belgium

### Highlights in 2009

In late 2008 and 2009 the federal and regional governments adopted their economic recovery plans which contained also measures directed towards the greening of the economy. The federal government for example increased resources available for

energy saving investments by households and in its own government buildings. The Flemish government decided to accelerate existing investment schemes relevant for the environment. The Walloon government transformed the 2005 Marshall Plan into a green Marshall Plan<sup>2</sup>, including a set of green measures to improve the economic situation of the region.

Most of the environment-related anti-crisis measures of the Flemish government concern public investments, in particular accelerating existing investments schemes such as in wastewater treatment infrastructure.

In 2009 the Flemish government also launched 'Pact 2020', a strategic plan signed by diverse societal actors which also aims to reduce greenhouse gas emissions in conformity with the EU objectives, to reduce the average annual concentration of fine dust particles by 25% compared to 2007 and to reduce the number of potential seriously affected persons by traffic noise nuisance by 15%.

The new Forestry Code was approved by the Walloon parliament in July 2008 and entered fully into force in September 2009. The code is aimed at a new integrated and dynamic forest management to strengthen the complementary social, economic and environmental roles of woodlands.

Until 2008 Walloon legislation relating to waste and service stations was the only legal reference for the management of potentially polluted soils in the Walloon Region. However, in December 2008 the Decree on soil management was adopted, which harmonises the treatment of all potentially polluted soils through an approach based on reducing risks for health and ecosystems. In May 2009 the Walloon government adopted a Decision on soil management implementing parts of this Decree.

In the Brussels Capital Region, the regional government decided in 2009 to introduce the obligation for Brussels' citizens to sort household waste from January 2010 aiming to ensure that by 2020 at least 50% of paper, plastics, metal and glass from households and similar origins is prepared for reuse or recycling.

## Climate change and energy

	Belgium				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	144.6	130.2	133.3	134.8 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	116.1	105.5	109.3		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	24.7	25.4	27.6		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	14.1	12.3	12.5		9.9	20
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	573.5	451.1	456.9		458.8	12
– trend (% change compared to base year*)	-0.7%	-10.6%	-8.6%	-7.5% (by 2008-12)	-14.3%	13
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-8.1%	-7.5%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-8.2%	(by 2008-12)	-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	166.5	152.8	147.8	130 (by 2012-15) for EU-27	153.5	6
Electricity produced from renewable energy sources (% gross electricity consumption)	1.5%	4.2%	5.3%	6.0%	16.7%	20
– from hydropower	0.5%	0.4%	0.4%	(by 2010)	9.7%	
– from wind	0%	0.5%	0.7%		3.5%	
– from biomass	1.0%	3.3%	4.2%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	2.7% (2006)	3.0%	3.3%	13.0% (by 2020)	10.3%	23

	2000	2007	2008	target	EU-27 average	rank in EU-27
Combined heat and power generation (% gross electricity generation)	6.5%	12.5%	12.5% (2007)	18% (by 2010) for EU-15	11.0%	11
Energy consumption per capita (kg oil eq.)	6 002	5 417	5 463		3 616	25
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	244	199	200		167	15

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Belgium only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment.

In 2008, Belgium's greenhouse gas emissions were 8.6% lower than the base year, compared to its Kyoto target of a reduction of 7.5% for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Belgium is projected to achieve its non-ETS part of the target by using existing measures and Kyoto mechanisms. Following the adoption of the climate and energy package in April 2009, Belgium agreed to reduce greenhouse gas emissions by 15% by 2020 compared to 2005 levels in non-ETS sectors such as buildings, road transport, and farming. Furthermore, Belgium has committed to achieving a share of energy from renewable sources in gross final energy consumption of 13% by 2020.

To distribute the Kyoto-target within Belgium, an internal burden-sharing agreement agreed in 2004 determines separate targets for each of the regions. The Flemish region and the Walloon region have to reduce their greenhouse gas emissions by respectively 5,2% and 7,5% while the Brussels-Capital region can increase its emissions by 3,475% compared to 1990 levels during the period 2008-2012. Taking into account this burden-sharing, Belgium assigned more emission rights to its regions than available under its Kyoto target. To

compensate this deficit, it was agreed that the federal government would acquire emission allowances as a result of the use of flexible mechanisms under the Kyoto Protocol equivalent to 2,46 Mt CO<sub>2</sub>-eq. per year

In autumn, the federal government decided to strengthen the link between tax deductions and CO<sub>2</sub> emissions for company cars from January 2010. Tax deduction for company cars refers to the possibility to deduct certain costs of company cars from the company result when determining the taxable basis of a company. In the new system vehicles are grouped into seven categories based on their CO<sub>2</sub> emissions for which different tax deduction tariffs/percentages apply: e.g. 100% for vehicles with limited emissions and 50% for vehicles with the highest emissions, distinguishing between petrol and diesel. For electric cars a rate of 120% applies.

As part of the implementation of the Flemish Green Power Action Plan the Flemish government changed the electricity Decree with respect to the promotion of environmentally friendly electricity generation and the decision on the promotion of electricity generation from renewable energy sources. More specifically, the Flemish government laid down the targets for the period beyond 2010: 13% of renewable energy sources in gross final energy

consumption by 2020 (in line with Belgian commitments at EU level) and annual intermediary targets. The changes also aim to guarantee the future functioning of the green power certificates system by trying to adapt the certificate value to the real minimal support that is needed to make renewable energy technologies profitable.

The Walloon government has also taken the initiative to update the existing policy framework on sustainable energy to cover the period 2010-2020, reflecting the Belgian commitments at EU level. In 2010 the Walloon government intends to take further action, i.e. by developing a new strategy aiming to reduce greenhouse gas emissions by 30% by 2020 and by 80-90% by 2050 in which existing plans will be merged.

## Nature and biodiversity

	Belgium					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		12.6%	12.7%	12.7%		17.6%	
Sufficiency of site designation under the Habitats Directive	99.6% (2004)	99.6%	99.6%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	1.5%	2.4%	2.61%			4.5%	19
Freight transport (billion tkm)	66.0	58.9	55.5			EU total 2469.6	
– % road	77.4%	71.4%	69.1%			76.7%	9 of 26
– % rail	11.6%	13.3%	15.1%			17.4%	16 of 26

The federal government adopted in 2009 a federal action plan for the integration of biodiversity concerns into sectoral policies. For example, the federal government aims to establish a cell within the Federal Ministry of Environment to verify whether biofuel installations are in conformity with the EU sustainability criteria. It also intends to draft a royal Decision introducing a ban on the import and export of some invasive alien species. With regard to development cooperation, the federal government intends to expose projects

and programmes in partner countries to an ex ante environmental impact assessment.

The Flemish government adopted a decree in April 2009 which sets the procedure for establishing regional conservation objectives for EU-protected species and habitats and which aims to facilitate the designation of 'Sites of Community Importance' as 'Special Areas of Conservation' at the regional

level. A decree was also being prepared during 2009 to establish conservation objectives for the Flemish Region. Furthermore, a Decision was adopted on the protection and management of species which entered into force in September 2009. It primarily aims to simplify and harmonise the scattered legislation on species-oriented nature conservation.

The new Forestry Code was approved by the Walloon parliament in July 2008 and entered fully into force via a Decision published in September 2009. The code is aimed at a new integrated and dynamic forest management to strengthen the complementary social, economic and environmental roles of woodlands. For example, by annulling the rights of succession and donation in the case of private woodland, the new code is designed to promote the production of quality timber and seeks to provide a concrete response to the fragmentation of the Walloon forests.

In April 2009 the Walloon government adopted the 8 first decrees designating "Sites of Community Importance" under the Habitats Directive or "Special Protection Areas" under the Birds directive as "Special Areas of Conservation" or "Natura 2000 sites". The decrees set up the conservation objectives at site level and provide a map of the habitats and a list of potentially damaging activities which are forbidden or for which consent is required before they are permitted in the area.

In May the Walloon government adopted a Decision on soil management implementing the Decree on soil management from December 2008. The Decision primarily elaborates the rules with respect to certified experts allowed to conduct certain tasks, such as carrying out soil orientation and characterisation studies which respectively aim to determine whether the soil is polluted and whether and which remediation measures are needed, and the procedure and conditions for approval of experts.

## Environment and health

	Belgium				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	32.9	26.3	26.0	30.0	26.8	15 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	1 839	2 326	2 589	2 554	3 884	8 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	172	125	99	99	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	332	259	241	176	10 397	
– non-methane volatile organic compounds (NMVOCs)	203	124	119	139	8 296	
– ammonia ( $\text{NH}_3$ )	84	69	69	74	3 799	
	1994	2005	2007			
Water exploitation index	33.8%	32.1%	n.a			26*

\* The ranking is based on the data of the last available year.

In 2009 Belgium was preparing a National Environment and Health Action Plan for the period until 2013. A draft was in public consultation in 2009 and includes for example projects aiming to reduce the incidence of respiration problems among children. As part of the implementation of the new federal plan on air quality, the government adopted in July a Royal Decree which introduced new emission standards for central heating boilers, burners and hot air generators with a nominal thermal capacity of 400 kW or less. The aim is to reduce the NO<sub>x</sub> and CO<sub>2</sub> emissions of these appliances. The introduction of the emission standards should lead in the future to the removal of 37% of appliances currently on the market.

In 2009 the Flemish government concluded voluntary environmental policy agreements with the Flemish chemicals and glass industry associations in order to reduce their NO<sub>x</sub> emissions. The agreements aim to achieve the emission reduction targets as incorporated in the Flemish emission reduction programme adopted in 2007 as part of the efforts to implement the Directive on national emission ceilings for certain atmospheric pollutants.

The Emergency Plan in case of pollution peaks of the Brussels Region entered into force in January 2009. The plan aims to prevent limit values for NO<sub>2</sub> and fine particles (PM10) in the atmosphere, as set by the Directive on ambient air quality, being exceeded. The plan foresees the introduction of three types of emergency measures during the winter period (November-March) depending on the pollution level: a speed limit, a system of alternating number plates and a complete traffic ban.

As a result of the temporary closure of collectors the water quality of the river Senne was negatively affected during several weeks. The operator had decided to close the plant because of a dispute with the Brussels regional government regarding the financing of a new sand filter. In December the plant was started up again after the court had imposed a penalty on a daily basis. In the weeks afterwards, water quality of the river improved gradually.

The Flemish Decree on integrated water policy, adopted in 2003, permits the Flemish Region to expropriate the necessary real estate needed to achieve the Flemish water policy objectives. In addition to these rights the Decree imposes some obligations on the Flemish Region such as a requirement to provide compensation for loss of income as a result of the active use of land by the government for water control. The Flemish government has adopted in July 2009 a Decision that elaborates the different instruments in this context and makes them operational. Belgium carried out consultations in 2009 on draft River Basin Management Plans in part of the country (Flemish Region), as required by the Water Framework Directive, but has not yet published the River Basin Management Plans.

In June 2009 the Commission sent a letter of final warning before referral to the European Court of Justice to Belgium concerning its breach of a 2004 Court of Justice ruling on the treatment of urban waste water and its non-compliance with the Directive on urban waste water treatment. The 2004 ruling judged that all three Belgian regions were lacking adequate waste water collecting systems and secondary or tertiary treatment plants and called for this situation to be remedied.



## Natural resources and waste

	Belgium			target	EU-27 average	rank in EU-27
	2004	2006				
Total waste generated (kg per capita)	5 079	5 646			5 987	14
– % hazardous	9.8%	6.8%			3%	
– % landfilled on total waste treated*	n.a.	9.2%			51.6%	2
– % incinerated on total waste treated*	n.a.	13.7%			4.9%	
– % recycled , on total waste treated*	n.a.	77.1%			43.5%	2
	2000	2007	2008			
Municipal waste generated (kg per capita)	476	497	493		524	12
– % landfilled	15.3%	5.0%	5.1%		39.5%	6
– % incinerated	32.4%	33.2%	33.5%		19.5%	
	2004	2006				
Households waste (kg per capita)	512	451			436	20
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	63%	79.0%	80.4%	55%-80% (by 2008)	58.0%	1 of 26

\* see Note to the reader

The federal government adopted a Federal Action Plan on green public procurement in July. The plan sets a target of 50% of sustainable procurement procedures for all federal orders to be reached by 2011. The Flemish government adopted an Action Plan for sustainable products in June 2009 which aims for the procurement of 100% green electricity for a number of government buildings and Flemish roads. The Brussels Region has issued a circular on sustainable products since February 2009 and the Walloon region prepared a Decree on sustainable products.

The Brussels regional government decided in November 2009 to introduce the obligation for Brussels' citizens to sort household waste from 1 January 2010 on and to apply fines in case of non-compliance. With this measure the Brussels Region aims to ensure that at least 50% of paper, plastics, metal and glass from households and similar origins is prepared for reuse or recycled by 2020, as required by the Waste Framework Directive.

## Better regulation and implementation

	Belgium			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	24	21	20	451

In March 2009 the European Court of Justice condemned Belgium for failing to draw up external emergency plans for areas surrounding industrial installations that store or handle large quantities of dangerous substances, as required by the Seveso II Directive.

## Use of market-based instruments

	Belgium			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	5.0%	4.8%	4.4%	6.1%

In February 2009 the social partners concluded in the National Labour Council a collective labour agreement on “eco-cheques”. It can be used for purchase of a wide range of environmentally-friendly products such as water-saving showerheads, bicycles, rechargeable batteries, low-energy household appliances, soot filters for diesel vehicles, photovoltaic cells, insulating material for houses and low-energy light bulbs. The value and number of eco-cheques are determined in collective labour agreements at sectoral or company level.

In September 2009 the Belgian High Council of Finance issued a report on fiscal policy and the environment. It analysed Belgium’s fiscal policies in relation

to the environment in and puts forward suggestions with respect to green tax reform.

## Environmental technologies

In May, the Flemish government has decided to continue the activities of the ‘Environmental and Energy Technology Innovation Platform’ (MIP) under the name MIP2. The overall aims of the MIP2 are to encourage environmental technology research, to promote technology transfer between research institutions and companies and to identify the market segments with the biggest commercial potential.

## Green economy initiatives in the economic recovery plan

The federal government presented its economic recovery plan in December 2008. Some of the measures proposed have an environmental component. For example, resources of the Fund for the Reduction of the Global Energy Cost which issues loans for energy saving investments were increased by 200 million euro and it was also decided to accelerate energy saving investments in government buildings. In addition, the federal government lowered the interest rates of loans for energy-saving investments in houses by paying 1.5 per cent of the interest. The federal government embedded these measures into the economic recovery law of March 2009.

Most of the environment-related anti-crisis measures of the Flemish government concern public investments, in particular accelerating existing investments schemes such as in wastewater treatment infrastructure. The Walloon government transformed the 2005 Marshall Plan into a green Marshall Plan2, including a set of green measures to improve the economic situation of the region. For example, it decided to extend its existing structure of

competitiveness clusters to environmental technologies. These clusters operate around a system whereby a number of key actors all impacting on a specific market are clustered together within a common structure so as to help build and enhance business networks as well as facilitate exchanges and synergies, thereby increasing the competitiveness of these actors on the market.

## Outlook for 2010

At the international level Belgium will hold the presidency of the EU Council in the second half of 2010.

Given the need for proper policy making and the setting of clear targets at the mid-term, one of Belgium's urgent tasks is to divide the new targets agreed upon during the climate and energy package of April 2009 between the regions and the federal level.

The Flemish Public Waste Agency was preparing in 2009 a new Decree concerning the sustainable management of waste and material cycles, in order to transpose the Waste Framework Directive by the end of 2010. In this context, the Flemish government intends to go beyond the requirements of the Directive by integrating the concept of sustainable management of materials into Flemish waste legislation. One of the proposed measures is to set up pilot projects with a selected number of sectors with the aim to close material cycles or, in other words, to develop products which are safe and environment-friendly and which can be dismantled into useful materials after use.

Also the Walloon government plans to update in 2010 its existing waste framework policy to cover the period 2010-2020. As part of this framework the government plans to: evaluate the potential for and costs and benefits associated with further developing the re-use and recycling of waste; bring more focus on lesser known waste fluxes such as waste emanating from SMEs

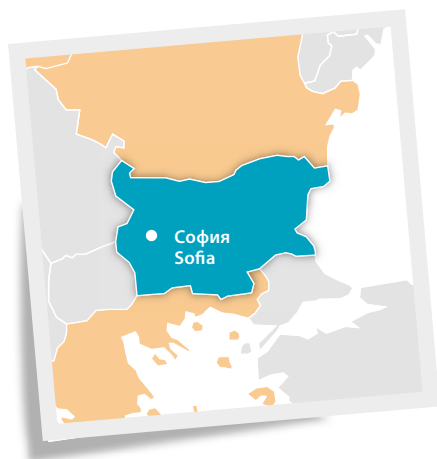
and the service industry; and re-align the distribution of waste treatment/disposal facilities across the region.

One of the key environmental priorities for the Walloon government for 2010 is to set up a region-wide integrated policy framework covering nature conservation and biodiversity based on three elements: mainstream nature preservation in other sectoral activities, creation of more protected areas, and enhancement of the protection of threatened species whilst also controlling the spread of 'problem-species'.

In 2009, the Brussels regional government has set itself a greenhouse gas emissions reduction target of 30% compared to 1990 base levels by 2025. In order to meet this 2025 objective, the region plans to set up an overarching legislative framework covering air, climate change and energy. First reading of this proposed plan is scheduled for 2010.



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## Bulgaria

### Highlights in 2009

The draft Energy Strategy for Bulgaria 2009-2020, published in November 2008, was widely discussed throughout 2009 among industrial associations, environmental NGOs

and the general public. The strategic priority set by the draft Energy Strategy is to reduce the energy intensity of GDP by 50 % by 2020. To achieve this, energy efficiency will be improved by minimising energy losses resulting from the use of old technologies in industries and households. It also focuses on the expansion of the use of renewable energy sources.

Waste management in Bulgaria suffers from low recycling rates and excessive landfilling. In order to address this problem, the government adopted in 2009 the National Waste Management Program 2009-2013, which sets the strategic priorities in the management of waste for the next 4 years.

### Climate change and energy

	Bulgaria				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	69.3	75.9	73.5	122.0 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	48.1	55.9	54.5		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	5.9	8.2	8.4		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	8.5	9.9	9.6		9.9	12
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	5055.6	3792.7	3462.4		458.8	27
– trend (% change compared to base year*)	-47.8%	-42.8%	-44.6%	-8.0% (by 2008-12)	-14.3%	5

	target	EU-27 average	rank in EU-27
Projected 2008-2012 emissions compared to base year:	On track to meet its Kyoto target		
– with existing measures, Kyoto mechanisms and carbon sinks	-8.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks	(by 2008-12)	-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1988 and for F-gases is 1995.

	Bulgaria			target	EU-27 average	rank in EU-27
	2000	2007	2008			
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	n.a.	171.2	171.4	130 (by 2012-15) for EU-27	153.5	24
Electricity produced from renewable energy sources (% gross electricity consumption)	7.4%	7.5%	7.4%	11.0%	16.7%	17
– from hydropower	7.4%	7.4%	7.1%	(by 2010)	9.7%	
– from wind	0%	0.1%	0.3%		3.5%	
Energy from renewable energy sources (% gross final energy consumption)	9.3% (2006)	9.1%	9.4%	16.0% (by 2020)	10.3%	13
Combined heat and power generation (% gross electricity generation)	n.a.	9.4%	10.0%	18% (by 2010) for EU-15	10.9%	15
Energy consumption per capita (kg oil eq.)	2 279	2 637	2 622		3 616	6
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	1 362	1 012	944		167	27

In 2008, Bulgaria's greenhouse gas emissions were 44.6 % below the base year level. Bulgaria is on track to meet and even surpass its Kyoto target of -8% in the period 2008-2012. Following the adoption of the climate and energy package in April 2009, the country agreed to increase greenhouse gas emissions by a maximum of 20% compared to 2005 levels in non-ETS sectors (e.g. buildings, road transport, and farming). Furthermore, Bulgaria has committed to achieving a share of energy from renewable sources in gross final energy consumption of 16% by 2020.

The first Draft National Allocation Plan for Greenhouse Gas Emission Allowances Trading for the period 2008 – 2012 was submitted to the European Commission in March 2007. The EC Resolution on the Plan was announced in October 2007 which reduced the Bulgarian emission allowances by 37%. A new Draft National Allocation Plan for Greenhouse Gas Emission Allowances Trading for the same period was notified in November 2009, revising the 2007 draft. This final draft

was approved by the Bulgarian government in December 2009, taking into account the EC recommendations of December 2008. The Commission is currently evaluating the text.

In January 2009, an amendment of the 'Clean Air Act' of 1996 was adopted by parliament. The amendment launched stricter measures for the application of fluorinated greenhouse gases in air conditioning and refrigeration installations.

A Draft Law on the Amendment of the Law on Renewable and Alternative Energy Sources was submitted to the parliament in October 2009. The main reason for the amendment is that by December 2010 the national legislation has to be harmonized with the Directive on the Promotion of the Use of Energy from Renewable Sources. The Law's main objective is to encourage the use of energy from renewable sources such as wind power, hydroelectric generation, biomass and liquid biofuels and geothermal energy.

## Nature and biodiversity

	Bulgaria					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		28.8%	34%	34.0%		17.6%	
Sufficiency of site designation under the Habitats Directive			94.3%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	0.4%	0.5%		8% * (by 2013)	4.5%	26
Freight transport (billion tkm)	12.2	20.9	23.0			EU total 2469.6	
– % road	52.3%	70.0%	66.9%			76.7%	8 of 26
– % rail	45.2%	25.1%	20.5%			17.4%	11 of 26

\* Indicative target according to the National Plan for Development of Organic farming in Bulgaria 2007-2013

As a result of the Soil Act of 2007 which aims to prevent soil degradation, two ordinances were issued by the Ministry of Environment in 2009. The first establishes a National Soil Monitoring System which involves evaluation of soil conditions. The second ordinance covers procedures for inventory and research and foresees restoration measures for areas with disturbed soils. It was approved by the government in August 2009 and will be effective from February 2010. Inventory and research will be carried out to determine the areas of potential and real risks of soil deterioration.

Bulgaria has designated 34% of its territory for Natura 2000 sites. 114 sites have been designated as Special Protection Areas under the Birds Directive comprising 20.4 % of the terrestrial area; 228 sites have been designated as Sites of Community Importance (SCIs) under the Habitats Directive comprising 29.6 % of the terrestrial area.

In October and November 2009, the Commission sent 'first written warnings' (Letters of Formal Notice) to the Bulgarian authorities, more specifically for authorization of plans and projects in the protected sites of Emine-Irakli and Strandzha at the Black Sea Coast, of the Pirin and Rila Mountains, for failing to provide adequate protection for bird sites when authorizing urbanization, tourist and wind farm developments; and for non-conformity with provisions of the Habitats Directive.

A government decree of October 2009 transformed the former State Forest Agency into an Executive Forest Agency within the Ministry of Agriculture and Food. According to the Bulgarian government, it is expected to result in a better management of the Bulgarian forest resources which has suffered severe fires and illegal cutting in the last 4 years.

## Environment and health

	Bulgaria				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	20.4	46.8	52.7	30.0	26.8	24 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	871 (2001)	5 753	4 619	n.a.	3 884	18 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU-27 total	
– sulphur dioxides ( $\text{SO}_2$ )	1 045	859	735	836	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	128	187	192	247	10 397	
– non-methane volatile organic compounds (NMVOCs)	79	82	123	175	8 296	
– ammonia ( $\text{NH}_3$ )	109	58	58	108	3 799	
	1990	2005	2007			
Water exploitation index	64.9%	5.6%	5.8%			12

The Bulgarian 'Water Law' of 1999 was amended in June 2009. The amendment covers, for example, additional measures for the reduction of water pollution, the protection of the Black Sea coastal waters, the termination of the pollution of the marine environment with natural and synthetic substances, and the reduction of the effluents and discharges of hazardous matter into catchments. Bulgaria carried out consultations in 2009 on draft River Basin Management Plans required by the Water Framework Directive, and published the plans with a slight delay in early 2010.

Noise reduction in urban areas is a priority objective in the Draft National Environment Strategy 2009 – 2018 which was being developed throughout 2009. Some of the actions considered include the preparation of strategic maps of noise (deadline 2017) as well as the development of plans for noise management in the environment (deadline 2018) for all urban agglomerations with population above 100 000 inhabitants.

In 2009, a REACH Help Desk was established in order to assist companies, industrial associations and other stakeholders with information on how to comply with the REACH Regulation.

## Natural resources and waste

	Bulgaria			EU-27 average	rank in EU-27	
	2004	2006	target			
Total waste generated (kg per capita)	32 310	31 416		5 987	27	
– % hazardous	0.2%	0.3%		3%		
– % landfilled on total waste treated*	99.1%	99.1%		51.6%	27	
– % incinerated on total waste treated*	0.1%	0.1%		4.9%		
– % recycled , on total waste treated*	0.9%	0.8%		43.5%	27	
	2000	2007	2008			
Municipal waste generated (kg per capita)	516	468	467	524	10	
– % landfilled	77.3%	82.9%	94.2%	39.5%	27	
– % incinerated	0%	0%	0%	19.5%		
	2004	2006				
Households waste (kg per capita)	338	379		436	12	
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	n.a.	30%	54.8%	55-80% (by 2014)	58.0 %	15 of 26

\* see Note to the reader



Waste management is a serious environmental problem in Bulgaria. The issue is twofold: low recycling rates and excessive landfilling. In order to address this problem, the government has adopted the National Waste Management Program 2009-2013. It includes an Action Plan and sets strategic priorities in the management of waste for the next 4 years. The primary objective of the National Waste Management Program is to contribute to sustainable development through the establishment of an integrated waste management framework. It aims at the limitation and reduction of the impact of waste on the environment; the improvement of the efficiency of the resource use; the extension of polluters' responsibility; and encouragement of investments in waste management.

### Better regulation and implementation

	Bulgaria			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	6	7	17	451

As mentioned above, Bulgaria received several warnings from the European Commission regarding failures to comply with nature conservation legislation in 2009. In November 2009, the European Commission took Bulgaria to the European Court of Justice for delays in providing Sofia with adequate waste disposal facilities.

### Use of market-based instruments

	Bulgaria			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	7.5%	10.0%	10.6%	6.1%

In 2007, the share of environmental taxes in the total tax revenue was 10%, compared to an EU average of 6.2 %. The Enterprise for Management of the Environmental Protection Activities, a legal entity linked to the Ministry of Environment and Water, receives charges and taxes from economic activities. It also receives payments for fines imposed on the business when environmental legislation is not adequately followed. The accumulated funds are spent on environmental projects as grants or low interest loans to municipalities, NGOs and companies based on certain application procedures.

A June 2009 amendment to the Water Law of 1999 applies the principle of River Basin Management incorporating market-based instruments for sustainable use of the water resources. Basin Directorates developed management plans in 2008 which were offered for consultation in 2009, as required by the Water Framework Directive. The draft plans suggests water prices increasing by 3% and 50% depending on geographic area. Price increases are determined by the Water Supply and Sewage Companies depending on the specific state of water supply and use in the regions. There are no fixed water prices for the whole country.

## Environmental technologies

The operational Program Competitiveness of the Bulgarian economy 2007–2013 supports the introduction of energy saving measures in SMEs and renewable resource technologies. In addition, the National Innovation Fund with the Ministry of Economy, Energy and Tourism supports projects introducing innovative technologies.

In line with the IPPC Directive which introduces the concept of best available technique, the Law on Waste Management requires that the new waste management systems use the best available techniques (BAT) in recycling, reuse, hazardous waste incineration and landfill disposal of waste.

## Green economy initiatives in the economic recovery plan

In October 2009 the Bulgarian government approved a Recovery Plan entitled 'Economic Measures for the Recovery of the Bulgarian Economy' covering the period from July 2009 to April 2010. It sets out a number of general environmental measures, focusing particularly on the modernisation of agriculture towards organic farming, development and rehabilitation of water networks, wastewater treatment and waste management infrastructure, and alleviating the differences in quality of life among the regions.

## Outlook for 2010

A National Environmental Strategy (2009-2018), an important framework policy documents for efficient environmental management, was drafted by and discussed among various stakeholders in 2009. It is expected to be adopted by the Bulgarian government in 2010. It will be an important tool for efficient environmental management by national, regional and local institutions. A wide range of actions for improving air quality are considered. The Strategy also includes an Action Plan, which in turn prioritises the development of the National Action Plan for Climate Change 2009–2013. The related Action Plan on Climate Change Adaptation (2009–2018) was also open for public discussion in 2009, and is expected to be adopted by the Bulgarian government by 2010.

The Energy Strategy of Bulgaria (2009-2020) is expected to be approved in 2010. Some of the primary goals of the strategy are reducing greenhouse gas emissions, increasing energy efficiency and use of renewable energy sources.





## Cyprus

### Highlights in 2009

In February 2009, Cyprus submitted its Stability Programme for the period 2008-2012. Amongst others, it foresees measures for promoting energy efficiency and developing alternative energy sources, while promoting, in parallel, measures to upgrade the

environment and address the consequences of climate change. With the new Action Plan on Renewable Energy for the years 2009-2013, the government expects that renewable energy sources will amount to a total of 6% of gross electricity consumption by 2010, 4.6 % from wind farms alone.

In 2009, Cyprus has made progress in implementing its Strategic Plan for the management of waste which includes the establishment of four regional centres for integrated management of solid waste as well as the restoration of existing uncontrolled landfills. The first regional centres, in Larnaca and Famagusta Districts, will become operational in 2010.

Following the severe droughts experienced over the past years, ensuring water supply and providing incentives for water consumption savings is also an important priority for the Cypriot government. In 2009, Cyprus drafted a Drought Mitigation and Response Plan which includes a series of emergency measures. It also includes plans for a number of seawater desalination plants to secure domestic water supply.

In December 2009, management plans for a further 13 Natura 2000 sites were completed. However, significant insufficiencies of designation still exist (e.g. the Akamas peninsula) while enforcement measures to prevent site deterioration and to tackle illegal hunting practices need to be strengthened.

### Climate change and energy

	Cyprus				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	9.1	9.9	10.2	No Kyoto target	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	7.0	7.5	7.8		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	1.3	2.3	2.3		961.8	
					<b>EU-27 average</b>	<b>rank in EU-27</b>
– per capita (tonnes CO <sub>2</sub> eq.)	13.2	12.7	12.9		9.9	22

	2000	2007	2008	target	EU-27 average	rank in EU-27
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	903.8	761.9	762.5		458.8	18
– trend (% change compared to 1990*)	+72.8%	+87.0%	+93.9%	No Kyoto target	-14.3%	27
Projected 2008-2012 emissions compared to base year:						
– with existing measures, Kyoto mechanisms and carbon sinks				No Kyoto target	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks					-16.5%	

\* No base year under the Kyoto protocol; change refers to 1990.

	Cyprus				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	173.4 (2004)	170.3	165.6	130 (by 2012-15) for EU-27	153.5	22
Electricity produced from renewable energy sources (% gross electricity consumption)	0%	0.1%	0.3%	6.0%	16.7%	26
– biomass	0%	0%	0.2%	(by 2010)	3.2%	
Energy from renewable energy sources (% gross final energy consumption)	2.5% (2006)	3.1%	4.1%	13.0% (by 2020)	10.3%	21
Combined heat and power generation (% gross electricity generation)	0	0.3%	0.3%	18% (by 2010) for EU-15	11.0%	26
Energy consumption per capita (kg oil eq.)	3 460	3 499	3 624		3 616	15
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	237	211	213		167	16

Cyprus has no quantitative emission reduction commitments under the Kyoto Protocol, but as an EU Member State it is bound by the obligations set out in the Emissions Trading Directive. Nevertheless, Cypriot greenhouse gas emissions have risen by 93.9% compared to 1990 levels, with energy generation and transport being the major contributors. Following the adoption of the climate and energy package in April 2009, Cyprus agreed to reduce greenhouse gas emissions in non-ETS sectors (e.g. buildings, road transport and farming) by 5% by 2020 compared to 2005 levels. Furthermore, Cyprus has committed to achieving a share of energy from renewable sources in gross final energy consumption of 13% by 2020. To achieve its commitments, the Cypriot government is currently working on developing a new strategy for the reduction of greenhouse gases. This strategy will rearrange the policies according to the targets. The transposition of the climate and energy package to the national legislation is expected to be finalised in 2010.

The National Energy Efficiency Action Plan has been in place since January 2008 and implementation of the different actions continued throughout 2009. The Plan includes targets regarding the reduction of total energy consumption with an indicative annual energy savings target of 60 ktoe for 2010. One of the

key provisions requires all new dwellings to satisfy the minimum energy efficiency obligations laid down in several governmental decrees in accordance to EU Legislation.

A new Action Plan for Energy Conservation and Promotion of Renewable Energy Sources for the period 2009-2013 has been presented by the government. The proposed action plan includes large scale Renewable Energy projects for electricity generation, expected to be finalised by 2015. The government expects the share of electricity of renewable energy sources will amount to a total of 6% of gross electricity consumption, with 4.6% coming from Wind Power Farms, 1.18% from Biomass, 0.117% from Hydroelectric, 0.009% from grid connected photovoltaic systems, 0.017 % from stand alone photovoltaic systems and 0.008% from Small Wind Farms. The planned Orites wind farm, near Paphos, consisting of 41 turbines with a capacity of 82 MW, will be the first substantial renewable energy project in Cyprus. This project is expected to contribute significantly to the government's target of producing 13% of its electricity from renewable sources by 2020. It also represents 27% of the required installed wind energy capacity of 300MW by 2020.

## Nature and biodiversity

	Cyprus					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area*		17.5%	17.5%	17.5%		17.6%	
Sufficiency of site designation under the Habitats Directive		25.0%	25.0%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	1.6%	1.6%**			4.5%	23

	Cyprus					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Freight transport (billion tkm)	1.2	1.2	1.3			EU total 2469.6	
– % road	100%	100%				76.7%	26 of 26
– % rail***	—	—				17.4%	26 of 26

\* The figure concerns only the Republic of Cyprus.

\*\* CY: 2008 data not available and estimates considers 2007 data

\*\*\* The railway system is missing due to the geography of the country.



By December 2009, management plans for 13 Natura 2000 sites were completed, bringing to 25 the number of sites with management plans in place. These 25 management plans cover a significant percentage of the current Cypriot Natura 2000 network, which comprises 38 sites altogether. Some important designation problems still exist (e.g. the Akamas peninsula site) while enforcement measures to prevent site deterioration and to tackle illegal hunting practices need to be developed and strengthened.

Throughout 2009, a National Committee worked towards developing a Program of Measures for combating Desertification in Cyprus, based on the National Action Plan prepared during 2007 – 2008 according to the relevant United Nations Convention. The Plan, expected to become operational during 2010, includes measures relating to the management of water resources, such as those to be included in the River Basin Management Plans under the EU Water Framework Directive, measures aiming at promoting sustainable agriculture, in particular traditional agricultural practices and measures to prevent overgrazing. Other measures include: promoting afforestation, institutional and fiscal measures to encourage population to remain in rural areas, conservation measures for the protection of biodiversity such as those included in the Rural Development Plan for 2007 – 2013.

## Environment and health

	Cyprus				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	n.a.	n.a.	n.a.	30.0	26.8	
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	n.a.	n.a.	n.a.		3 884	
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	46	27	22	39	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	21	21	20	23	10 397	
– non-methane volatile organic compounds (NMVOCs)	13	13	12	14	8 296	
– ammonia ( $\text{NH}_3$ )	6	5	5	9	3 799	
	1990	2005	2007			
Water exploitation index	n.a.	45.4%	63.8%			27

For the fourth consecutive year, Cyprus was affected by a prolonged drought in 2009, resulting in severe water shortages and bringing with it socio-economic and environmental impacts. In response to this situation, the government drafted a Drought Mitigation and Response Plan with a series of emergency measures. It also incorporated into its policy a plan to develop a number of seawater desalination plants to secure domestic water supply for the future. Currently under development, the Plan will become operational in 2013 and will provide Cyprus with a total daily capacity of 250 000 cubic meters of freshwater. Cyprus did not start the consultations on draft River Basin Management Plans, which should have started in December 2008 at the latest as required by the Water Framework Directive, and has not yet established final River Basin Management Plans.

In January 2009, Cyprus submitted to the European Commission the “Revised Implementation Programme – National Implementation Program 2008” on

the development of wastewater infrastructure. During 2009, there has been financial investment in the development of the necessary infrastructure in urban and rural areas. Wastewater Collection and Treatment in urban areas is more advanced than in rural areas. According to the government, the implementation of this program is expected to reduce the associated environmental problems.

In 2009, the Department of Labour Inspection continued implementing the National Action Plan for Air Quality Improvement approved by the government in early 2008. It includes, amongst other things, measures for supporting public transport. Moreover, an Action Plan for environmental noise alleviation through construction of noise barriers to protect sensitive areas, such as nearby schools and hospitals, was prepared during 2009. The first noise barrier is expected to be completed in 2010.

## Natural resources and waste

	Cyprus			target	EU-27 average	rank in EU-27
	2004	2006				
Total waste generated (kg per capita)	3 069	2 311			5 987	4
– % hazardous	5%	2.7%			3%	
– % landfilled on total waste treated*	72.4%	59.8%			51.6%	18
– % incinerated on total waste treated*	2.2%	2.2%			4.9%	
– % recycled , on total waste treated*	25.3%	38.0%			43.5%	16
	2000	2007	2008			
Municipal waste generated (kg per capita)	680	754	770		524	26
– % landfilled	90.1%	87.3%	87.3%		39.5%	23
– % incinerated	0%	0%	0%		19.5%	
	2004	2006				
Households waste (kg per capita)	503	338			436	8
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	22%	25.2%	25.7%	55%-80% (by 2012)	58.0%	26 of 26

\* see Note to the reader

The implementation of the Strategic Plan for the Management of Solid and Hazardous Waste, approved in 2003, continued throughout 2009. Full implementation of the EU Landfill Directive is planned for the year 2013. The plan includes the establishment of four regional plants (one per administrative district) for integrated management of solid waste, involving mechanical-biological treatment and landfilling, as well as the rehabilitation of existing uncontrolled landfills. During 2009, construction has continued for the Larnaca and Famagusta integrated solid waste management regional centre which will

be completed in 2010. With regards to the rehabilitation of existing uncontrolled waste disposal sites, recent studies identified 113 uncontrolled or only semi-controlled landfills under operation. The target is to close the landfills and rehabilitate the impacted areas of Paphos by 2012, Larnaca – Famagusta by 2013 and Limassol and Nicosia by 2016. Finally, the government plans to construct about 60-70 Regional Recycling Parks; the timeframe for completion is set to 2012.



## Better regulation and implementation

	Cyprus			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	9	9	7	451

## Use of market-based instruments

	Cyprus			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	8.9%	8.2%	8.0%	6.1%

Financial incentives for encouraging sustainable energy use in transport were introduced in 2007 and are still in force in 2009, such as the grant scheme for replacement of old vehicles and financial incentives for hybrid cars.

## Green economy initiatives in the economic recovery plan

In line with the EU target of transforming the European economy into a low carbon, resource efficient economy, Cyprus has set the promotion of renewable energy sources (RES) and energy saving as major policy priorities, setting targets for renewable energy as a proportion of total energy consumption and of total electrical power generation. In February 2009, Cyprus announced its stimulus package (amounting to 300 million euro) which, however, focused mainly on sectors such as tourism development. Nevertheless, Cyprus

continued to implement its environmental plans (e.g. pertaining to energy efficiency, renewables) which were not part of its recovery plan.

## Outlook for 2010

The National Energy Efficiency Action Plan of Cyprus, in place since 2008, has set an intermediate indicative annual energy savings target of 60 ktoe for 2010 and a renewable energy target of 6% of the total energy production for the same year. Energy performance certificates for buildings will be issued by the end of 2010. With regard to Nature and Biodiversity, during 2010 four new sites are expected to be included in the Natura 2000 Network as Sites of Community Importance: the sites of Akamas Peninsula, Oroklini and Paralimni Lakes and the site of Faros Kato Pafou. Moreover, follow up actions on nature management are expected within the Coastal Area Management Programme.

During 2010 measures in line with the National Action Plan to Combat Desertification are also expected. With regards to the Water Framework Directive implementation, the draft River Basin Management Plan will be published and undergo a public consultation phase in order to be finalized along with its associated Program of Measures. Moreover, new water pricing policies should enter into force during 2010. Finally, the first integrated solid waste management regional centre of Cyprus, of the Larnaca and Famagusta District is expected to become operational.



## Czech Republic

### Highlights in 2009

In the first half of 2009, the Czech Republic held the EU Presidency. Among its achievements is the adoption by the Council of six Common positions including the common position for the Copenhagen Summit and the

Common position on biodiversity and invasive species. In addition, the Czech Presidency helped the European Parliament and the

Council to find agreement on several key legislative proposals in the environment field.<sup>3</sup>

At domestic level, in the context of the update of the State Energy Policy foreseen for 2010, discussions centered in 2009 on the country's future energy mix, revolving around issues relating to the use of renewable energy and energy savings as well as the use of fossil fuels and the operation of power plants. Further, by adopting amendments to the Czech Nature and Landscape Protection Act and Environment Impact Assessment Act, the country sought to respond to infringement procedures concerning insufficient transposition of EU environment legislation. In 2009, also two new Specially Protected Areas named *Českobudějovické rybníky* and *Dehtář* were approved by the government, making the list of SPAs complete and raising their total number 41.

<sup>3</sup> See part 1: Achievements, new findings and outlook in the priority areas of the 6th Environment Action Programme.

## Climate change and energy

	Czech Republic				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	147.5	147.5	141.4	178.7 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	121.4	119.8	114.6		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	12.6	19.3	18.7		961.8	
					<b>EU-27 average</b>	<b>rank in EU-27</b>
– per capita (tonnes CO <sub>2</sub> eq.)	14.4	14.3	13.6		9.9	24

	2000	2007	2008	target	EU-27 average	rank in EU-27
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	2 389.7	1 760.8	1 647.8		458.8	24
– trend (% change compared to base year *)	-24.1%	-24.1%	-27.2%	-8.0% (by 2008-12)	-14.3%	9
Projected 2008-2012 emissions compared to base year:	On track to meet its Kyoto target			-8.0%		
– with existing measures, Kyoto mechanisms and carbon sinks				(by 2008-12)	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks					-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

	Czech Republic				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	154.0 (2004)	154.2	154.4	130 (by 2012-15) for EU-27	153.5	11
Electricity produced from renewable energy sources (% gross electricity consumption)	3.6%	4.7%	5.2%	8.0%	16.7%	21
– from hydropower	2.8%	2.9%	2.8%	(by 2010)	9.7%	
– from wind	0.8%	1.7%	2.0%		3.5%	
– from biomass	0%	0.2%	0.3%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	6.4% (2006)	7.3%	7.2%	13.0% (by 2020)	10.3%	18
Combined heat and power generation (% gross electricity generation)	n.a.	13.0%	14.2%	18% (by 2010) for EU-15	11.0%	9
Energy consumption per capita (kg oil eq.)	3 944	4 497	4 342		3 616	21
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	659	552	525		167	24

In 2008, the Czech Republic's greenhouse gas emissions were 27.2% lower than the base year level, compared to its Kyoto target of -8% for the period 2008-2012. According to the latest data, the Czech Republic is projected to meet, and even overachieve, its target.

Following the adoption of the climate and energy package in April 2009, the Czech Republic agreed not to increase its greenhouse gas emissions in non-ETS sectors (e.g. buildings, road transport and farming) by more than 9% by 2020 compared to 2005 levels. Furthermore, the Czech Republic has committed to achieving a share of energy from renewable sources in gross final energy consumption of 13% by 2020.

A new study in the Czech Republic on the scope for greenhouse gas emission reductions showed that the country has the potential to reduce its emissions by 50% below 1990 levels by the year 2020 with relatively low investment costs. As a follow-up the government started preparing a new Climate Protection Policy,

expected for 2010. Possible measures are a carbon tax and a plan to lower CO<sub>2</sub> emissions from industry. In August 2009, a bill was adopted laying down certain conditions for the next emission trading term within the framework of the Climate and Energy Package. It maintains a system of free distribution of a certain share of emission quotas to electricity producers, provided they submit an investment plan involving cleaner technologies and modernisation.

In 2008 the Czech Republic approved a grant scheme aimed at improving the energy efficiency of buildings, based on the revenues from selling surplus emission quotas distributed within the second period of European Emission Trading. Open until 31 December 2012, the scheme is expected to distribute 380 million to 950 million euro<sup>4</sup> to households which, for example, install energy saving or alternative heating appliances, insulate their houses or build passive houses.

<sup>4</sup> Amounts are reported in euro using the exchange rate 1 euro/ 26,2 CZK of end 2009.

## Nature and biodiversity

	Czech Republic					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		13.4%	13.3%	13.9%		17.6%	
Sufficiency of site designation under the Habitats Directive		59.5%	59.5%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	8.3%	9.1%		10% * (by 2010)	4.5%	4
Freight transport (billion tkm)	54.9	64.5	66.3			EU total 2469.6	
– % road	68.0%	74.7%	76.7%			76.7%	14 of 26
– % rail	31.9%	25.3%	23.3%			17.4%	8 of 26

\* Indicative target according to the Action Plan of the Czech Republic for the development of organic farming until 2010.

A governmental bill amending the Nature and Landscape Protection Act was adopted in September by the parliament in response to the opening of infringement cases concerning Natura 2000 against the Czech Republic. The modifications affect the competencies of nature protection authorities and clarified the scope of the provisions entailed in this act and its relation to other acts in particular with regard to cases where nature conservation might be undermined. Further, by adopting amendments to the Environment Impact Assessment Act, the country also sought to respond to an ongoing infringement procedure.

By the end of 2008 the Czech Republic had not yet designated all its Natura 2000 sites. In 2009 an amendment to the list of Sites of Community Importance (SCIs) was adopted by the government, which increased the total number of SCIs in the Czech Republic from 879 to 1082. 21 previously adopted SCIs were taken off the list on the grounds that their protection is no longer required. Two new Specially Protected Areas *Českobudějovické rybníky* and *Dehtář* were also approved by the government making the list complete and the total number 41.

## Environment and health

	Czech Republic				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	32.7	31.9	29.8	30.0	26.8	18 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	4 844	4 867	4 413	3 126	3 884	16 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	264	216	174	265	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	396	283	261	286	10 397	
– non-methane volatile organic compounds (NMVOCs)	244	174	166	220	8 296	
– ammonia ( $\text{NH}_3$ )	74	60	58	80	3 799	
	1994	2005	2007			
Water exploitation index	22.7%	12.2%	12.3%			15

In 2009, a new draft Air Protection Act was prepared by the Ministry of Environment to address the problem of air pollution in Czech Republic. In this context, a public consultation was opened in October. One of the innovative policies foreseen is compensatory measures, which will have to be taken by all future air polluters in the areas where air quality standards are not met. According to this new set of rules, permits should be granted to operators emitting pollution only after they commit to take compensation measures in the areas where pollution exceeds the legal limits. The commitments are to be included in those permits.

The draft Air Protection Act also introduces the so called Low-Emission Zones, which can be installed by local authorities in order to keep passenger cars out

of the inner city in the case of continuous breach of air quality standards, provided an alternative by-pass road of the same category is in place. The bill also provides for better supervision of small stationary sources of emissions such as household heating systems.

The process of drafting management plans including programmes of measures for river basin districts was started in 2007 and finalized by the end of 2009 in line with the Water Framework Directive. In the Czech Republic it concerns eight separate river basin district management plans, as part of international river basin districts. The Czech Republic published the River Basin Management Plans at the end of 2009.

## Natural resources and waste

	Czech Republic			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	2 867	2 414		5 987	5
– % hazardous	4.9%	5.3%		3%	
– % landfilled on total waste treated*	26.5%	28.9%		51.6%	8
– % incinerated on total waste treated*	3.7%	4.2%		4.9%	
– % recycled , on total waste treated*	69.9%	66.9%		43.5%	7
	2000	2007	2008		
Municipal waste generated (kg per capita)	334	294	306	524	1
– % landfilled	84.4%	82.7%	71.2%	39.5%	16
– % incinerated	9.3%	12.2%	11.1%	19.5%	
	2004	2006			
Households waste (kg per capita)	278	340		436	9

	2000	2006	2007	target	EU-27 average	rank in EU-27
Packaging waste recycled (as % total packaging waste)	51.4%	63.4%	65.9%	55%-80% (by 2012)	58.0%	4 out of 26

\* see Note to the reader

In 2009, the Ministry of the Environment developed a second draft of the new Waste Act following criticism by industry and municipalities of the first draft proposed in 2008. The 2009 draft foresees a gradual increase of the landfill fees, the separate collection of biowaste by municipalities, a ban on the free distribution of plastic bags and a requirement for landfill operators to contribute to a mandatory "accident fund". In addition, it aims to facilitate the take-back of certain waste such as electrical and electronic equipment and end-of-life vehicles. One of the additional objectives of this draft act is to lower the administrative burden for small and medium-sized enterprises.

### Better regulation and implementation

	Czech Republic			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	11	18	26	451

The draft acts elaborated by the Ministry of Environment in 2009 such as the Air Protection Act and the Waste Management Act, take a complex approach, seeking to make the legislation more efficient, comprehensive and coherent while at the same time lowering the administrative burden imposed on those who bear the costs of implementation of environmental policy.

In addition, a better implementation of EU requirements was sought, as illustrated by the amendment to the Nature and Landscape Protection Act and the Environmental Impact Assessment Act which were submitted as a response to ongoing infringement procedures.

### Use of market-based instruments

	Czech Republic			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	7.6%	6.7%	6.8%	6.1%

The draft of the new Air Protection Act introduces a new system of charges for air pollution. The act plans to impose charges on 4 integrated pollutants, namely VOC, NO<sub>x</sub>, SO<sub>2</sub> and PM pollutants instead of the 20 air pollutants which were previously subject to charges. The charge will not be collected if its total amount is less than a minimum of approx. 190 euro per polluter. This limit was determined as a borderline below which administrative costs are higher than the revenues generated by the charges. While 25 % of the revenues generated through the charges will go to the budget of regional administration, the remaining 75 % will go to the State Environmental Fund.

## Green economy initiatives in the economic recovery plan

The Czech National Recovery Plan was adopted in February 2009 by the government, however it was only partly implemented in the subsequent legal acts. A grant scheme aimed at improving energy efficiency of buildings was included as one of the green measures of the recovery plan. The Czech Republic also foresaw other measures having environmental relevance, for example, replacement of non-ecological heating by low-emission boilers using biomass and effective heat pumps.

In September 2009, a car-scrapping scheme was approved by the parliament. According to its provision, the owner of an end-of-life vehicle above 10 years old, owning it for at least 2 years and disposing of it, is entitled to a subsidy of around 1150 euro for the purchase of a new car. The price of the new vehicle must not exceed approximately 19 000 euro, its emission must be below 160g of CO<sub>2</sub>/km and it must belong at least to the EURO 4 category. This subsidy is doubled when the new car has a hybrid or electric engine or is gas-fuelled. At the end of 2009, the car-scrapping scheme had not yet been implemented in practice due to the unavailability of funds.

## Outlook for 2010

In May 2010, parliamentary elections will be held in the Czech Republic. Until then, the interim government consisting of senior public officials will remain in power. Several important new laws are expected to be adopted, such as the new Waste Act and the Air Protection Act, are expected to be adopted after that period.







## Denmark

### Highlights in 2009

The most prominent event in Denmark in 2009 was the 15th Conference of Parties under the United Nations Framework Convention on Climate Change in Copenhagen in December. As the hosting country, the conference was the culmination of several years of preparation for Denmark. Although

the conference fell short of the EU's ambitions as it did not achieve the EU's objective of a robust and effective legally binding global climate treaty, it did result in the Copenhagen Accord. The Accord shows that a majority of countries are determined to press ahead with action on climate change now<sup>5</sup>.

<sup>5</sup> See further details in Part 1: Achievements, new findings and outlook in the priority areas of the 6th Environment Action Programme.

At the domestic level, one of the most noticeable environmental policy initiatives in 2009 in Denmark was the Spring Package 2.0 tax reform that was passed in parliament in May. Taxes were increased on energy use, waste water, packaging, driving, etc. In parallel the personal income tax was reduced to reward those that wish to work more. Hence the overall tax burden did not increase.

Early in the year, a Green Transport Policy agreement was made with almost all the political parties in parliament. The agreement lays out the principles for a comprehensive greener transport policy until 2020 and distributes investments to transport infrastructure, in particular public transport, amounting to 12.6 billion euro<sup>6</sup>. In April the Danish government launched a Green Growth Plan providing 1.8 billion euro until 2015 to ensure better conditions for the country's nature and environment while allowing agriculture to develop. The Green Growth Plan and the Green Transport Policy are also instrumental parts of the government's economic recovery plan.

<sup>6</sup> Amounts are reported in euro using the exchange rate 1 euro = 7.46 DKK of end 2009.

## Climate change and energy

	Denmark				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	68.3	66.8	63.8	54.7 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	52.9	53.2	50.2		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	12.3	14.2	14.0		961.8	

	2000	2007	2008	target	EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	12.8	12.3	11.7		9.9	19
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	393.4	344.1	331.5		458.8	4
– trend (% change compared to base year*)	-1.5%	-3.6%	-7.9%	-21.0% (by 2008-12)	-14.3%	14
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-21.32%	-21.0% (by 2008-12)	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-21.30%		-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	175.7	159.8	146.4	130 (by 2012-15) for EU-27	153.5	4
Electricity produced from renewable energy sources (% gross electricity consumption)	16.7%	28.9 %	28.7%	29.0% (by 2010)	16.7%	6
– from hydropower	11.6%	18.8%	0.1%		9.7%	
– from wind	5.1%	10.1%	18.3%		3.5%	
– from biomass	0.1%	0.1%	10.3%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	16.8% (2006)	18.1%	18.8%	30.0% (by 2020)	10.3%	8
Combined heat and power generation (% gross electricity generation)	52.6%	42.8%	46.1%	18% (by 2010) for EU-15	11.0%	1
Energy consumption per capita (kg oil eq.)	3 663	3 768	3 627		3 616	16
Energy intensity – Energy consumption per 1000€ GDP (kg oil eq.)	112	106	103		167	1

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Denmark only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment

In 2008, Denmark's greenhouse gas emissions were 7.9 % below the base year level, compared to its Kyoto target of -21 % for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Denmark is projected to achieve its non-ETS part of the target using existing measures, Kyoto mechanisms and carbon sinks.

Following the adoption of the climate and energy package in April 2009, Denmark agreed to reduce greenhouse gas emissions by 20% by 2020 compared to 2005 levels for the sectors not covered by the EU Emissions Trading System. Furthermore, the country has committed to achieving a share of energy from renewable sources in gross final energy consumption of 30% by 2020.

The fifteenth Conference of Parties under the United Nations Framework Convention on Climate Change (UNFCCC) took place in Copenhagen in December 2009. The conference did not attain the results that Denmark and the European Union were hoping for, which was a new robust and effective legally binding climate change agreement. Nevertheless, the biggest achievement of Copenhagen is the fact that, by the end of January 2010, developed and developing countries representing more than 80% of global greenhouse gas emissions have put forward their reduction targets and actions.

In January 2009 a broad agreement for a Green Transport Policy was made across most of the political parties in the Danish parliament. It presents a vision and guiding principles for the development of all forms of transport in Denmark until 2020. It aims to reduce CO<sub>2</sub> emissions from transport by restructuring car tax towards a kilometre-based tax and preparing the public for the expected future growth in traffic. Investments will be for example made to improve public rail and bus transport, and cycling will be encouraged. Following this agreement a Centre for Green Transport was established in February 2009 to promote and implement research in the area of alternative fuel technologies and intelligent transport systems. It is meant to position Denmark as a Green

Technology Laboratory where energy efficient transport technologies can be developed and demonstrated.

In October 2009 the government presented an integrated Business & Climate Change strategy. The strategy aims to create a growth economy based on green solutions that contribute to solving environmental and climate change problems whilst creating new jobs in the economy. According to the Danish Energy Agency, the export of energy technology and equipment (e.g. wind turbines, pumps, heat insulation, heating controls, etc.) has quadrupled since 1995. The strategy is focused on how to ensure that Denmark continues to develop technological state-of-the-art climate solutions. In November, a new climate change research centre was established: the Centre for Regional Change in the Earth System. It is charged with generating knowledge about the climate in the future and providing the municipalities and regions with the latest knowledge on how to tackle current climate change challenges.



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## Nature and biodiversity

	Denmark					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area *		9.0%	8.9%	8.9%		17.6%	
Sufficiency of site designation under the Habitats Directive	99.1% (2004)	100%	100%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	6%	5.1%	5.6%		**	4.5%	12
Freight transport (billion tkm)	26.1	22.7	21.4			EU total 2469.6	
– % road	92.1%	92.2%	90.9%			76.7%	20 of 26
– % rail	7.9%	7.8%	9.1%			17.4%	19 of 26

\* Denmark has also an important Natura 2000 marine area, consisting of around 18.5 thousands km<sup>2</sup> in 2009

\*\* Denmark had fixed an indicative target of 12% by 2003 according to the Action Plan II Development in organic farming.

Green Growth Plan was adopted in June 2009 and attempts to integrate environment and natural habitat policies within agricultural policy. It aims to establish 75 000 hectares of new habitat and strengthen the natural habitat and biodiversity in 145 000 hectares of Natura 2000 areas. The plan aims to reduce pesticide load by 2013 and will introduce a law on a permanent 10 metre “pesticide, fertiliser and cultivation free buffer zone along waterways and lakes”. However, the Green Growth Plan was criticised by representatives of nature conservation for subsidising the agricultural sector at the expense of the environment.

Launched in 2008 and based on over 2000 suggestions sent to a committee of experts and citizens, in October 2009 the Minister of the Environment announced Denmark’s Nature Cannon. The Cannon aims to propagate

knowledge about nature by listing 216 unique examples of Danish nature covering flora, fauna, place and weather phenomena, landscape forms, etc.

A proposal for an EU Baltic Sea Strategy was presented by the Commission in June and this was adopted by the Council of ministers in October. One of the four cornerstones of the Strategy is to develop the macro-region to be more environmentally sustainable. The Baltic Sea Region will benefit from funds under the Cohesion Policy and other EU funding, including nearly 10 billion euro for the environment. The Baltic Sea suffers from major environmental problems and the strategy points out several priority areas such as the reduction of nutrient inputs to the sea, the preservation of natural zones and biodiversity, clean shipping, and mitigation of and adaption to climate change. Denmark will be coordinating the actions in relation to clean shipping and climate change.

## Environment and health

	Denmark				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	(2002) 23.9	21.0	21.4	30.0	26.8	8 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	(2002) 2 598	2 376	2 731	2 224	3 884	10 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	29	24	20	55	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	201	169	152	127	10 397	
– non-methane volatile organic compounds (NMVOCs)	143	111	106	85	8 296	
– ammonia ( $\text{NH}_3$ )	88	74	74	69	3 799	
	1990	2004	2007			
Water exploitation index	7.7%	4.2%	n.a			9*

\* The ranking is based on the data of the last available year.

One of the focus areas in the government's sustainable development strategy: "Growth with consideration" presented in March 2009 is better health for all. Among its targets is one to increase average life expectancy by 3 years over the next 10 years. To achieve this, the government will support the policies already in place that aim to reduce the risk of damage to human health and the environment, such as for example the EU chemicals legislation REACH. The strategy also focuses on reducing noise levels, harmful emissions to the air and concentrations of pesticides in food.

In 2008 "environmental zones" were introduced in most of the Copenhagen inner city area. To legally enter into an environmental zone, older diesel trucks and buses above 3.5 tonnes must be equipped with a particle filter and an "environmental zone" sticker unless they already meet the Euro 3 exhaust

norm. In 2009 the city of Aalborg launched a similar environmental zone, whilst the cities of Århus and Odense should follow in 2010. The environmental zones are expected to have a positive effect on health. However, a new proposal for an air quality plan for Copenhagen was presented in October 2009, as the city did not comply with the EU's permissible values for particulate matter.

Denmark did not start in 2009 the consultations on draft River Basin Management Plans, which should have started in December 2008 at the latest, as required by the Water Framework Directive, and has not yet established final River Basin Management Plans.

## Natural resources and waste

	Denmark			target	EU-27 average	rank in EU-27
	2004	2006				
Total waste generated (kg per capita)	2 332	2 709			5 987	8
– % hazardous	2.5%	3.4%			3%	
– % landfilled on total waste treated*	7.5%	6.4%			51.6%	1
– % incinerated on total waste treated*	24.6%	21.5%			4.9%	
– % recycled , on total waste treated*	68.0%	72.1%			43.5%	3
	2000	2007	2008			
Municipal waste generated (kg per capita)	665	801	802		524	27
– % landfilled	10.1%	5.1%	4.4%		39.5%	5
– % incinerated	52.9%	53.3%	54.0%		19.5%	
	2004	2006				
Households waste (kg per capita)	374	381			436	13
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	56%	56.2%	56.8%	55%-80% (by 2008)	58.0%	12 of 26

\* see Note to the reader

In March 2009 the government presented the first part of the Waste Strategy for the period until 2012. The Waste Strategy will be developed in three parts with the two remaining parts to be finalised in 2010 following the adoption of a new legislative framework based on the liberalisation of waste recovery and the Waste Framework Directive. The new legislative framework was passed in

May 2009 and introduced a reorganisation of the waste sector in Denmark. The first part of the Waste Strategy deals with the overall waste policy and priorities. The second part relates to waste prevention, recycling technologies and landfill capacity and was sent to public hearing in October 2009. The final part will follow the new objectives from the Waste Framework Directive.

## Better regulation and implementation

	Denmark			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	10	17	13	451

In spring 2009, a Nature and Environment Portal was launched. The portal aims to ensure mutual access to updated data on the environment and to develop new mutual data areas that will enhance the administration of the environment. The portal manages all information related to surface water, subsoil water and nature and is used by all environmental authorities.

There are two boards of appeal related to environmental issues in Denmark: the Nature Protection Board of Appeal (Naturklagenævnet) and the Environmental Board of Appeal (Miljøklagenævnet). The former deals with conservation matters and is the body to appeal to in relation to nature protection legislation; the latter is the top body to appeal to in relation to environmental legislation. A proposal has been put forward to combine both boards of appeal to form the Nature Protection and Environment Board of Appeal. This would ensure that transversal complaints only have to be processed with one instance. The bill, which is expected to be passed in 2010, will also allow environmental NGOs to nominate experts for the Board and not only industry associations and governmental agencies as was previously the case.

## Use of market-based instruments

	Denmark			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	10.7%	12.0%	11.9%	6.1%

Environmental taxes are an integral part of the Danish tax system and constitute a much higher share of the total tax revenue than the EU average. Most of the revenue from environmental taxes in Denmark comes from registration tax on vehicles and energy.

The Spring Package 2.0 tax reform was approved by parliament in May 2009 and will be adopted in 2010 and 2011. The tax reform will be fully financed in the long-term with increases in energy and environmental taxes compensated by reductions in personal income tax and thereby resulting in an overall neutral tax burden. In the short-term, the reform will be under-financed and provide an economic stimulus to the Danish economy. With the tax reform it will become more expensive to consume energy and to pollute, e.g. the tax on energy used for heating will increase by 15% and electricity tax will increase by 5%. A number of other environmentally related taxes will also be increased, e.g. the tax for discharging nitrogen, phosphorus and organic material in waste water will increase by 50% from 2011. The Green Growth Plan passed in June 2009 sets out to change the pesticide tax and to conduct a feasibility study on the introduction of a trade system for nitrogen quotas as an alternative to the current nitrogen tax.

## Environmental technologies

In the Financial Bill for 2009, about 100 million euro of public funds was allocated to energy research and development. This will increase to 134 million euro in 2010. A further 5.8 million euro will be given to research on climate change and climate adaptation. The Energy Technology Development and Demonstration Programme supports research and demonstration projects on renewable energy technologies, energy efficiency, carbon capture and storage etc.

In November 2009 an agreement was reached regarding the allocations from the Globalisation Fund for the period 2010-2012. The Fund was established to strengthen research and development by increasing publicly financed expenditure on the area to 1% of Danish GDP in 2010. Here over 94 million euro have been set aside for six "green" strategic research programmes over the next three years covering, inter alia, bio-resources and food; test facilities for climate technologies; and a Green Development Demonstration Programme, which includes organic agriculture; as well as a climate research centre in Greenland.

## Green economy initiatives in the economic recovery plan

The government's economic recovery response in 2009 included several green economy initiatives already mentioned above, such as the transport policy agreement (January), the tax reform (May) and the Green Growth Plan on agricultural policy (June). Also in this context, the government's sustainable development strategy, Growth with consideration, announced in March 2009, should be mentioned which for example seeks business opportunities within the energy and environmental areas. Furthermore, Denmark foresaw 200 million euro to subsidise maintenance and construction works, including energy savings, in owner-occupied housing during 2009-2010.

## Outlook for 2010

The government intends to launch initiatives in 2010 that focus on sustainability of cities and towns in Denmark. The Minister of the Environment presented a discussion paper in October 2009 in this context. It should lead to the formulation of a plan that will cover items such as population density in cities, green areas, water quality and health.

The Danish Electricity Savings Trust promotes energy savings and a more efficient use of energy. In December 2009 a bill was passed in parliament that established a new Centre for Energy Savings to replace the Electricity Savings Trust. It will start its operations in 2010 and cover a broader range of sectors and energy types including heating.

The bill for the Green Development Demonstration Programme which is part of the government's agricultural policy plan, the Green Growth Plan, was also passed in December 2009. It aims to ensure the development and demonstration of sustainable food production. It will support projects within areas such as sustainable plant production, sustainable livestock production, CO<sub>2</sub> neutral energy production in agriculture, ecological agriculture, increases in food productivity, and sustainable fishery and aquaculture.

Consultations on draft River Basin Management Plans for the Water Framework Directive eventually started in early 2010.





## Estonia

### Highlights in 2009

During 2009, one of the prominent environmental issues in the media was the closure, in July, of ten landfills which failed to comply with the requirements of the Directive on the landfill of waste. The amendments to the Waste Act spurred public debate

on the application of alternative waste collection and transportation schemes and drew attention to the importance of waste

avoidance and separate waste collection. Another highly debated environmental issue in 2009 was the environmental impact assessment report endorsing the construction of the Nord Stream gas pipeline in the Baltic Sea.

In June 2009 two important policy initiatives in the energy sector were adopted: the Electricity Sector Development Plan, which runs until 2018, and the National Energy Sector Development Plan, which runs until 2020. Both development plans aim at considerably decreasing electrical energy production from oil shale and increasing the proportion of other energy sources. Furthermore, there was public discussion linked to the drafting of the Development Plan for Mineral Resources in the Construction Industry for the period 2010-2020. The aim of the development plan is to define the procedure and volume of mining with regions taking into consideration supply, rational usage of raw materials and minimising environmental impacts.

### Climate change and energy

	Estonia				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	18.2	22.1	20.3	39.2 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	15.3	19.0	17.1		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	1.7	2.5	2.3		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	13.3	16.4	15.1		9.9	25
– per GDP (tonnes CO <sub>2</sub> eq. Per 1000€ GDP)	2 952.7	2 073.8	1 975.0		458.8	25

	2000	2007	2008	target	EU-27 average	rank in EU-27
– trend (% change compared to base year*)	-57.3%	-48.3%	-52.5%	-8.0% (by 2008-12)	-14.3%	2
Projected 2008-2012 emissions compared to base year:	On track to meet its Kyoto target					
– with existing measures, Kyoto mechanisms and carbon sinks				-8.0% (by 2008-12)	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks					-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

	Estonia				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	179.0 (2004)	181.6	177.4	130 (by 2012-15) for EU-27	153.5	26
Electricity produced from renewable energy sources (% gross electricity consumption)	0.3%	1.5%	2.0%	5.1% (by 2010)	16.7%	25
– from hydropower	0.1%	0.2%	0.3%		9.7%	
– from wind	0%	0.9%	1.4%		3.5%	
– from biomass	0.2%	0.4%	0.4%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	16.1% (2006)	17.1%	19.1%	25.0% (by 2020)	10.3%	7
Combined heat and power generation (% gross electricity generation)	n.a.	7.1%	8.6%	18% (by 2010) for EU-15	11.0%	19
Energy consumption per capita (kg oil eq.)	3 648	4 525	4 363		3 616	22
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	813	571	571		167	25

The latest greenhouse gas data (2008) show that Estonia's emissions were 52.5% lower than the base year level, compared to the Kyoto target of -8% for the period 2008-2012. Estonia is projected to significantly surpass its target. Following the adoption of the EU Climate and Energy Package in April 2009, Estonia agreed to limit its increase of greenhouse gas emissions in the non-ETS sectors (e.g. buildings, road transport and farming) by 11% by 2020 compared to 2005 levels. The share of renewable energy in final energy consumption in Estonia was 16.1% in 2006. Estonia has committed to achieving a 25% share of renewable energy in gross final energy consumption by 2020.

In 2009, the government approved the Estonian Electricity Sector Development Plan until 2018 and the National Energy Sector Development Plan until 2020. According to both development plans, the energy supply in Estonia in the future should be more diversified, with more diverse sources of energy being

used. In particular, the aim is to move away from the current extensive usage of oil shale. High importance is also given to ensuring energy supply by building interconnections with the EU markets of electricity and liquefied natural gas. In 15 years the proportion of oil shale should decrease from the current 60% to under 30%. According to these plans, the proportions of other sources of energy should be increased, including the use of wind energy.

As concerns the operation of the EU Emissions Trading System for the 2008-2012 trading period, in December 2009 the European Commission rejected the national allocation plan for Estonia on several grounds. This followed the annulment of the Commission's previous decisions on the Estonian plan by the Court of First Instance in September 2009. In parallel, in December the European Commission appealed these judgements on a number of legal grounds. Appeals are currently pending before the European Court of Justice.

## Nature and biodiversity

	2000	2007	Estonia		EU-27 average	rank in EU-27
			2008	2009	target	
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		17.7%	17.7%	17.7%		17.6%
Sufficiency of site designation under the Habitats Directive		84.2%	84.2%	n.a.	100%	
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	8.7%	9.6%			4.5% 3
Freight transport (billion tkm)	12.9	14.8	13.3			EU total 2469.6
– % road	37.3%	43.2%	55.1%			76.7% 2 of 26
– % rail	62.7%	56.8%	44.9%			17.4% 2 of 26

In 2009 the Nature Conservation Development Plan until 2020 was being prepared by the government. It seeks to establish a systematic planning of the necessary national nature conservation activities and to improve consistency of activities in different sectors related to environmental protection. It promotes the preservation of species and seeks to minimize adverse impacts on threatened habitats. The plan is expected to be adopted in 2010.

As one of the Baltic Sea countries, Estonia examined the environmental impact assessment report carried out by the developer Nord Stream AG and pertaining to the Nord Stream gas pipeline. The Estonian Ministry of the Environment held

a public display of the report and presented the Estonian government's position, pointing out problems and shortcomings in the environmental impact assessment report in connection with the impacts, accidents and risks in the construction and exploitation phase of the gas pipeline, environmental monitoring and impacts involving the Natura 2000 areas. In October 2009, the Estonian parliament also made a statement on the gas pipeline's environmental impact, highlighting the sensitive environment of the Baltic Sea and calling other related countries to thoroughly consider the impacts. By the end of 2009, Finland, Sweden, Denmark, and Germany had given their national approval to the project.

## Environment and health

	Estonia				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	18.2 (2002)	18.6	11.1	30.0	26.8	1 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	4 255 (2001)	2 308	1 381	n.a.	3 884	3 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	94	88	69	100	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	36	38	34	60	10 397	
– non-methane volatile organic compounds (NMVOCs)	40	36	35	49	8 296	
– ammonia ( $\text{NH}_3$ )	10	10	10	29	3 799	
	1990	2005	2007			
Water exploitation index	15.2%	12.7%	14.9%			18

To achieve the objective of a good status of water by 2015, as stated in the EU Water Framework Directive, a public consultation of the water management plans was undertaken between September 2009 and February 2010. The River

Basin Management Plans were published in early 2010. The Water management plans will promote the integrated approach to water management and will define the responsibilities, tasks and goals that should be included in the

different development plans of water infrastructure and planning. In 2009, the Estonian government decided to support local municipalities by providing government funds to water infrastructure development projects funded from the EU structural funds and by guaranteeing loans from the European Investment Bank to the co-financing of the water management infrastructure projects. In addition, the European Commission approved the first of the three big water management projects: the reconstruction of the water and sewage

system in the city of Narva. The project is co-financed from the Cohesion Fund and will solve the long-lasting problems in providing clean drinking water in one of the biggest cities in Estonia.

In 2009 Estonia approved a new action programme which is integral part of the Nitrates Directive implementation. The action programme is established for period 2009-2011 and it applies to 7,5% of the Estonian territory, designated as vulnerable area.

## Natural resources and waste

	Estonia			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	15 440	14 079		5 987	24
– % hazardous	35.2%	35%		3%	
– % landfilled on total waste treated*	74.9%	63.4%		51.6%	21
– % incinerated on total waste treated*	1.8%	1.5%		4.9%	
– % recycled , on total waste treated*	23.4%	35.2%		43.5%	19
	2000	2007	2008		
Municipal waste generated (kg per capita)	440	507	515	524	13
– % landfilled	99.5%	57.4%	48.2%	39.5%	9
– % incinerated	0%	0.2%	0.2%	19.5%	
	2004	2006			
Households waste (kg per capita)	298	306		436	7
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	33.5%	45.7%	49.6%	55%-80% (by 2012)	58.0% 18 of 26

\* see Note to the reader

During the year 2009, one of the prominent issues in the media was the application of the Directive on the landfill of waste. In compliance with the Estonian Waste Act, all landfills failing to comply with existing requirements were closed for waste deposit by July. The closure of 10 non-compliant landfills caused public debate on the application of alternative schemes of collection and transportation of waste and drew attention to the importance of waste avoidance and separate waste collection. According to Estonia, the capacity of new landfills should be sufficient to manage the residual waste load in coming years.

The Ministry of Environment has started drafting the Development Plan for Mineral Resources used in the Construction Industry for the period 2010 to 2020, covering mining and use of limestone, dolomite, crystalline quarry stone, sand, gravel and clay. The aim of the development plan is to define the procedure and volume of mining based first and foremost on environmental sustainability in terms of supply, rational usage of raw materials and minimising the environmental impacts. The need for such a plan has been triggered by the increased use of mineral resources in the past few years and the associated problems such as the risk of scarcity of some raw materials, the environmental impacts of their extraction and local public tensions due to the lack of communication on mining issues. The development plan is expected to be adopted in 2010.

## Use of market-based instruments

	Estonia			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	5.5%	7.0%	7.3%	6.1%

Estonia has been levying environmental charges on natural resource exploitation and pollution for the past two decades. The excise duties on transport fuels were increased to the level of EU minimum rates in 2008, two years earlier than the transition periods granted to Estonia would require. Taxes on natural gas and electricity were introduced – the latter being considerably above the current EU minimum level – and the tax exemption of shale-driven fuel has been abolished. In July 2009, the excise duty rates on petrol, diesel and natural gas were further increased. The majority of environmental taxes are collected as energy excise duties and fewer as environmental charges. According to the state budget amendments, the rate of environmental charges will increase starting from the year 2010. Finally, amendments to the Environmental Charges Act in 2009 created financial incentives for the local authorities by connecting the revenues from the environmental charges – which are part of the local municipality's budget – to their waste collection and transportation obligations.

## Green economy initiatives in the economic recovery plan

As part of Estonia's response to restore its economy, the government decided several green economy measures for the period 2009-2013 such as increasing energy efficiency via low interest loans and a loan guarantee scheme, and diversifying renewable energy through increased investments. Furthermore, new investments are also scheduled for public transport infrastructure and waste recycling in 2009-2013.

## Outlook for 2010

In 2010 the Estonian government is expected to adopt the 'Renewable Energy Action Plan 2010-2020' which will respond to the objective of achieving a 10% share of renewable energy in transport and a 25% share of renewable energy

in gross final energy consumption by the year 2020. The Action Plan will entail parts of previously adopted sub-strategies and aim to decrease the current risk of unequal development of different sub-strategies.

The work on the integrated marine policy in the form of the Marine Policy Development Plan for the next 20 years was initiated by the Ministry of Economics and Communication. The Plan is expected to be adopted by the Estonian government in 2010 and will put forward a coherent integrated approach to marine policy, including all aspects of energy, climate change, environmental protection, innovation, employment, trade, transport, tourism and fishing. The development plan aims to upgrade the economic competitiveness of the marine related activities while at the same time focusing stronger on protecting the marine environment.

The National Forestry Development Plan 2010-2020 is expected to be adopted in 2010. Its primary objectives include a mapping of the sector's needs, balancing the usage and management of forests, ensuring the long-term competitiveness of forestry and effectively organising the protection of forests.





## Finland

### Highlights in 2009

Finland often ranks at the top of international indexes describing environmental sustainability, but there remain a number of environmental problems for the country to address. The OECD Environmental Performance review

2009 on Finland identifies major challenges for biodiversity and nature protection in Finland, as there are significant gaps in the protected areas network, the degradation of peatlands and the eutrophication of water bodies. To address these issues the Ministry of the Environment, together with relevant ministries and organisations, prepared a National Biodiversity

Communication Programme in 2009 for the years until 2016. It was published in early 2010.

Finland's energy consumption per capita rate is very high, almost twice the EU-27 average. The National Climate and Energy Strategy of 2008 aims to reverse the persistent rising trend in energy consumption since the country is required to reduce greenhouse gas emissions by 16% by 2020 compared to 2005 levels in sectors such as buildings, road transport, and farming. To complement the 2008 strategy the government published its Foresight Report on climate in October 2009. The purpose of this government report is to outline Finland's long-term climate and energy policies and to propose measures for action for achieving an 80% reduction of greenhouse gas emissions in Finland by 2050.

In April 2009 the Natural Resource Strategy for Finland was published and submitted to the Prime Minister. It examines natural resources and their inter-linkages across sectoral boundaries, and covers the perspectives of both use and protection of resources. It also points out that well-being and prosperity must be created in a more sustainable way, and suggest that new operating models are needed in business, policies and in daily behaviour.

## Climate change and energy

	Finland				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	69.1	78.1	70.1	71.1 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	54.4	63.2	55.0		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	12.8	14.3	13.6		961.8	



	2000	2007	2008	target	EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	13.4	14.8	13.2		9.9	23
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	523.1	473.8	420.6		458.8	6
– trend (% change compared to base year*)	-2.7%	+10.0%	-1.2%	0% (by 2008-12)	-14.3%	18
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-0.1%	0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-0.80%	(by 2008-12)	-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	181.1	177.3	162.9	130 (by 2012-15) for EU-27	153.5	20
Electricity produced from renewable energy sources (% gross electricity consumption)	28.5%	26.0%	31%	31.5%	16.7%	4
– from hydropower	17.9%	15.1%	19%	(by 2010)	9.7%	
– from wind	0.1%	0.2%	0.3%		3.5%	
– from biomass	10.5%	10.7%	11.7%		3.2%	
– from solar			0.01%		0.2%	
Energy from renewable energy sources (% gross final energy consumption)	29.2% (2006)	28.9%	30.5%	38.0% (by 2020)	10.3%	2
Combined heat and power generation (% gross electricity generation)	36.4%	34.4%	35.6%	18% (by 2010) for EU-15	11.0%	2
Energy consumption per capita (kg oil eq.)	6 293	7 123	6 852		3 616	26
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	246	228	218		167	17

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Finland only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment

In 2008, Finland's greenhouse gas emissions were 1.2% lower than the base year level, below its Kyoto target to stabilise emissions by the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Finland is projected to achieve its non-ETS part of the target using existing measures, Kyoto mechanisms and carbon sinks. Following the adoption of the climate and energy package in April 2009, Finland is required to reduce greenhouse gas emissions by 16% by 2020 compared to 2005 levels in non-ETS sectors (e.g. buildings, road transport, and farming). Furthermore, it has committed to achieving a share of energy from renewable sources in gross final energy consumption of 38% by 2020.

The National Climate and Energy Strategy was adopted by the Finnish government in November 2008 and covers climate and energy policy measures in great detail up to 2020, and briefly up to 2050. This strategy also points out

that without new climate policy measures, Finland's total greenhouse gas emissions are expected to amount to 90 million equivalent carbon dioxide tonnes in 2020 or approximately 20% more than the emissions level of 1990. In October 2009 the government published its Foresight Report on climate on different scenario paths to achieve an 80% reduction of greenhouse gases by 2050 which complements the 2008 strategy.

In November, the Ministry of Employment and Economy scaled down its projections for Finland's traditionally high per capita energy consumption rates. This is linked to the economic recession, the restructuring of the Finnish forest industry and the reduction of electricity consumption by Finnish households and services. Consequently the Finnish electricity consumption for 2020 is expected to be about 10% lower than was previously estimated in the National Climate and Energy Strategy.

## Nature and biodiversity

	2000	2007	Finland		target	EU-27 average	rank in EU-27
			2008	2009			
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		14.5%	14.4%	14.4%		17.6%	
Sufficiency of site designation under the Habitats Directive	68.5%	68.5%	99.3%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	6.6%	6.5%	6.6%			4.5%	10
Freight transport (billion tkm)	42.2	40.3	40.7			EU total 4269.6	
– % road	75.8%	73.9%	73.3%			76.7%	11 of 26
– % rail	24.0%	25.9%	26.5%			17.4%	6 of 26

The OECD 2009 Environmental Performance Review of Finland identified major challenges to biodiversity such as significant gaps in the protected areas network (southern forests and shores), the network's lack of ecological connectivity, the degradation of peatlands, and the eutrophication of water bodies. To address these issues the Ministry of the Environment, together with relevant ministries and organisations, started preparing a National Biodiversity Communication Programme in 2009 for the years up to 2016.

The Forest Biodiversity Programme METSO 2008–2016 aims to halt the ongoing decline in the biodiversity of forest habitats and species. Its objective is to ensure that Finnish forests will continue to provide suitable habitats for

endangered and declining species. The METSO Programme covers both private and state-owned lands. Its implementation in 2009 started with the protection of 10,000 hectares of state-owned forests in Southern Finland. The main focus of the new programme stage will be in private forests, where new schemes will be increasingly adopted from 2010 onwards, following the completion of earlier conservation programmes. During the programme's earlier pilot phase, it was found that the most effective way to preserve biodiversity in the mainly privately-owned forests of Southern Finland is to get forest owners to commit to conservation on a voluntary basis.

## Environment and health

	Finland				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	14.7	16.8	14.3	30.0	26.8	3 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	1 340	1 136	2 015	1 818	3 884	6 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU-27 total	
– sulphur dioxides ( $\text{SO}_2$ )	74	83	70	110	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	210	184	166	170	10 397	
– non-methane volatile organic compounds (NMVOCs)	160	129	118	130	8 296	
– ammonia ( $\text{NH}_3$ )	33	35	37	31	3 799	
	1990	1999	2007			
Water exploitation index	2.1%	2.1%	n.a			5*

\* The ranking is based on the data of the last available year.

Most of the 2009 policy actions in this area were part of the implementation of EU Directives. The most topical of the current water quality monitoring programs are those required by the EU Water Framework Directive. Finland carried out consultations in 2009 on draft River Basin Management Plans required by the Water Framework Directive. The first river basin management

plans were completed by the Finish authorities in late 2009 and submitted to the European Commission. Regional Environment Centres have established monitoring programs for each river basin district and consist of existing monitoring programs, license holders' mandatory surveillance programs and voluntary groundwater monitoring programs.

## Natural resources and waste

	Finland			EU-27 average	rank in EU-27	
	2004	2006	target			
Total waste generated (kg per capita)	13 355	13 739		5 987	23	
– % hazardous	3.1%	3.8%		3%		
– % landfilled on total waste treated*	60.1%	57.4%		51.6%	15	
– % incinerated on total waste treated*	14.1%	14.1%		4.9%		
– % recycled , on total waste treated*	25.8%	28.5%		43.5%	21	
	2000	2007	2008			
Municipal waste generated (kg per capita)	503	507	522	524	15	
– % landfilled	60.8%	52.7%	50.8%	39.5%	11	
– % incinerated	10.3%	11.6%	17.2%	19.5%		
	2004	2006				
Households waste (kg per capita)	223	227		436	2	
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	50%	49.1%	51.9%	55%-80% (by 2008)	58.0%	17 of 26

\* see Note to the reader

In 2008 the Finnish government approved a new national waste plan for the years up to 2016. The national waste plan emphasises the relationship between waste issues and other sectors of environmental policy such as chemical policy, sustainable resource use, climate policy, environmental health, soil protection, and technology policy. For the first time, the national waste plan also includes a separate national waste prevention programme.

The Total Material Requirement (TMR) of the Finnish economy amounted to 584 million tonnes in 2005. Half of this total mass of materials was extracted from the natural environment in Finland in the form of biomass or minerals, which were then used in natural or processed form within Finland. The other half (notably including imported fuels, ores and timber) was brought in from abroad to meet demand from industry or consumers. In April 2009 the draft Natural Resource Strategy for Finland was submitted to the Prime Minister. It examines natural resources and their inter-linkages across sectoral boundaries, and covers the perspectives of both use and protection of resources. It also points out that well-being and prosperity must be created in a more sustainable way, and suggest that new operating models are needed in business, policies and in daily behaviour

Government departments have been preparing proposals for a new government policy on public sector purchasing procedures. The proposals cover the kinds of targets that public sector organisations can set, as well as ways to encourage suppliers to adopt environmentally favourable solutions.

## Better regulation and implementation

	Finland			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	9	12	6	451

Currently open infringement procedures concern the Water Framework Directive, the Bathing Water Directive, End of Life Vehicles, Waste Electrical and Electronic Equipment and Restriction of Hazardous Substances and SEVESO II.

## Use of market-based instruments

	Finland			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	6.6%	6.4%	6.3%	6.1%

## Environmental technologies

The national action plan for environmental business in Finland was launched in 2007. The aim of the action plan is to make “cleantech” a cornerstone of Finnish industry. The action plan was devised within the Environmental Programme of Sitra – the Finnish Innovation Fund - and bases its operations on accelerating the growth and internationalisation of Finnish environmental business. It includes the goal of making Finland a world leader in environmental business by 2012.

## Green economy initiatives in the economic recovery plan

As part of the response to restore its economy, the government decided on several green economy measures for the period 2009-2011 such as additional finance for the Finnish Funding Agency for Technology and Innovation, increased subsidies for energy efficiency and renewable energy and

investments in public transport infrastructure, water supply, sewerage and waste water projects. According to the Finnish authorities, the estimated budget for green economy measures is around 220 million euro (2009-2011 period).

## Outlook for 2010

In 2010, Finland is undertaking a reorganisation in regional administration which also affects its environmental policy. From January 2010 all state provincial offices, employment and economic centres, regional environmental centres, environmental permit agencies, road districts and occupational health and safety districts are being phased out and their functions and tasks will be reorganised and streamlined into two new regional state administrative bodies.

The Ministry of the Environment, together with relevant ministries and organisations, has prepared a National Biodiversity Communication Programme for the years 2009–2016. It was published early 2010 and its implementation will be supervised by the subgroup of the national monitoring group for biodiversity.

A working group is preparing a comprehensive reform of the 1993 Waste Act which is expected to be finalised by 2010. The Act will consolidate the recent changes in EU waste legislation and will take better account of the principles of material efficiency and waste reduction.





## France

### Highlights in 2009

The translation of the commitments made following during the 2007 Grenelle stakeholder consultation process into the Grenelle I and Grenelle II laws represent the most important development in the environmental area in France in 2009.

The Grenelle I law, with its which sets multiple medium- and long-term commitments and objectives in the medium- and long-term in the fields of biodiversity, buildings, energy, environmental governance, health, transport, and waste management, entered into force in August 2009. Grenelle I also announced the introduction of various fiscal and regulatory tools to fulfil these objectives.

Many of the objectives are concerned with the fight against climate change over the next decade. They include an increase in the share of renewable energies to at least 23% of final energy consumption in France by 2020, and the reduction of the energy consumption of all existing buildings by at least 38% by 2020 compared to 2008 levels. Various objectives are also set in other

environmental policy areas such as reducing the creation of household waste per inhabitant by 7% between 2009 and 2014. The law also provides for sectoral integration of environmental objectives, as for example such as in the agricultural sector where the surface of agricultural land surface that is dedicated to organic agriculture is to be increased from 2.1% to 6% by 2012 and to 20% by 2020.

The Grenelle II bill was adopted by the French Senate in October 2009 and by the French National Assembly in May 2010. While the Grenelle I law sets new objectives in the area of environmental policy, the Grenelle II law, the National Commitment for the Environment, is its 'toolbox'. The law addresses the technicalities and responsibilities across various levels of government, concretising a large range of provisions from the Grenelle I law by outlining more specific implementing measures.

One of the major commitments taken by the government during the Grenelle consultation process was the introduction of a carbon tax which figured highly in the public debate throughout 2009. However, the French Constitutional Court rejected the carbon tax in December 2009, on the grounds that the law created too many exemptions, therefore violating the principal of equality and rendered efforts to cut greenhouse gas emissions ineffective. The government announced it would propose a new plan in early 2010 fully taking into account the observations of the Court, but these plans were abandoned in March 2010 and France is instead pushing for a carbon tax at EU level. This decision was criticised by environmental NGOs.

## Climate change and energy

	France				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	557.1	530.2	527.0	563.9 (by 2008-12)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	394.6	380.2	376.6		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	137.0	137.3	130.9		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	9.2	8.3	8.2		9.9	8
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	386.5	323.6	321.0		458.8	2
– trend (% change compared to base year*)	-1.2%	-6.0%	-6.5%	0% (by 2008-12)	-14.3%	15
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-4.5%	0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-9.4%	(by 2008-12)	-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	163.6	149.4	140.1	130 (by 2012-15) for EU-27	153.5	2
Electricity produced from renewable energy sources (% gross electricity consumption)						
– from hydropower	15.1%	13.3%	14.4%	21.0% (by 2010)	16.7%	13
– from wind	14.4%	11.4%	12.2%		9.7%	
– from biomass	0%	0.8%	1.1%		3.5%	
– from solar	0.8%	1.1%	1.1%		3.2%	
			0.02%		0.2%	



	2000	2007	2008	target	EU-27 average	rank in EU-27
Energy from renewable energy sources (% gross final energy consumption)	9.6% (2006)	10.2%	11.0%	23.0% (by 2020)	10.3%	11
Combined heat and power generation (% gross electricity generation)	3%	3.2%	3.1%	18% (by 2010) for EU-15	11.0%	24
Energy consumption per capita (kg oil eq.)	4 264	4 249	4 278		3 616	20
Energy intensity – Energy consumption per 1000€ GDP (kg oil eq.)	179	165	167		167	9

\* Base year is 1990

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for France only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment

In 2008, France's greenhouse gas emissions were 6.5% lower than the base year level, and so below its Kyoto target of stabilising emissions by the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, France is projected to achieve its non-ETS part of the target using existing measures, Kyoto mechanisms and carbon sinks.

Following the adoption of the climate and energy package in April 2009, France agreed to reduce greenhouse gas emissions in non-ETS sectors (e.g. buildings, road transport, and agriculture) by 14% in 2020 compared to 2005 levels. It also aims to achieve a 23% share of renewable energy in final energy consumption by 2020.

The Grenelle I law, which entered into force in August 2009, confirms the commitments of the Grenelle stakeholder consultation process in the areas of energy efficiency, renewable energies and greenhouse gas emission reduction. The law establishes the reduction of greenhouse gas emissions as a priority and sets the targets to divide greenhouse gas emissions by a factor of 4

(compared to 1990 levels) by 2050 and to reach a 23% share of gross final energy consumption produced from renewable energy sources by 2020 as agreed in the context of the European climate and energy package.

Several provisions of the Grenelle II law deal with the improvement of the energy performance of buildings. More specifically, these aim at improving the evaluation, verification and information regarding energy performance, for example by requiring a certificate to confirm that the thermal regulations have been taken into account. The law also creates an obligation to carry out works to improve the energy performance of existing tertiary buildings, which will have to be carried out within eight years, starting in 2012. For old buildings, it foresees that energy performance standards will be defined taking into consideration the original state of the building, the potential energy savings that can be realised and the volume of work that needs to be carried out to achieve these.

In addition, the Grenelle II law plans the establishment of regional schemes for climate, air and energy which will set the course regarding air quality as well as

mitigation of and adaptation to climate change in the regions. Also foreseen in the law is the obligation for companies with over 500 employees in high-emission sectors, public structures with more than 250 employees and municipalities with a population of more than 50 000 inhabitants to monitor their greenhouse gas emissions. Local authorities, including regions and larger municipalities, are also obliged to adopt 'territorial climate plans', in which mitigation and adaptation actions are outlined and a performance assessment scheme is presented.

The Grenelle II provisions on renewable energies are mainly designed to support district heating using renewable energies and foresee the installation of meters at the delivery points of district heating (i.e. buildings). Other measures to support the development of renewable energies include allowing *départements* and regions to produce and sell electricity, as well as enabling public and corporate bodies to sell electricity produced from photovoltaic panels installed on their premises.

## Nature and biodiversity

	2000	2007	France		target	EU-27 average	rank in EU-27
			2008	2009			
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area *		12.4%	12.5%	12.5%		17.6%	
Sufficiency of site designation under the Habitats Directive	74.2%	90.7%	90.7%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	1.3%	2.0%	2.0%		6% ** (by 2012)	4.5%	22
Freight transport (billion tkm)	268.5	271.0	255.8			EU total 2469.6	
– % road	76.0%	80.9%	80.7%			76.7%	16 of 26
– % rail	20.6%	15.7%	15.9%			17.4%	15 of 26

\* France has also an important Natura 2000 marine area, consisting of around 39.6 thousands km<sup>2</sup> in 2009.

\*\* Indicative target according to the Action plan "Organic agriculture until 2012: new measures to triple the organic farming area" (Plan d'action "Agriculture biologique: Horizon 2012. De nouvelles mesures pour tripler les surfaces", 2007).

To halt biodiversity loss by 2010 France adopted a 2004-2010 National Strategy for Biodiversity in 2004. The Strategy called for all stakeholders to act within their responsibilities for the recognition of the value of biodiversity and the services it provides, and for the integration of biodiversity conservation in all national, European and international public policies. To strengthen the efforts made in the context of this Strategy the French government adopted 10 sectoral 2009-2010 Action Plans in April 2009. These ten sectoral plans, to be revised every two years, set the framework for actions in areas such as natural heritage, the sea, international negotiations, agriculture, urbanism, transport infrastructures, forest and research. For example, among the key measures of the Urbanism Action Plan is the creation of eco-districts or the reinforcement of environmental impact assessments. The Action Plan for the Sea foresees the adoption of measures to reduce accidental catches during fishing.

The Grenelle II bill encompasses provisions to strengthen efforts to achieve biodiversity conservation, such as the creation of green and blue networks. The green network is composed of sites on land; the blue network is composed of sites in the sea. These ecological corridors are meant to link sites previously identified as important in the biodiversity conservation context so as to overcome the current fragmentation of French territory. The bill also proposes the progressive generalisation of grass strips along watercourses, foreseeing a compensation procedure for landowners, in particular farmers. Finally, it introduces restoration plans for fauna and flora which are to be implemented within five years for 131 critically endangered species.

The Target Earth 2020 Plan, presented by the government in February 2009, represents important changes in agricultural policy. For example, it identifies ways for farmers to use water resources more efficiently, to reduce the use of chemicals in improving water quality, to ensure that agriculture contributes to biodiversity and landscape diversity and to protect agricultural soil. 60 measures are presented to implement objectives such as the reduction of pesticides and herbicides use, the development of organic agriculture, and putting agronomy at the centre of agriculture. Several Action Plans launched in 2009 are meant to facilitate the implementation of the Target Earth 2020 Plan such as: Ecophyto 2018, a plan for the 50% reduction of the use of pesticides, the Organic Agriculture Plan which, in line with the objectives set by the Grenelle I law, aims to triple the areas dedicated to organic agriculture by 2012 and the Bees Plan for a sustainable beekeeping sector.



## Environment and health

	France				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	21.9 (2001)	27.3	24.1	30.0	26.8	11 of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	2 954	3 426	3 266	2 565	3 884	12 of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	621	415	358	375	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	1 642	1 362	1 272	810	10 397	
– non-methane volatile organic compounds (NMVOCs)	1 865	1 179	1 086	1 050	8 296	
– ammonia ( $\text{NH}_3$ )	797	740	754	780	3 799	
	<b>1991</b>	<b>2006</b>	<b>2007</b>			
Water exploitation index	20.8%	17.5%	n.a			20*

\* The ranking is based on the data of the last available year.

In July 2009, France adopted its second National Health and Environment Plan for 2009-2013. Among the main objectives of this plan is a 30% reduction of fine particles (PM 2.5) concentrations by 2015. The Action Plan also aims for a 30% reduction of emissions of six toxic substances, including arsenic, benzene and mercury, into the air and water by 2013. Further, it announces the introduction of health-related labelling of construction and decoration products and those products that emit most harmful substances into indoor air as well as an obligation to use materials and products that emit less harmful substances in schools and nurseries.

The Grenelle II bill includes a range of water treatment measures, such as increased protection of the 500 most threatened water catchment areas, which will be identified by 2012. The use of certain products, such as particular

pesticides, in these areas will be also limited or banned. Furthermore, it announces enhanced cooperation between municipalities in the field of waste water treatment and encourages unified water treatment plants for urban clusters. To achieve this, the law supports the creation of Territorial Public Institutions at River Basin Level, which are public institutions responsible for the development and management of water streams within a specific River Basin and which organise extensive cooperation between local authorities. Their role will be reinforced as they will be in charge of the development and monitoring of water management schemes in areas where there are no local authorities to take on this role. This should also ensure better coordination of action and information exchange.

In November 2009, the Commission launched an infringement case on non-compliant implementation of the Nitrates Directive, as regards nitrate action programmes. The infringement involves 71 French departments. In the context

of the River Basin Management Plans, required by the Water Framework Directive, France finished consultations in 2009 and published the plans in December 2009.

## Natural resources and waste

	France			EU-27 average	rank in EU-27	
	2004	2006	target			
Total waste generated (kg per capita)	6 889	7 052		5 987	19	
– % hazardous	2.2%	2.2%		3%		
– % landfilled on total waste treated*	33.8%	33.8%		51.6%	10	
– % incinerated on total waste treated*	4.2%	4.2%		4.9%		
– % recycled , on total waste treated*	62.1%	62.1%		43.5%	11	
	2000	2007	2008			
Municipal waste generated (kg per capita)	516	544	543	524	16	
– % landfilled	42.6%	35.7%	35.5%	39.5%	8	
– % incinerated	32.8%	32.4%	31.7%	19.5%		
	2004	2006				
Households waste (kg per capita)	412	424		436	17	
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	42%	54.8%	57.0%	55%-80% (by 2008)	58.0%	11 of 26

\* see Note to the reader

In September 2009, the government presented an Action Plan to improve the management of waste for the years 2009-2012. A total of 259 million euro will be allocated to the Action Plan in 2011. Among the objectives of the Action

Plan is a 7% reduction of the production of household waste within the next 5 years as well as an increase in the recycling rate of household waste to 35% by 2012 and 45% by 2015. The Action Plan also foresees a 15% reduction of the

amount of waste incinerated and sent to landfill to reduce associated sanitary and environmental nuisances. This is to be implemented primarily through waste prevention, for example via targeted awareness raising, labelling of packaging and products and facilitating organised composting of organic waste by households. In addition, major producers of organic waste, such as food waste, will be obliged to increase their organic waste recovery rate as from 2012. Producers' responsibility for waste will be extended and will also apply to diffuse dangerous household wastes and bulky household waste.

The Grenelle II bill introduces waste prevention and recycling as a priority in current planning tools for waste management, ultimately seeking to limit waste elimination capacities. A number of the measures identified have been incorporated into the 2009-2012 Action Plan on management of waste, including the limitation, for a specific waste collection area, of waste storage and thermal treatment capacities. Regarding construction and demolition waste the Grenelle II bill establishes a range of new provisions. An example of this is the obligation to assess demolition waste prior to a demolition taking place or the obligation to draft a management plan for waste resulting from construction sites and public works. Finally, municipalities in charge of a maritime port which have not put in place a plan for the collection and treatment of ship waste will be fined.

## Better regulation and implementation

	France			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	32	34	26	451

In April 2009, a law on impact assessment was adopted which requires the government to provide a thorough and structured impact assessment for each bill presented to the parliament. The objective is to assess the potential

economic, social and environmental impacts of policy proposals and to prepare evidence for political decision-makers. An additional objective is to improve the quality of legislation to reduce "legislative inflation" and to allow for the participation of citizens in decision-making.

The Commission on the Measurement of Economic Performance and Social Progress, which was created in early 2008, published its report in September 2009. The Commission's main aims were to identify the limits of GDP as an indicator of economic performance and social progress and to consider what additional information would be required for the production of a more relevant picture. The Commission's main message is that, although GDP and production measures should not be dismissed, the time is ripe for the statistical system to shift its emphasis from measuring economic production to measuring well-being. Among key recommendations of the report was the fact that the environmental aspects of sustainability should be followed-up separately, based on a well-chosen set of physical indicators. The French Statistical office was mandated to implement the recommendations of the Commission.

## Use of market-based instruments

	France			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	5.6%	5.0%	4.9%	6.1%

Featuring highly in public debates was the introduction of a carbon tax for companies and households, set at EUR 17 per ton of emitted CO<sub>2</sub> which was to be introduced in January 2010. The rate at which the tax was to be set was to increase progressively to reach 100 euro per ton by 2030. This tax was to affect fossil fuels used in transport and in the heating of buildings. The government decided that it would not apply to electricity. In December 2009, the French

Constitutional Court annulled the carbon tax on the grounds that the provisions of the law foresaw too many exemptions. In March 2010 the plans for a national carbon tax were abandoned on the ground that a carbon tax at EU level only would preserve the competitiveness of French industries and France is now pushing instead for a carbon tax at EU level.

## Environmental technologies

In July 2009, the Ministry of Environment published an intermediary report on its Ecotech 2012 plan. According to the report, the priority actions that were announced in December 2008 have been carried out according to the objectives. Fifty research and development projects related to technologies for the prevention, measurement and management of local pollution have been awarded financial support in the context of a call for eco-industrial projects launched in February 2009. The funds allocated to those projects represent a total of 27.2 million euro. In addition, the development of a statistical reference to measure the development of the eco-innovation sector in France has been completed and will allow the monitoring of the measures undertaken to support this sector.

In November 2008, the government presented its Renewable Energies Development Plan. This plan sets the objective to raise the share of renewable energies in total energy consumption, from 10.3% in 2005 to 23% by 2020. To reach this objective, the plan encompasses 50 distinct measures which are targeted at all technology types: bio-energies, wind power, geothermal, hydroelectricity, solar and energies of the sea. The Plan aims for substantial scale changes by 2020: doubling the production of renewable and of wood-related energies, increases in geothermal energy by a factor of six, of district heating by a factor of twelve and the production of photovoltaic energy by a factor of 400.

## Green economy initiatives in the economic recovery plan

The French economic recovery package in response to the economic crisis, which in total amounts to 38.8 billion euro for 2009-2010, contains several

measures which should benefit the environment as well. For example, in the area of transport, 300 million euro has been allocated to railway infrastructure and 170 million euro to the maintenance of fluvial infrastructure and ports. From December 2008 to the end of 2009, car owners who bought a new car emitting less than 160g of CO<sub>2</sub>/km and scrapped their over-ten-year-old car were granted 1000 euro. In 2009, 600 000 car-owners buying a new car and scrapping their old car had benefitted from this measure. In addition, 200 million euro will be allocated to the improvement of energy efficiency through the thermal renovation of buildings.

## Outlook for 2010

The Grenelle II bill was finally adopted by the French Senate and National Assembly in June 2010.

Investments in the green economy will continue in 2010. An 'electric vehicles plan' will be launched and the French state will contribute to the construction of a factory producing lithium-ion batteries. This factory is expected to produce 50 000 electric batteries by 2011 and 250 000 by 2015. It will also finance the creation of a research centre which will be dedicated to the development of new generation batteries. Total investment would amount to 1.5 billion euro, half of which is expected to be spent before 2014. In the area of biodiversity and nature, 2010 will be an important year in the further development of green and blue networks, and the creation of 6 new marine national parks by 2011. Starting from 2010, 27 million euro will be dedicated to the protection of marine biodiversity. In the area of waste, the Action Plan on Waste 2009-2012 will be funded by 259 million euro in 2011. Projects for the development of recycling facilities, such as collective collection equipment, industrial sorting centres and new recycling installations, will benefit from the support of the Environment and Energy Management Agency starting from 2010: 2000 waste reception centres, for example, will be renovated or optimised.



## Germany

### Highlights in 2009

Climate and energy policy dominated the environmental policy agenda in Germany in 2009. In terms of domestic climate policy, a main focus was on the implementation of the “Meseberg Programme”, a series of policies intended to put Germany on track to

meet its domestic target of a 40% reduction of greenhouse gas emissions below 1990 levels by 2020. This represents a more ambitious target compared to the emission target to which Germany committed under the EU climate and energy package. Ex-ante assessments by the government have estimated that the measures contained in the “Meseberg Programme” would reduce greenhouse gas emissions by 36%.

A particular focus was also put on the revision and extension of Germany’s renewable energy promotion policy, as part of the efforts to restructure Germany’s energy system. The amendment of the Renewable Energies Law raised the German target for renewable energies in the production of electricity to a share of at least 30% by 2020. This electricity sector target will be an important step towards achieving Germany’s overarching renewable energy target. Under the climate and energy package, Germany committed itself to raising the share of renewable energy in end use energy consumption to 18% by 2020.

The response to the economic crisis also shaped the environmental policy debate in Germany in 2009. The stimulus packages adopted to accelerate economic recovery contained a number of “green” elements, especially in the field of energy efficiency. These encompassed increased support for the refurbishment of buildings to increase energy efficiency. The government mainly targeted schools and other public buildings, but also private homes. The 5 billion euro ‘car scrapping scheme’ was another part of this stimulus package. This scheme was intended to promote the purchase of new cars in exchange for scrapping old cars. The funds were exhausted very quickly.

### Climate change and energy

	Germany				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	1 024.7	957.3	958.1	973.6 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	829.8	769.7	772.8		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	182.4	153.9	153.5		961.8	



	2000	2007	2008	target	EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	12.5	11.6	11.7		9.9	18
– per GDP (tonnes CO <sub>2</sub> eq. Per 1000€ GDP)	496.8	426.3	421.3		458.8	7
– trend (% change compared to base year*)	-16.9%	-22.3%	-22.3%	-21.0% (by 2008-12)	-14.3%	10
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-26.0%	-21.0% (by 2008-12)	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-27.6%		-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	182.2	169.5	164.8	130 (by 2012-15) for EU-27	153.5	21
Electricity produced from renewable energy sources (% gross electricity consumption)	6.5%	15.1%	15.3%	12.5% (by 2010)	16.7%	12
– from hydropower	3.8%	3.4%	3.3%		9.7%	
– from wind	1.6%	6.4%	6.6%		3.5%	
– from biomass	1.1%	4.8%	4.7%		3.2%	
– solar	0%	0.6%	0.67%		0.2%	
Energy from renewable energy sources (% gross final energy consumption)	6.9% (2006)	9.0%	8.9%	18.0% (by 2020)	10.3%	14
Combined heat and power generation (% gross electricity generation)	10.6%	12.2%	12.5%	18% (by 2010) for EU-15	11.0%	12
Energy consumption per capita (kg oil eq.)	4 167	4 146	4 180		3 616	19
Energy intensity – Energy consumption per 1000€ GDP (kg oil eq.)	166	152	151		167	6

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Germany only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment

In 2008, Germany's greenhouse gas emissions were 22.3% lower than the base year level, compared to its Kyoto target of -21% for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. Implementing additional measures and enhancing carbon sinks will bring further emission reductions. Therefore, Germany expects to reach and even surpass its non-ETS part of the target without using the Kyoto mechanisms. Following the adoption of the climate and energy package in April 2009, Germany agreed to reduce greenhouse gas emissions by 2020 by 14% compared to 2005 levels in non-ETS sectors (e.g. buildings, road transport, and agriculture). Furthermore, Germany has committed to achieving a share of energy from renewable sources in gross final energy consumption of 18% by 2020.

The promotion of renewable energies remained a very important policy item in Germany in 2009. An amendment to the existing 'renewable energies law' (dating from 2000 and already amended in 2004) took effect from January 2009. This amendment, which was also included in the "Meseberg programme for climate action", raised the target for renewable energies in the production of electricity to a share of 30% by 2020, substantially above the previous target of 20% (law from 2004). The renewable energies law foresees in its basic version a guaranteed feed-in tariff for electricity produced by the different installations covered by the law, including solar, wind, small hydro water, geothermal and biomass. This feed-in tariff is guaranteed for a period of 20 years; however, its rate is reduced by a yearly digression factor. The amendment changed *inter alia* the rates of feed-in tariffs for the different installations. It does, for example, raise the rates for offshore wind installations, small hydro water power installations as well as for Combined Heat and Power biomass installations. In turn, the annual digression factor for the feed-in tariffs of photovoltaic installations was raised due to the satisfactory cost-reductions of these installations.

A further measure dating back to the 2007 'Meseberg programme for climate action' relates to the introduction of smart electricity meters and load-

dependent tariffs, both of which are expected to better match electricity demand and supply, thereby marking a further step in the transformation to a 'smart grid'. As of 2010, smart meters are mandatory for all newly constructed or refurbished homes, as well as for replacements of electricity meters. Likewise, power companies are obliged to offer load-dependent tariffs from 2010. Both of these changes were introduced through a change in the law on the energy industry adopted in August 2009.

In February 2009, the federal environment minister presented a 'Roadmap on energy policy for 2020' which comprises a series of political targets including, for example, the reduction of electricity consumption by 11%, the production of more than 40% of electricity by highly efficient coal power plants and the reduction of transport emissions by 20%. The Roadmap highlights that, in order to reduce electricity consumption, consumers need to be informed about how to save electricity and they need to be provided with more opportunities to buy efficient appliances.

In June 2009, the bill on the Extension of the Energy grid was approved by the parliament, marking one of the last outstanding legislative acts that were decided in 2007 as part of the "Meseberg programme". The bill seeks to encourage investments in the power grid, providing enlarged transmission capacities for further extension of the renewable energy sector. Four underground pilot-lines are under discussion and will serve to increase the transfer capacity as well as the capacity for research and testing. The pilot-lines will be operated with a high voltage direct current power, which has the benefit of considerably reducing transfer losses especially on long distances.

Regarding adaptation to climate change, the federal government adopted the 'German Strategy for Adaptation to Climate Change' in December 2008. The Strategy seeks to establish a framework for adapting to expected climate change impacts in Germany. The primary focus of the strategy is on the federal level, whereas much of the actual adaptation measures will be decided and implemented at the level of the federal states (*Länder*). The Strategy therefore

also aims to initiate an ongoing process involving both the federal states and civil society groups. Steps in this process include assessing the risks of climate change, identifying the possible need for action, defining appropriate goals and developing and implementing options for adaptation measures. In 2009, activities in this regard consisted mostly of preparatory work. A joint plan of action for adaptation at the federal level and the federal states is expected for mid-2010.

The draft law on Carbon Capture and Storage (CCS) was a major policy initiative in 2009. However, it was not adopted due to public concern and resistance to this technology, caused especially by projects in Lower Saxony and Schleswig-Holstein. The law was intended to transpose the Carbon Capture and Storage Directive into national law and included liability and financial requirements for energy companies with regard to Carbon Capture and Storage. The transposition is thus pending.

## Nature and biodiversity

	Germany					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area *		13.6%	13.6%	15.4%		17.6%	
Sufficiency of site designation under the Habitats Directive	26.2% (2004)	99.3%	99.3%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	3.2%	5.1%	5.4%		20% **	4.5%	13
Freight transport (billion tkm)	429.8	522.8	521.5			EU total 2469.6	
– % road	65.3%	65.7%	65.5%			76.7%	7 of 26
– % rail	19.2%	21.9%	22.2%			17.4%	10 of 26

\* Germany also has an important Natura 2000 marine area, consisting of 25.5 thousands km<sup>2</sup> in 2009.

\*\* Germany has fixed an indicative target of 20% (no target year) as mentioned in the Federal Organic Farming Scheme.

The Federal Law on Nature Conservation adopted in 2002 was amended in July 2009 in order to harmonize nature conservation requirements in Germany. The former law only featured basic requirements that needed to be complemented by the *Länder*. The new law has introduced common requirements for the German territory from which the *Länder* may not diverge such as general rules on protection of species. Furthermore, the German impact remediation regulation ("*Eingriffsregelung*"), intended to prevent or minimize negative impacts caused by human interference in nature, is defined at the federal level. The new law lays down the legal basis for methods already in action, such as habitat banking – ensuring the availability of appropriate areas for the implementation of complementary damage remediation measures - and eco-scores that evaluate the credits and debits in a habitat

bank. For the first time a distinct chapter regarding sea nature protection is created in the nature protection law.

In August 2009 the federal government established an inter-ministerial working group on the implementation of the National Strategy on Biological Diversity'. This working group is guided by the federal environment minister, and most other ministries are represented. To implement the strategy, several dialogue forums on separate items have been organized with representatives of both public administrations and NGOs. The dialogue forum on nature conservation, for instance, focused on exchanging observations regarding the experiences of environmental NGOs with the implementation process of the strategy.

## Environment and health

	Germany				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	27.0	22.5	21.1	30.0	26.8	7 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	2 768	3 138	3 456	2 317	3 884	14 out of 25
Air pollutant emissions (thousand tonnes)	637	506	498	(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	1 854	1 455	1 393	520	5 867	
– nitrogen oxides (NOx)	1 581	1 274	1 267	1 051	10 397	
– non-methane volatile organic compounds (NMVOCs)	594	581	587	995	8 296	
– ammonia ( $\text{NH}_3$ )				550	3 799	
	1991	2004	2007			
Water exploitation index	24.6%	18.9%	n.a			22*

\* The ranking is based on the data of the last available year.

Since 2007, a federal law enables German cities to institute so-called “environmental zones” where traffic can be limited to certain vehicles with low emission standards. The environmental zones are intended to help Germany comply with EU air legislation. While many cities have taken advantage of this concept from the start, other cities followed suit in 2008 and 2009. Cities where environmental zone were introduced in 2009 are Augsburg, Bremen, Düsseldorf and Heidelberg. In total, 34 cities featured such environmental zones in 2009. All zones refer to the same “low emission standards” which are based on the EURO standards and are documented by the assignment of red, yellow and green labels (*Plaketten*).

A central aim of new Federal Water Resources Act from July 2009, which came into effect in March 2010, is an improved standardization and systemization of German water legislation. It will integrate areas previously regulated by state

law and provide the basis for a consistent implementation of EC legislation. For the first time, the new Federal Water Resources Act will establish consistent guidelines for the planning and management of surface waters, coastal waters and groundwater. In the future, state water law may include divergent regulations if and as long as these do not pertain to pollutants or to licensing procedures. Germany carried out consultations in 2009 on draft River Basin Management Plans required by the Water Framework Directive, and published the plans in December 2009.

In 2009 Germany reconfirmed its nitrate action programme under the Nitrates Directive that forms the basis for extension of the derogation granted by the Commission which allows farmers, under strict conditions, to apply higher levels of livestock manure than the threshold set in the Nitrates Directive. The action programme and derogations applies for the period 2010-2013.

## Natural resources and waste

	Germany			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	4 411	4 413		5 987	12
– % hazardous	5.5%	6%		3%	
– % landfilled on total waste treated*	30.7%	20.8%		51.6%	4
– % incinerated on total waste treated*	7.5%	9.1%		4.9%	
– % recycled , on total waste treated*	61.8%	70.1%		43.5%	4
	2000	2007	2008		
Municipal waste generated (kg per capita)	643	582	581	524	20
– % landfilled	25.7%	0.7%	0.5%	39.5%	1
– % incinerated	20.7%	32.3%	33.2%	19.5%	

	2004	2006		target	EU-27 average	rank in EU-27
Households waste (kg per capita)	461	420			436	16
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	78%	66.5%	66.9%	55%-80% (by 2008)	58.0%	3 of 26

\* see Note to the reader

The ordinances dealing with the construction requirements and the management of landfills have been replaced by a single ordinance intended to simplify Germany's landfill legislation. The new Ordinance on Landfills took effect in July 2009. The EU requirements as contained in the EU Landfill Directive are transposed almost identically to the Directive's provisions. Yet, the *de facto* general pretreatment obligation of municipal waste, e.g. incineration or mechanic-biological treatment by composting or fermentation, to meet the acceptance criteria for waste to be put to landfills, dating from the former 'Waste Disposal Ordinance,' is retained. In general, the German legislation exceeds the European legislation and has brought the disposal of waste in landfills to a minimum. Among the most important changes relevant for landfill operators are increased flexibility and harmonization with regard to the requirements concerning geological barrier and surface sealing and the abolition of underground landfills outside saline mines.

The amendment to the Packaging Ordinance took effect in January 2009. The amendment is intended to enforce the responsibility of packaging producers concerning management and/or financing the management of packaging waste. Producers and retailers of packaging destined for use by private consumers have to participate in a packaging management system and to declare to the local chamber of industry and commerce the mass of the packaging put on the market and licensed with this system. According to this new amendment, the declaration has to be approved by an expert, thereby

making it harder for companies to dodge their obligation to finance the management, i.e. collection and recycling, of packaging waste. This amendment is intended to enforce the producer responsibility, also stipulated in the EU Packaging Waste Directive.

## Better regulation and implementation

	Germany			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	13	9	8	451

The codification of the German environmental laws in an Environmental Code, with the aim of having one basic legal document governing German Environmental law, was abandoned in 2009. As a substitute to the Environmental Code, the Ministry for the Environment prepared four laws that should amend existing legislation, the most important of which are the laws treating nature conservation and water, matters for which the federal government became responsible with the constitutional reform in 2006. The amendments introduce new nationally applicable requirements intended to

further overcome the former variations of the requirements between the German *Länder*.<sup>7</sup>

## Use of market-based instruments

	Germany			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	5.7%	5.7%	5.7%	6.1%

The most significant development in the area of environmental taxes was the reform of the German 'Motor Vehicle Tax', which took effect in July 2009. The new mode of taxation only concerns new vehicles registered after July 2009. The level of CO<sub>2</sub> emissions is the most influential determinant of the tax level, rather than the size of the engine alone. In addition, the law on motorway charges and related ordinances has been altered to adapt the level of road tolls for heavy lorries to their emission levels.

## Environmental technologies

In 2006 an Environmental Technologies Action Plan government/Länder network was set up for the implementation of this European Action plan at the national level. It forms the core of the open national ETAP network, now comprising over 70 environmental, economic and scientific experts from public and private institutions. The national ETAP network elaborates on recommendations for action in order to achieve greater interlinking of research,

<sup>7</sup> Yet, the *Länder* have a right for deviation from federal law under certain circumstances.

economy and environment and to gear this towards environmental innovations. In December 2009, a workshop took place discussing the different strategies and aspects of ETAP implementation in Germany such as financing options and programmes for environmental technologies and foci of research, from different viewpoints.

The federal Ministry for the Environment issued the second edition of an environmental technology atlas (GreenTech). The first edition highlighted the importance of environmental technology and environmental innovations to the German economy. The second edition brings the material in the earlier volume up to date and examines the subjects in greater depth.

## Green economy initiatives in the economic recovery plan

A main component of the stimulus packages adopted to counteract the effects of the economic crisis was increased investments for the insulation of buildings in order to reduce energy consumption for heating. An increase of 3 billion euro for the state-owned KfW Bank Building Refurbishment Programme makes a notable enhancement to this programme, bringing the total volume to 15 billion euro. In addition, insulation of the existing building stock secures up to 25 000 jobs in the manufacturing and construction sector. Of the total amount, 750 million euro is destined for federal government buildings. 3.5 billion euro is foreseen for the retrofitting and upgrading of municipal infrastructure, such as hospitals, rural infrastructure, and also noise abatement in municipal streets.

Another key component of the German economic recovery plan was the introduction of a car scrapping scheme. Under this scheme, a grant of 2 500 euro was given to the purchaser of a new car complying at least with Euro-4 norm when a car of nine years or older is scrapped in return. This subsidy was only awarded up to September 2009, when the budgetary allocations foreseen for this measure, altogether 5 billion euro, or two million cars, were exhausted.

Germany also foresaw 500 million euro investments in research and development of electric cars for the period 2009-2011.

## Outlook for 2010

Following the German parliamentary election in September 2009, a new government has taken office. The coalition programme for 2009-2013 dedicates one section to climate protection, energy and environment. A few of the most important measures can be highlighted:

For 2010 the coalition programme announces the presentation of a new energy concept which will develop scenarios for clean, reliable and cost-effective energy supply. It is the intention of the new coalition to broaden the share of renewable energies in the energy mix with the long term objective that renewable energies make up the largest portion of the energy supply. In this context, the programme also announces an amendment to the Renewable Energy Law for 2012. As regards waste policy, the Packaging Ordinance will be modified into a more general ordinance of recyclable substances. It should contain more flexible solutions to create an approach to resource savings which is more compatible with the creation of a real market.







## Greece

### Highlights in 2009

In 2009, an important reorganisation affecting Greek environmental policy took place: following elections in October a new Ministry of Environment, Energy and Climate Change was created, taking up duties on environment, energy, spatial planning and forestry policy.

In the context of the Greek National Spatial Plan, approved in 2008, a Special Spatial Plan for Tourism was approved in July 2009. It covers the period until 2024 and will seek to identify and protect the natural and cultural heritage of the country. Also, a Spatial Plan for Industry was adopted in April, focusing on the integration of the environmental dimension into industrial activities, while Spatial Plans for Mountainous, Coastal and Insular areas were prepared for public consultation in 2010.

### Climate change and energy

In order to achieve the targets set in its Energy Efficiency National Action Plan 2008-2016, in 2009 the Greek government implemented specific measures mainly targeting households, the building sector and municipalities. These measures also qualify for funding under the “EXIKONOMO” program, which addresses a broad range of energy saving issues.

In 2009, new policy initiatives were launched as part of the Action Plan to reduce air pollution, such as a reform in car taxation based on environmental criteria, a car scrapping scheme, and the establishment of specific urban zones in which only low emission vehicles are permitted. However, the new government, formed in October 2009, reformed or stopped these measures. It announced it will further examine possible measures as part of a longer term strategic plan on the promotion of environmentally friendly transport.

On biodiversity, Greece prepared a draft National Strategy for Biodiversity for the period 2009-2013 and made it available for public consultation. In July, the Commission launched legal action against Greece for failing to put in place adequate measures to protect one of Europe’s most important wetlands, lake Koronia, which is threatened by pollution and degradation and for which the legal protection framework is not implemented.

	Greece				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	124.9	131.9	126.9	133.8 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	97.1	108.0	104.0		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	19.6	23.7	22.7		961.8	

	2000	2007	2008	target	EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	11.5	11.8	11.3		9.9	17
– per GDP (tonnes CO <sub>2</sub> eq. Per 1000€ GDP)	905.2	716.9	676.1		458.8	16
– trend (% change compared to base year*)	+16.7%	+23.3%	+18.6%	+25.0% (by 2008-12)	-14.3%	22
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			23.3%	+25.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			21.0%	(by 2008-12)	-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	180.3	165.3	160.8	130 (by 2012-15) for EU-27	153.5	19
Electricity produced from renewable energy sources (% gross electricity consumption)	7.7%	6.8%	7.6%	20.1%	16.7%	16
– from hydropower	6.9%	3.8%	4.8%	(by 2010)	9.7%	
– from wind	0.8%	2.7%	2.5%		3.5%	
– from biomass	0%	0.3%	0.3%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	7.2% (2006)	8.1%	8.0%	18.0% (by 2020)	10.3%	16
Combined heat and power generation (% gross electricity generation)	2.1%	1.6%	1.9%	18% (by 2010) for EU-15	11.0%	25
Energy consumption per capita (kg oil eq.)	2 588	2 823	2 844		3 616	9
Energy intensity – Energy consumption per 1000€ GDP (kg oil eq.)	205	171	170		167	10

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Greece only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment.

In 2008 Greece's greenhouse gas emissions were 18.6% higher than the base year level, slightly below its Kyoto target of +25% for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Greece is projected to achieve its non-ETS part of the target using existing measures, Kyoto mechanisms and carbon sinks. Following adoption of the climate and energy package in April 2009, Greece agreed to reduce, by 2020, greenhouse gas emissions by 4% compared to 2005 levels for sectors like buildings, road transport and agriculture (i.e. sectors not covered by the Emissions Trading System). Furthermore, Greece has committed to achieving a share of energy from renewable sources in gross final energy consumption of 18% by 2020.

The "EXOIKONOMO" programme started in March 2009 and originates in the National Energy Efficiency Action Plan for 2008-2016. The programme promotes improvements in energy efficiency for example via public awareness campaigns and various initiatives targeting energy savings at municipal buildings and public areas, transport sector and households. In this context, a

programme was launched in June 2009 which provided subsidies for the replacement of old energy-intensive air conditioning installations. The initial budget for this action amounted to 15 million euro, but reached 40 million euro because of its success. The program ended in August 2009 because even the additional budget had run out. According to the available information, it had led to the replacement of 134 000 air conditioning installations.

A programme promoting renewable energies was also launched in 2009. It is a special program for installing photovoltaic systems up to 10 kWp on rooftop. It concerns photovoltaic systems from which some of the produced energy is used for self consumption and the rest is injected in the mainland electricity distribution network. The guaranteed feed-in tariff of the produced energy from the photovoltaic system is 0.55 Euro/kWh for the contracts that will be signed until 2011. While all contracts last 25 years, the tariff will be 5% lower for contracts signed between 2012 and 2019. The energy produced from photovoltaic installations is counted together with the consumed one and the consumer will be charged for electricity according to the difference between the energy produced and consumed.

## Nature and biodiversity

	2000	2007	Greece		target	EU-27 average	rank in EU-27
			2008	2009			
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		19.0%	20.9%	21.0%		17.6%	
Sufficiency of site designation under the Habitats Directive	98.6%	99.1%	99.1%	n.a.	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	6.9%	7.8%			4.5%	6
Freight transport (billion tkm)	19.3 (2003)	28.6	29.6			EU total 2469.6	
– % road	97.7%	97.1%	97.5%			76.7%	24 of 26
– % rail	2.3%	2.9%	2.5%			17.4%	23 of 26

\* The railway system is not much developed due to the geography of the country.

In February 2009 the draft National Strategy for Biodiversity covering the period 2009 - 2013 was sent for public consultation to the relevant stakeholders. It sets 23 general targets that aim at maintaining diversity at the genetic, species and ecosystem level. The structure of the strategy takes into account the specific threats that biodiversity faces in Greece as well as the existing institutional and administrative framework and the policies and programmes which already exist. Once the strategy is adopted, its implementation will be monitored by an inter-ministerial committee composed of the relevant Ministers. By the end of 2009 the strategy was not yet finalized.

In February, the government also issued two joint ministerial decisions setting up the legal framework for the protection of the Prespes National Park and of the Protected Area of Kastoria Lake. In March, a Joint ministerial decision was signed designating the terrestrial and wider sea area of islands Karpathos and Saria as "Olympus of S. Karpathos Eco-development Area". This area is characterised by high biodiversity including species such as the endangered seal species *Monachus Monachus*. In September, two Joint Ministerial decisions created two more National Parks. In particular, the terrestrial area of the mountain Helmos and the Canyon of Vouraikos River were designated as the "Helmos-Vouraikos National Park". The goal of this legal status is to protect, retain and manage the nature and the landscape, and to retain and manage

rare and threatened ecosystems and flora and fauna in the protected area. A previous Joint Ministerial decision establishing the "E. Macedonia-Thrace National Park" has been challenged at national courts on the grounds that a Presidential Decree would have been required for the designation of this area.

As a whole, the vast majority of Natura 2000 areas in Greece are lacking an appropriate protection regime and many of them, including major Ramsar wetlands, are subject to significant pressures and degradation. Greece is currently elaborating a legal framework to afford effective protection to SPAs. In addition, management structures for the sites are insufficient; in particular the 27 Management Bodies set up are lacking the necessary administrative, financial and technical support. The lack of knowledge on the conservation status of habitats and species in Greece as a result of lack of monitoring schemes remains a big problem, as demonstrated at the recent "health check" under Art. 17 of the Habitats Directive where the status of about 50% of habitats and species were reported as "unknown". In July 2009, the Commission launched legal action against Greece for failing to put in place adequate measures to protect one of Europe's most important wetlands. The case relates to the pollution and degradation of Lake Koronia in the region of Thessaloniki. Greece is being sent a first written warning for failing to implement the legal protection and conservation framework necessary for the site.

## Environment and health

	Greece				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	40.9 (2001)	32.3	36.8	30.0	26.8	22 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	7 052	9 006	11 973	6 140	3 884	25 out of 25

	Greece				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides (SO <sub>2</sub> )	493	543	448	523	5 867	
– nitrogen oxides (NO <sub>x</sub> )	330	374	357	344	10 397	
– non-methane volatile organic compounds(NMVOCs)	299	204	219	261	8 296	
– ammonia (NH <sub>3</sub> )	74	65	63	73	3 799	
	1990	2005	2007			
Water exploitation index	10.9%	12.1%	13.2%			17

In 2009, new policy initiatives were launched as part of the Action Plan to reduce air pollution, such as a reform in car taxation based on environmental criteria, a car scrapping scheme, and the installation of urban zones in which only low emission vehicles are permitted. The new government, formed in October 2009, further reformed or stopped these measures. The car scrapping scheme was implemented for a short period until early November, during which time 73 000 cars were replaced. The car taxation scheme was changed from its initial form by increasing the automobile levies on old cars with high engine power. The “green” urban zone scheme was cancelled as it could not, according to the new government, achieve its main goal of improving air quality in large urban areas. The government announced that it will further examine possible measures as part of a longer term strategic plan on the promotion of environmentally friendly transport.

In July the government approved the budget of 4 million euro for the elaboration of noise mapping studies and action plans for Greek cities, in

accordance with the requirements of the Environmental Noise Directive. In addition, the government decided to upgrade the existing national air monitoring network for a budget of 1.5 million euro.

Also in July, as part of the implementation of the EU Bathing Water Directive, the Ministry of Environment has announced a call for tender for implementing a program to monitor along the swimming coasts of the country. The targets of this program are to protect the marine environment, the swimmer’s health, to detect any areas where the sea water quality limits are exceeded and to apply all the necessary measures for its improvement.

Greece did not start the consultations on draft River Basin Management Plans, which should have started in December 2008 at the latest as required by the Water Framework Directive, and has not yet established final River Basin Management Plans.

## Natural resources and waste

	Greece			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	3 166	4 613		5 987	13
– % hazardous	1.2%	0.5%		3%	
– % landfilled on total waste treated*	86.5%	79.8%		51.6%	24
– % incinerated on total waste treated*	0.2%	0.1%		4.9%	
– % recycled , on total waste treated*	13.3%	20.2%		43.5%	24
	2000	2007	2008		
Municipal waste generated (kg per capita)	408	448	453	524	7
– % landfilled	91.2%	77.0%	76.6%	39.5%	22
– % incinerated	0%	0%	0%	19.5%	
	2004	2006			
Households waste (kg per capita)	382	371		436	10
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	33%	42.8%	48.0%	55%-80% (by 2011)	58.0% 20 of 26

\* see Note to the reader

In January, a new collective recycling system for packaging waste was approved. It is based on recycling centres which receive, screen and separate waste materials, being compressed immediately afterwards. The whole process stems from the legal obligation imposed on producers, importers, and distributors of packages to collect and recycle product packaging. Other steps were undertaken to set up a national system for recycling lighting equipment and light-bulbs.

In August, two ministerial decisions were signed. The first one has a budget of 25 million euro and will be implemented through the Operational Plan Environment (2007-2013) which is linked to EU Cohesion Funds. It also relates to a program for the rehabilitation of polluted soils in public access areas. The second one, budgeting 30 million euro, initiates a program for the reduction of water losses from drinking water distribution networks.

## Better regulation and implementation

	Greece			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	26	27	24	451

During 2009, four EU Directives have been transposed into Greek legislation with some delay in comparison with the EU transposition deadlines. Those are the Directive on the energy performance of buildings, the Directive on the promotion of cogeneration based on a useful heat demand in the internal energy market, the Directive concerning the management of bathing water quality and the Directive on environmental liability with regard to the prevention and remedying of environmental damage.

## Use of market-based instruments

	Greece			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	6.8%	6.3%	6.0%	6.1%

## Environmental technologies

In December 2008, the Ministry of Development launched the Energy Action Park. This is the first park in Greece dedicated to environmentally friendly technologies.

## Green economy initiatives in the economic recovery plan

The unfavourable international financial situation in 2008 and 2009 also had a negative impact on the Greek economy. As a response, the Greek government updated the "Stability and Growth Plan 2008-2011" in January 2009. As part of this plan Greece also intends to provide training programmes for jobs in areas such as renewable energy, sustainable production of energy, and waste management.

## Outlook for 2010

When taking office in October 2009, the new government announced that its main environmental priorities for the coming period would be in the fields of climate change, renewable energy, energy savings, protection of forest and protected areas, urban planning and waste management. A new legislative framework for the promotion of renewable energy will be prepared in 2010. Further initiatives in 2010 relate to the field of forest protection: forest maps will be created and this is expected to be finalized for the whole country within the next three years; changes to the current legislative framework for the protection of forests are also expected to be introduced in 2010.





## Hungary

### Highlights in 2009

In 2009, the most important landmark in terms of environmental policy was the 3<sup>rd</sup> National Environmental Programme. This strategic document, which was elaborated through a large consultation process that took

place in 2009, defines the main lines of the environmental policy in Hungary until 2014. The main fields of action are environmental education, climate change, environment and health, preservation of biodiversity, sustainable land management, water and waste management. The document was approved by the government in July, and adopted by the parliament in December.

As part of the government's economic recovery response, the selection and implementation of environmental projects was accelerated in the framework of the New Hungary Development Plan for the period of 2007-2013. As a result, the main areas of investment of the Cohesion and Structural Funds dedicated to the country have now been further defined.

### Climate change and energy

	Hungary				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	77.1	75.7	73.1	108.5 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	57.8	56.7	55.5		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	8.8	12.8	12.9		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	7.5	7.5	7.3		9.9	6
– per GDP (tonnes CO <sub>2</sub> eq. Per 1000€ GDP)	1 501.9	1 142.0	1 096.1		458.8	20
– trend (% change compared to base year*)	-33.2%	-34.4%	-36.6%	-6.0% (by 2008-12)	-14.3%	6



	2000	2007	2008	target	EU-27 average	rank in EU-27
Projected 2008-2012 emissions compared to base year:				On track to meet its Kyoto target		
– with existing measures, Kyoto mechanisms and carbon sinks				-6.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks				(by 2008-12)	-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is the average of 1985-987 and for F-gases is 1995.

	Hungary				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	158.5 (2004)	155.0	153.4	130 (by 2012-15) for EU-27	153.5	10
Electricity produced from renewable energy sources (% gross electricity consumption)	0.7%	4.6%	5.6%	3.6%	16.7%	19
– from hydropower	0.5%	0.5%	0.5%	(by 2010)	9.7%	
– from wind	0%	0.3%	0.5%		3.5%	
– from biomass	0.3%	3.9%	4.7%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	5.1% (2006)	6.0%	6.6%	13.0% (by 2020)	10.3%	20
Combined heat and power generation (% gross electricity generation)	n.a.	21.4%	21.1%	18% (by 2010) for EU-15	10.9%	6
Energy consumption per capita (kg oil eq.)	2 448	2 684	2 666		3 616	7
Energy intensity – Energy consumption per 1000€ GDP (kg oil eq.)	488	408	401		167	21

In 2008, Hungary's greenhouse gas emissions were 36.6% lower than the base year level, compared to its Kyoto target of -6% for the period 2008-2012. Based on the latest projections, Hungary will surpass its target. Following the adoption of the climate and energy package in April 2009, Hungary agreed not to increase its greenhouse gas emissions in non-ETS sectors (e.g. buildings, road transport and farming) by more than 10% by 2020 compared to 2005 levels. Furthermore, Hungary has committed to achieving a share of energy from renewable sources in gross final energy consumption of 13% by 2020.

Within the context of the Kyoto protocol, in 2008 and 2009 Hungary sold some of its Assigned Amount Units of greenhouse gas emissions under the International Emissions Trading System. The Hungarian government committed to spend the revenue of approximately 30 million euro on measures against climate change. In this context, a new financial support system, the 'Green Investment Scheme' was set up in July 2009. The 'National Energy Saving Programme' and the 'Panel Programme' provided support targeted at energy efficiency in households, with a budget of approximately 100 million euro in

2009. Another initiative in 2009 was the removal of the 330 MW limit on wind power which was in place for reasons relating to the capacity of the electricity system to absorb the power generated.



## Nature and biodiversity

			Hungary			EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		21.2%	21.0%	21.1%		17.6%	
Sufficiency of site designation under the Habitats Directive		85.6%	85.6%	n.a.	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	2.5%	2.8%			4.5%	17
Freight transport (billion tkm)	28.1	48.1	46.9			EU total 2469.6	
– % road	68.1%	74.4%	76.2%			76.7%	13 of 26
– % rail	28.8%	21.0%	19.0%			17.4%	12 of 26

In terms of nature conservation, the National Biodiversity Strategy and the medium term National Nature Conservation Master Plan have been developed and these have been adopted as Annexes to the 3<sup>rd</sup> National Environmental Programme. Finalisation of the Natura 2000 network in Hungary is advancing with the amendment of a number of national legal acts and the designation of new areas.

Hungary has a natural heritage that is of EU-level importance even though arable land occupies almost half of the country's surface area. Therefore, measures to integrate biodiversity concerns in agricultural practices are of major importance and 2009 has seen important measures allowing progress towards this objective. In 2009 over 1.4 million hectare received subsidies from the agri-environmental

measures of the National Rural Development Plan (ending in 2009) to enhance sustainable agricultural practices. Due to this programme, the surface of High Natural Value Areas doubled and reached 900 000 hectares, ensuring that the 50% of Natura 2000 areas under agricultural activities will be able to join the zonal programmes for areas with high natural interest.

Within the framework of the 'accessible sky' three-party agreement for the protection of protected birds, signed by the Ministry of Environment and Water, BirdLife Hungary and electricity suppliers, the insulation of 800 km of power lines began in 2009. The programme is co-financed by EU funds (e.g. LIFE, Structural Funds) as well as by electricity suppliers who have committed to using safe elements for birds in their future infrastructure developments.

## Environment and health

	Hungary				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, µg/m <sup>3</sup> )	40.1 (2003)	29.7	27.1	30.0	26.8	16 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, µg/m <sup>3</sup> . day)	2 895 (2004)	7 622	6 043	n.a.	3 884	22 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides (SO <sub>2</sub> )	489	84	88	500	5 867	
– nitrogen oxides (NO <sub>x</sub> )	185	190	183	198	10 397	
– non-methane volatile organic compounds (NMVOCs)	166	148	141	137	8 296	
– ammonia (NH <sub>3</sub> )	84	71	69	90	3 799	
	1992	2002	2007			
Water exploitation index	5.9%	5.6%	n.a.			11*

\* The ranking is based on the data of the last available year.

In line with the requirements of the Water Framework Directive, the elaboration and consultation process for the development of river basin management plans took place in 2009. In order to facilitate this process, a National Water-management Council was established in May. Investments aimed at flood control and water retention, integrated into rural development projects have continued as well.

A government decree amended the criteria and monitoring of the drinking water quality. It updates the number of settlements identified as facing drinking water quality problems, in particular with regard to arsenic and bromine,

affecting 836 settlements and 2.3 million inhabitants. The programme is financed by the EU Cohesion Fund and is designed to achieve compliance with the Drinking Water Directive.

The government adopted a 'Strategy on reshaping the public transport system' in August 2009, aiming at creating a more cost-effective Hungarian public transport system. The plans which have been drawn up for the transport sector are meant to increase the cost-effectiveness and improve environmental performance at the same time; they include a reorganisation of railway and inland water transport.

## Natural resources and waste

	Hungary			EU-27 average	rank in EU-27	
	2004	2006	target			
Total waste generated (kg per capita)	2 438	2 212		5 987	2	
– % hazardous	5.5%	5.8%		3%		
– % landfilled on total waste treated*	74.0%	74.2%		51.6%	23	
– % incinerated on total waste treated*	3.5%	4.3%		4.9%		
– % recycled , on total waste treated*	22.5%	21.5%		43.5%	23	
	2000	2007	2008			
Municipal waste generated (kg per capita)	445	456	453	524	8	
– % landfilled	84.5%	74.8%	73.5%	39.5%	18	
– % incinerated	7.6%	8.3%	8.6%	19.5%		
	2004	2006				
Households waste (kg per capita)	439	296		436	5	
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	43.3%	48.9%	46.4%	55%-80% (by 2012)	58.0%	22 of 26

\* see Note to the reader

Following the expiration of the National Waste Management Plan for the 2003-2008 period a new National Waste Management Plan was being developed in 2009 for the years until 2014. Some of the suggested objectives by 2014 are to keep households' waste production below 1kg/day/capita and to reach a 40% recovery rate (recycling, composting or re-use) for municipal waste through information campaigns and the development of selective waste collection systems. The plan is expected to be adopted in 2010.

A new law regulating forest-related items, such as the setting up of a register of forest types, forest management, use and protection, was adopted in 2009. The new regulation mandates the Minister of Agriculture - the Minister in charge of forest management - for creating the decree defining the quantity of wood exploitation in given forest zones in the upcoming 10 years as well as the schedule to transform forests made up of non-native tree species.

### Better regulation and implementation

	Hungary			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	6	12	11	451

Co-operation of environmental inspectorates with police and customs authorities has been further strengthened in recent years, in part due to specific bilateral agreements concluded in 2005 between the different authorities. In 2009, inspections focused on illegal salvage yards. The joint inspections by several authorities have been conducted by the so-called 'Green Commandos' which can be composed of experts from environmental inspectorates, civil protection authorities, the police, transport authorities, fire brigades, health offices and customs. By the end of November 2009, 245 sites

had been investigated and fines were imposed in 18 cases altogether amounting to approximately 1.2 million euro, for a total of 12 000 tonnes of waste.

In terms of environmental legislation in general, the emphasis continued to shift from permits to the control of activities. This was primarily achieved through the streamlining of the process of issuing permits, amending the regulation on environmental impact assessment and the regulation on integrated pollution prevention and control.

### Use of market-based instruments

	Hungary			EU-27 Average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	7.6%	7.0%	6.7%	6.1%

The most important changes regarding the use of market based instruments occurred through changes to the product fee legislation. Special product fees are used to promote the collection and recycling of certain products' waste such as packaging, electronics and tyres. Since January 2009, producers pay a reduced product fee if they collect and recover the waste of their products. The reporting obligations regarding product fees have been simplified, and now apply only to producers. The retail sector is no longer involved in reporting. This modification is meant to make the system more transparent.

### Environmental technologies

In 2009 the National Office for Research and Technology allocated about 70 million euro from the Research and Technology Innovation Fund to projects

supported under the National Sciences, Technology and Innovation Strategy. A number of innovative environmental projects, such as methane production from livestock farm by-products, have been funded by the Hungarian Research and Technology Innovation Fund.

A comprehensive environmental foreign trade programme with a focus on innovation, research and development and technology transfer projects, 'KEXPORT', was launched by the government in 2007. It aims at an efficient transfer of environment-friendly technologies to developing countries. The programme has achieved a significant success with 26 companies having joined as of 2009.

### Green economy initiatives in the economic recovery plan

Hungary was hit seriously by the economic crisis. In response to the market turbulences in the first half of October 2008 translating to a drop in liquidity, narrowing markets and mass layoffs, the Hungarian authorities adopted a series of measures to restore investor confidence and alleviate the stress experienced in the financial markets. The Hungarian recovery package focused on rebuilding investors' confidence and fostering economic growth through increased employment security and a restructured tax system.

As part of the government's economic recovery response, the selection and implementation of environmental projects was accelerated in the framework of the New Hungary Development Plan for the period of 2007-2013. As a result, the main areas of investment of the Cohesion and Structural Funds dedicated to the country have now been further defined.

Taxation-related measures in response to the economic and financial crisis which could indirectly have an impact on the environment included raising the general Value Added Tax (VAT) rate from 20 % to 25 % as of July 2009, with a reduced VAT rate temporarily introduced in August 2009 on district heating (down to 18% from 25%).

### Outlook for 2010

Hungary will launch the preparations for its forthcoming EU presidency in the first half of 2011 and ensure co-operation with the presidential trio Member States (Spain and Belgium). Special focus will be placed on the priority areas in the environmental field with further efforts to fulfil EU commitments, in particular with regard to water and biodiversity issues, climate change, and the EU Strategy for the Danube Region.

The 3rd National Environmental Programme adopted in late 2009 provides an insight into the environmental policy areas for the coming years. Key actions foreseen are the preparations for a new Sustainable Development Strategy for Hungary and a National Climate Change Framework Law. Other major programmes will be continued, for example the Vasarhelyi Plan against flood damage, which runs until 2013, will build six emergency reservoirs along the Upstream- and Middle sections of the Tisza River to enhance the level of flood safety in the region. Two of the six planned reservoirs were already completed in 2009.

In June 2009, the European Council requested the Commission to present an EU Strategy for the Danube Region by the end of 2010. This strategy is then to be discussed and endorsed by the European Council in 2011 under the Hungarian EU presidency. The focus of the strategy will lie on transport, environment and economic development. By the end of 2009, the Hungarian Ministry of National Development and Economy had received more than 300 project proposals related to the Danube Strategy. In 2010, several conferences will take place in Hungary related to this strategy.



## Ireland

### Highlights in 2009

In 2008 Ireland's economy was severely affected by the global economic downturn and in late 2008 the government adopted a Framework for Sustainable Economic Renewal. One of the underlying aims of the plan is to implement a 'new green

deal', which is also a key theme of the Renewed Programme for government published in October 2009.

A National Energy Efficiency Action Plan 2009-2020 was published in May, with 90 actions to help achieve the target of a 20% increase in energy efficiency by 2020. In November, a biofuels obligation scheme was approved and will require

fuel suppliers to include a 4% share of biofuels in their annual fuel sales from July 2010. Biofuels used to meet this obligation must achieve a 35% greenhouse gas emission saving and should meet EU sustainability criteria.

In February, the government published its action plan to change the transport mix in Ireland and reduce car usage from 65% of all journeys in 2006 to 45% by 2020. Ireland's First National Cycle Policy Framework was launched to help meet this target with its objective of increasing cycling from 2% of all journeys in 2006 to 10% in 2020 and delivering a culture of safe cycling in Ireland.

The 2010 Budget announced the introduction of a carbon tax for non-ETS sectors, water charges for homes, an extension of existing tax breaks for electric cars, a car scrapping scheme, and an energy efficiency campaign.

In 2009 a number of initiatives were also undertaken to encourage the diversion of biodegradable waste from landfill including a consultation on the Draft Waste Management (Food Waste) Regulations 2009, a revision of EPA licences for landfills, increases to the landfill levy, and the introduction of an incineration levy.

### Climate change and energy

	Ireland				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	67.8	67.6	67.4	62.8 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	42.5	45.4	45.7		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	10.8	14.4	14.3		961.8	

					<i>EU-27 average</i>	<i>rank in EU-27</i>
– per capita (tonnes CO <sub>2</sub> eq.)	17.9	15.73	15.3		9.9	26
– per GDP (tonnes CO <sub>2</sub> eq. Per 1000€ GDP)	646.4	442.6	455.1		458.8	11
– trend (% change compared to base year*)	+21.8%	+21.7%	+21.3%	+13.0% (by 2008-12)	-14.3%	23
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			+19.32%	+13.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			+13.0%	(by 2008-12)	-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	161.3	161.6	156.8	130 (by 2012-15) for EU-27	153.5	14
Electricity produced from renewable energy sources (% gross electricity consumption)	4.9%	9.3%	11.7%	13.2%	16.7%	14
– from hydropower	3.5%	2.3%	3.2%	(by 2010)	9.7%	
– from wind	1.0%	6.6%	8.0%		3.5%	
– from biomass	0.4%		0.5%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	3.0% (2006)	3.4%	3.8%	16.0% (by 2020)	10.3%	22
Combined heat and power generation (% gross electricity generation)	2.4%	6.3%	6.2%	18% (by 2010) for EU-15	11.0%	23
Energy consumption per capita (kg oil eq.)	3 802	3 681	3 587		3 616	14
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	137	104	107		167	2

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Ireland only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment



Concerning the Kyoto target, Ireland has committed to a maximum increase of its greenhouse gas emissions by 13% above the base year level for the period 2008-2012. In 2008, greenhouse gas emissions in Ireland were 21.3% above base year. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Ireland is projected to achieve its non-ETS part of the target using existing and additional measures, Kyoto mechanisms and carbon sinks.

Following the adoption of the climate and energy package in April 2009, Ireland agreed to a 20% reduction in greenhouse gas emissions by 2020 compared to 2005 levels in non-ETS sectors (e.g. buildings, road transport and farming). Furthermore, Ireland has committed to achieving a share of energy from renewable sources in gross final energy consumption of 16% by 2020.

The National Energy Efficiency Action Plan 2009-2020 was published in May and outlines measures to help achieve the government's target of increasing energy efficiency by 20% by 2020 compared to average energy use over 2001–2005. Of the 90 actions outlined, five measures are seen as key to delivering the 20% target:

- a multi-annual National Insulation Programme for Economic Recovery to assist homeowners and vulnerable members of society reduce their energy bills (see below);
- continued support to business through tax allowances for energy-efficient technologies, energy management tools and support programmes;
- an Energy Demand Reduction Target for energy suppliers (expected to be published in 2010);
- encouraging the purchase of green goods and services by the public sector to help achieve the objective of reducing energy use in the sector by 33% by 2020;
- promoting the electric vehicle deployment strategy which had been published in November 2008.

The Action Plan is being monitored on an ongoing basis by an Interdepartmental Implementation Group that will report to the government at regular intervals on progress made towards the target. The Plan will be periodically revised as new measures and savings are identified. Updated Action Plans are expected to be published in 2011 and 2014 in accordance with European Commission requirements. The Plan is expected to make a significant contribution to Ireland's commitments under the EU's climate and energy objectives for 2020.

The National Insulation Programme for Economic Recovery was launched in 2009 with the aim to reduce household heating bills, cut carbon dioxide emissions and create jobs. The programme provides 100 million euro for the installation of energy efficiency measures in private homes, low income and social housing in 2009 and consists of two grant schemes: the Home Energy Saving Scheme (focused on private middle income homes built prior to 2006) and the Warmer Homes Scheme and Local Authority housing (focusing on low income private homes and rented local authority housing).

In November the government approved a biofuels obligation scheme that requires fuel suppliers to include an average of 4% biofuels in their annual fuel sales from July 2010 onwards. Biofuels used to meet this obligation must achieve greenhouse gas emission savings of 35% and meet the EU sustainability criteria for biofuels.



## Nature and biodiversity

			Ireland			EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		10.5%	11.1%	11.1%		17.6%	
Sufficiency of site designation under the Habitats Directive	86% (2004)	86%	86%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	0.6%	1.0%	1.0%		5% * by 2012	4.5%	24
Freight transport (billion tkm)	12.8	19.1	17.5			EU total 2469.6	
– % road	96.2%	99.3%	99.4%			76.7%	25 of 26
– % rail	3.8%	0.7%	0.6%			17.4%	25 of 26

\* Indicative target according to the Organic Farming Action Plan 2008-2012.

In January 2009 the Commission closed two long-standing nature protection cases against Ireland under the EC Habitats and Birds Directives. Each case had been the subject of a ruling of the European Court of Justice (ECJ) against Ireland. One case required Ireland to designate further Special Areas of Conservation (SACs) to protect specific threatened habitats and species. The concerns of this case were addressed by an acceleration of a programme to complete Ireland's list of SACs. The other case involved tackling damage caused to the habitat of the Red Grouse through over-grazing by sheep in extensive upland areas. The concerns of this case were addressed through general destocking and subsequent monitoring and revised agri-environmental management plans with local farmers.

Another wide-ranging ruling of the European Court of Justice on the lack of designation and poor protection of special protection areas (SPAs) remained

unfulfilled. In mid-2009, Ireland still had the smallest SPA network among the 27 EU Member States and new legislation to satisfy the 2007 ruling remained absent. The Irish authorities claim to be making progress in drafting new regulations amending Habitats Regulations to address issues of transposition and compliance with the EU Birds and Habitats Directives.

In October, the Commission proposed to refer Ireland back to the ECJ for its failure to comply with a previous Court ruling on quality standards for shellfish waters on the Irish coast. In June 2007, the ECJ had ruled that Ireland had failed to designate all its shellfish waters and establish pollution reduction programmes for designated waters, as required under the Shellfish Water Directive. Following the 2007 judgment, Ireland has designated 49 additional shellfish waters with one outstanding non-designation case. Ireland has, however, failed to adopt pollution reduction programmes for all the additional

designations. However, the Irish authorities announced end 2009 that they were finalising the designation of the outstanding site and adopting pollution reduction programmes.

Peatlands are one of the main habitat types covered under EU nature protection legislation in Ireland and continue to experience widespread and serious damage through uncontrolled or poorly controlled peat extraction. The status of the midland's raised bogs was highlighted as an area of particular concern

in Ireland's latest report on the status of EU protected habitats and species. A so-called "derogation" permitting a ten-year continuation of turf cutting for domestic use on 32 raised bogs expired in 2009. In March 2009 the government established a working group to examine the issues involved in implementing the cessation and undertaking the restoration of these bogs, and to present proposals on methods of compensation, costs, funding and administration of the cessation.

## Environment and health

	Ireland				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	20.4 (2001)	14.6	13.7	30.0	26.8	2 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	658 (2002)	641	956		3 884	1 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	139	54	45	42	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	135	117	108	65	10 397	
– non-methane volatile organic compounds (NMVOCs)	69	58	57	55	8 296	
– ammonia ( $\text{NH}_3$ )	121	106	104	116	3 799	
	1994	2005	2007			
Water exploitation index	2.6%	1.7%	1.5%			4

End 2008 the government announced a target for 10% of all vehicles in the transport fleet to be powered by electricity by 2020. Based on the current size of the national fleet, this would equate to around 230 000 vehicles by 2020. The electric vehicles plan includes tax incentives for business to purchase electric vehicles; support to Sustainable Energy Ireland (the Irish national energy agency)

for research, development and demonstration; assistance for individuals purchasing electric vehicles; and the establishment of a National Task Force to examine infrastructure options for national roll-out of electric vehicles. Following this, in April 2009, a Memorandum of Understanding was signed between the government, electricity supplier ESB and car manufacturer Renault-Nissan to

promote the introduction of electric vehicles in Ireland. Under the agreement Renault-Nissan is to provide electric cars for sale in Ireland by 2011, while ESB will provide the necessary infrastructure to support the daily use of these vehicles.

In February 2009, the government published its Smarter Travel Policy which seeks to reduce traffic congestion in cities and towns, cut CO<sub>2</sub> emissions, improve air quality and reduce car use. Through this action plan, the government aims to change the transport mix in Ireland so that by 2020 car usage is reduced from 65% of all journeys in 2006 to 45%. The plan outlines 49 measures grouped under four key headings: reducing the distance travelled by private cars and encouraging smarter travel; ensuring alternatives to car use are widely available; improving fuel efficiency of motorised transport; and strengthening institutional arrangements to deliver the targets.

In April, Ireland's first National Cycle Policy Framework was launched. The Plan aims to increase cycling from 2% of all journeys in 2006 to 10% of all journeys in 2020. The framework outlines 109 actions that will be taken over 12 years. Key initiatives include: the construction of a national cycle network; provision of safe cycling routes to all primary and secondary schools; requiring the carriage of bicycles on public transport; and providing municipally-run public bike schemes in cities with populations over 100 000. Part of the follow up to this initiative was an announcement by the government in June that it would allocate 5 million euro in funding for cycling infrastructure in 2009/2010.

In December 2008, Draft River Basin Management Plans for each of the eight river basin districts on the island of Ireland were published. Four of these river basin districts are entirely in Ireland, one is entirely in Northern Ireland, and the other three are cross-border international river basin districts. The draft Plans were subject to a six month public consultation period until June 2009. The work on the finalisation of the plans was completed in December 2009 with formal adoption of the plans to take place in 2010. The plans outline the current status of Ireland's waters, the proposed environmental objectives for the waters, and necessary measures to achieve these objectives. The Department of the Environment, Heritage and Local government will bring forward new legislation in the areas of groundwater, water abstraction and drinking water controls to provide a statutory basis for the measures included in the Plans.

The 2009 Rural Water Programme was published in February. It provides 100 million euro for upgrading rural water infrastructure, primarily to improve drinking water quality in group water schemes (private entities involving two or more premises abstracting water from a common water source and sharing a pipe distribution system). This funding aims to further implement the Action Plan to improve rural water supplies that was adopted in response to EU proceedings relating to drinking water quality problems - in 2002 the European Court of Justice ruled that Ireland's private water supplies, i.e. group schemes, were in contravention of the Drinking Water Directive.

## Natural resources and waste

	Ireland		EU-27 average	rank in EU-27
	2004	2006		
Total waste generated (kg per capita)	6 086	7 129	5 987	21
– % hazardous	3%	2.4%	3%	
– % landfilled on total waste treated*	35.1%	31.2%	51.6%	9
– % incinerated on total waste treated*	1.1%	0.8%	4.9%	
– % recycled , on total waste treated*	63.7%	68.0%	43.5%	6

	2000	2007	2008		EU-27 average	rank in EU-27
Municipal waste generated (kg per capita)	603	788	733		524	25
– % landfilled	91.9%	59.3%	60.0%		39.5%	14
– % incinerated	0%	0%	2.6%		19.5%	
	2004	2006				
Households waste (kg per capita)	423	470			436	21
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	19.0%	54.5%	60.6%	55%-80% (by 2011)	58.0%	8 of 26

\* see Note to the reader

The significant fall in demand for recyclates in late 2008 led to the formation of an Action Group on Recyclate Markets. Following the publication of the first report by the group, the Environment Minister outlined a series of initial actions which include the development of a national brokerage service to sell Irish recyclables. Such a service would help Irish companies to broker better deals on world markets and could be used as a form of leverage in terms of a combined volume. The Minister also proposed issuing a circular to local authorities to prioritise enforcement activity as a way of deterring illegal dumping.

The management of biodegradable municipal waste is seen as one of the most pressing environmental problems facing Ireland, which risks missing an EU target for diverting biodegradable municipal waste from landfill. In 2009 a number of initiatives were undertaken to encourage the diversion of biodegradable waste from landfill. A consultation on the Draft Waste

Management (Food Waste) Regulations 2009 concluded in October. The draft Regulations will require the separate collection and biological treatment of specified food waste from commercial premises and have the potential to divert significant amounts of commercial food waste from landfill towards more sustainable practices. The government also announced an increase in the landfill levy to 30 euro per tonne by 2010, 50 euro in 2011 and to 75 euro in 2012; and the introduction of an incineration levy at an expected rate in the range of 20 to 38 euro per tonne.

Uncontrolled burning (backyard burning) of waste is a significant unauthorised waste activity in Ireland and is the biggest source of dioxin emissions in the country. In September the government adopted new Waste Management (Prohibition of Waste Disposal by Burning) Regulations which strengthen the law against waste disposal by backyard burning. Failure to comply with the new regulations is an offence and fines of up to 3000 euro are applicable.

## Better regulation and implementation

	Ireland			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	34	35	34	451

In 2009 and late 2008, the ECJ issued its judgement on a number of cases against Ireland relating to implementation of the Urban Waste-Water Treatment Directive, three cases concerning the Environmental Impact Assessment Directive, a case related to public participation and access to justice, and a case relating to the disposal of domestic waste waters in the countryside through septic tanks and other individual waste water treatment systems. Cases brought against Ireland in 2009 include failures to comply with the Urban Waste Water Treatment Directive and the Environmental Impact Assessment Directive.

## Use of market-based instruments

	Ireland			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	9.1%	7.8%	8.3%	6.1%

In 2008, the Irish Ministry of Finance set up the Commission on Taxation to review the structure, efficiency and appropriateness of the Irish taxation system. The Commission's report, published in September 2009, recommended the introduction of a carbon tax on fossil fuels for sectors not covered by the EU ETS; replacing the Vehicle Registration Tax system by a system based on car

usage; introducing a car scrapping scheme; introduction of metered water charges; and charges for final disposal of domestic and industrial waste. In December 2009, the government followed up a number of the proposals of the Commission on Taxation with the announcement, in its 2010 Budget of a new carbon tax to be applied to non-ETS sectors starting at 15 euro per tonne, the introduction of water charges for homes based on consumption above a free allocation, an extension of existing tax breaks for electric cars, and a car scrapping scheme of 1500 euro for vehicles over 10 years old.

## Environmental technologies

A key objective of the government's plan to build a smart economy is to make Ireland an innovation and commercialisation hub in Europe, focusing on research in renewable energy and environmental technologies. In July, the government published a report on 'Technology Actions to Support the Smart Economy' which identifies key actions to deliver critical technology infrastructure and knowledge-intensive projects to develop a smart economy. These actions include the establishment of energy efficient data centers, smart electricity networks, and a marine testing centre. In 2009, the Environment Protection Agency awarded almost 2 million euro to 15 companies under the Cleaner, Greener Production Programme which grants aid to companies to develop technology driven solutions to environmental issues.

## Green economy initiatives in the economic recovery plan

In December 2008, the government published a plan to reorganise Ireland's economy over the next five years - 'Building Ireland's Smart Economy: A Framework for Sustainable Economic Renewal'. The plan reiterates government commitments to increasing energy efficiency and encouraging renewables. A number of actions set out in the plan have subsequently been introduced by the

government, e.g. the introduction of a carbon tax, launch of a national cycling strategy, publication of the Sustainable Travel and Transport Action Plan and the National Energy Efficiency Action Plan. Certain measures included in the plan had been included in previous government strategy documents, e.g. placing smart meters in homes as a test project (launched in 2008 under the National Smart Meter Plan); while others expanded existing measures, e.g. increasing the range of energy efficiency equipment that qualify for accelerated capital allowances. Some measures have yet to be implemented in coming years.

Three working groups were established to advise on specific points of the government's plan: the Knowledge Society, the Green Enterprise Action Group and the Innovation Taskforce. The first two groups concluded their work and proposed specific projects. The report of the Green Enterprise Action Group was launched in December 2009 and identifies a number of areas for future action including the establishment of green enterprise zones, support for green R&D, waste management; water and waste water treatment.

A report by Comhar Sustainable Development Council notes that since July 2008 the government has committed to spending approximately 700 million euro (0.37% of GDP) on green stimulus programmes. The majority of this spending is on water infrastructure, grant schemes for home insulation improvements and smarter travel areas. In addition to this, an estimated 17 billion euro investment in the low carbon sector is estimated to have already been committed for the 2008-2020 period. This much larger figure includes private sector investment in renewables through the REFIT (Renewable Electricity Feed-In Tariff) scheme; investment in the electricity transmission and distribution network as well as investment in public transport and on the Ocean Energy Programme.

## Outlook for 2010

A Climate Change Bill is to be introduced in 2010 and is expected to set a long-term target to reduce emissions by 80% compared to 1990 levels by 2050. Key provisions of the Bill will include: incorporating a carbon levy into the annual carbon budget; placing the National Climate Change Strategy on a five-year cycle beginning from 2011-15; setting up a Climate Change Committee of high-level experts to advise the government; and introducing carbon offsetting or trading schemes to cover specific economic sectors or types of emissions. A national climate change adaptation strategy is also expected to be adopted in 2010. The strategy will provide a framework for the integration of adaptation into decision-making at the national and local level and is expected to outline how Ireland should adapt to climate change across various sectors.

A Second National Biodiversity Plan was under development in 2009. The consultation process continued throughout 2008/2009 and a new plan is expected in 2010. The revised Plan is expected to take into account the successes and difficulties in implementing actions in the previous Plan, the value of measures in contributing to conservation and sustainable use of biodiversity, the changing status of biodiversity, and emerging issues and developments.

Following the publication of the international review of waste policy in November 2009, the government is developing a new policy statement on waste which is expected to provide a framework within which necessary legislative changes can be brought forward to achieve a wholly sustainable approach to waste management in Ireland. The policy statement is expected to be published in 2010.



## Italy

### Highlights in 2009

In July the government signed a “Pact for the Environment” with 11 Italian industrial sectors to fight air pollution and climate change. The agreement establishes important investments for the period up to 2012 by supporting investments in new environmental technologies, including in carbon

capture and storage techniques.

During 2009 Italy worked to solve the waste crisis in Campania, by reinforcing the measures approved in 2008. It ordered the construction of new incinerators and designated new areas for the creation of landfill. A new waste incinerator has been inaugurated nearby Naples.

The government also approved a new law which revises the national 2006 “Unique Environmental Text”, and seeks to streamline the environmental legislation in Italy. An important change introduced by this law is that the parliament transfers its prerogative to propose new environmental decrees on waste management, protection of natural resources, and protection of natural areas to the government. New environmental decrees are expected to be presented by the government in 2010.

### Climate change and energy

	Italy				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	549.8	552.6	541.5	483.2 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	450.8	459.1	452.9		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	122.4	128.8	123.9		961.8	
					<b>EU-27 average</b>	<b>rank in EU-27</b>
– per capita (tonnes CO <sub>2</sub> eq.)	9.7	9.3	9.1		9.9	11
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	461.6	428.7	425.7		458.8	10
– trend (% change compared to base year*)	+6.4%	+6.9%	+4.8%	-6.5% (by 2008-12)	-14.3%	20



	Italy				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-5.1%	-6.5%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-6.7%	(by 2008-12)	-16.5%	

\* Base year is 1990.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Italy only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment

	Italy				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	155.1	146.5	144.7	130 (by 2012-15) for EU-27	153.5	3
Electricity produced from renewable energy sources (% gross electricity consumption)	16%	13.7%	16.6%	22.55%	16.7%	10
– from hydropower	13.8%	9.1%	11.6%	(by 2010)	9.7%	
– from wind	0.2%	1.1%	1.4%		3.5%	
– from biomass	0.5%	1.9%	2.1%		3.2%	
– solar	0%	0%	0.2%		0.2%	
– geothermal	1.5%	1.5%	1.5%		0.2%	
Energy from renewable energy sources (% gross final energy consumption)	5.3%	5.2%	6.8%	17.0%	10.3%	19
	(2006)			(by 2020)		
Combined heat and power generation (% gross electricity generation)	8.3%	10.3%	9.5%	18% (by 2010) for EU-15	11.0%	18
Energy consumption per capita (kg oil eq.)	3 068	3 134	3 042		3 616	10
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	147	144	143		167	5

With greenhouse gas emissions 4.8% above base year levels in 2008, Italy is far from meeting its target (-6.5% by 2008-2012). Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Italy is projected to achieve its non-ETS part of the target using existing and additional measures, Kyoto mechanisms and carbon sinks.

Following the adoption of the climate and energy package in April 2009, Italy agreed to reduce greenhouse gas emissions in non-ETS sectors (e.g. buildings, road transport and farming) by 13% by 2020 compared to 2005 levels. Furthermore, Italy has committed to achieve a share of energy from renewable sources in gross final energy consumption of 17% by 2020.

In July the government signed a “Pact for the Environment” with 11 Italian industrial sectors to fight air pollution and climate change. The agreement establishes important investments for the period up to 2012 by supporting investments in new environmental technologies, including in carbon capture and storage techniques.

Around 2 billion euro has been allocated through the Cohesion Policy 2007-13 for actions to combat climate change which is the highest in any EU Member State. In this context, Italy has also the highest financing in the EU on clean energies and energy efficiency with 1.85 billion euro allocated representing 6.6% of the total funds to the country.

## Nature and biodiversity

	2000	2007	Italy 2008	2009	target	EU-27 average	rank in EU-27
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		19.0%	19.0%	19.1%		17.6%	
Sufficiency of site designation under the Habitats Directive	98%	99.8%	99.8%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	8.0%	8.9%	7.75%			4.5%	7
Freight transport (billion tkm)	207.6	204.8	205.1			EU total 2469.6	
– % road*	89.0%	87.6%	87.8%			76.7%	18 of 26
– % rail*	11.0%	12.3%	12.2%			17.4%	17 of 26

\* 2008 dates are estimates.

Out of the Cohesion Policy funds relating to the 2007-2013 period, over 300 million euro were allocated for biodiversity and nature protection, promotion of natural assets and natural heritage. Concerning EU funds under the European Agricultural Fund for Rural Development (EAFRD) for the 2007-2013 period, 8 billion euro has been attributed to Italy. 45% of this budget has been allocated under axis 2 which encompasses Natura 2000 payments, agro-environmental payments, support for non-productive investments and forest – environment payments.

About an 8% share, or approximately 1 million of hectares, of agricultural area is dedicated in Italy to organic agriculture. In 2009, the government published two decrees establishing a 'National Programme for the Organic Agriculture' to which 2 billion euro is allocated. The decrees define the categories of initiatives which could be potentially financed by the government.

In April 2009, Italy hosted the G8 Environment Summit in Sicily and put biodiversity conservation on the agenda by dedicating a session to the post-2010 Biodiversity Strategy. Environment Ministers adopted the "Carta di Siracusa" together with Ministers from eleven other countries and representatives from international organisations. The document underlines the relationship between biodiversity and climate, focusing particularly on the role of ecosystems for mitigation of and adaptation to climate change. Strengthening and restoring the resilience of ecosystems, as well as ensuring a steady flow of ecosystem services, were also recognised as essential for human

well-being and for the achievement of the Millennium Development Goals. Special emphasis was given to the definition of a common path towards the post-2010 targets for biodiversity.

In the same month, the European Commission closed an infringement case against Italy concerning requirements under EU nature protection laws and the construction of moving dams in the Venice lagoon. The dams are intended to reduce the risk of flooding, and so protect the city, but at the same time they have an impact on the ecological value of the lagoon. As a result of measures proposed by the Italian authorities to limit the extent of damage to the ecosystems and compensate for the impact, and in view of the objectives of the project, the Commission has closed the case.

In November 2009, the Commission called on the European Court of Justice to issue an injunction against Italy to suspend the implementation of a newly adopted law of region Lombardy, in order to prevent the hunting of protected bird species in this region. The Court issued such an injunction in December 2009. Court action was already pending against a number of Italian regions, including Lombardy, for the practice of allowing hunting derogations which do not comply with the strict conditions laid down in the Birds Directive. However, the Commission decided to take urgent action after Lombardy passed new legislation which again allowed the hunting of four protected species for the hunting season 2009-2010.

## Environment and health

	Italy				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	44.4	38.8	34.3	30.0	26.8	21 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	8 577	7 218	6 224	5 462	3 884	23 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	749	339	294	475	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	1 434	1 147	1 067	990	10 397	
– non-methane volatile organic compounds (NMVOCs)	1 565	1 194	1 125	1159	8 296	
– ammonia ( $\text{NH}_3$ )	450	418	406	419	3 799	
	1990	1998	2007			
Water exploitation index	n.a.	24.0%	n.a.			24*

\* The ranking is based on the data of the last available year.

In order to anticipate the potential health effects of climate change, such as increased mortality, the Welfare Minister proposed, in May 2009, a law to monitor all the people at risk. The monitoring focuses on people over 65 years of age living with physical, economical or social difficulties. Among this group of people, a higher incidence of diseases is predicted. Heat waves, for example, are likely to result in more cardiovascular diseases. Regional register offices dedicated to such sensitive populations as well as systems of epidemiological surveillance have been put in place in 27 cities between May and September 2009.

In 2009, the Italian government continued implementing the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Directive and additional financial resources were attributed. In the context of REACH implementation, a series of workshops for industrial stakeholders were also organised by the Ministry of Economical Development.

In order to have a survey of the present state of European waters, Article 5 of the Water Framework Directive requires, for each river basin district, an analysis of its characteristics, the review of the impact of human activity and an economic analysis of water use. In 2009, the Italian Centre for the River Requalification analysed the river basin management plans and highlighted that the data regarding the ecological status of the Italian rivers are not fully consistent with the reporting requirements under the Water Framework Directive. Italy carried out consultations in 2009 on draft River Basin Management Plans<sup>8</sup>, and published the plans in early 2010.

<sup>8</sup> Directive 2000/60/EC, article 14 (consultations), article 13 (establishment of plans by 22.12.2009) and article 15 (reporting of plans).

In June 2009, the European Commission took legal action against Italy over breaches of the EU legislation on waste water treatment. Around 500 towns and cities are listed as not having waste water treatment up to EU standards, thus resulting in a failure to comply with obligations for water treatment foreseen in the Urban Waste Water Directive.

## Natural resources and waste

	Italy			EU-27 average	Rank in EU-27	
	2004	2006	target			
Total waste generated (kg per capita)	2 415	2 639		5 987	6	
– % hazardous	4.4%	4.8%		3%		
– % landfilled on total waste treated*	37.0%	27.3%		51.6%	7	
– % incinerated on total waste treated*	7.3%	7.5%		4.9%		
– % recycled , on total waste treated*	55.7%	65.2%		43.5%	8	
	2000	2007	2008			
Municipal waste generated (kg per capita)	509	550	561	524	17	
– % landfilled	75.6%	52.0%	49.2%	39.5%	10	
– % incinerated	7.7%	12.2%	12.3%	19.5%		
	2004	2006				
Households waste (kg per capita)	538	554		436	26	
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	38%	54.9%	56.8%	55%-80% (by 2008)	58.0%	13 of 26

\* see Note to the reader

Italy is a country which is subject to natural disasters such as landslides, floods, and earthquakes. It is estimated that the national territory surface under hydro geological risk is equivalent to the 7.1 % of the total territory or more than 5000 municipalities. In 2009 for instance, a landslide in Messina, Sicily, caused the death of 60 people. An earthquake in the Abruzzi caused the death of 308 people and injured 1500. The landslide in Messina renewed the debate on land use and soil management. According to Italian experts calling for better urban planning it is the uncontrolled urban sprawl in the area which, having provoked damages to hydro geological equilibrium, might have caused the disaster. To be better prepared to face natural disasters the government, in its 2007 Financial Act, foresaw increased monitoring activities and authorised an expenditure of 750 000 euro per year over the 2007-2009 period.

Due to the disorganisation of waste collection, tonnes of household waste had accumulated in the streets of cities in Campania in 2008. In 2009 the Italian government worked further on emergency measures towards solving the waste crisis. A new incinerator was inaugurated in the Naples area in 2009 and the Italian army and the civil defence were actively involved in the implementation of the new regulatory framework designed to bring an end to the crisis. In December 2009, the situation had improved and the government requested the resignation of the Mayors of the municipalities which had not complied with the law. In June, the European Commission took legal action against Italy over breaches of EU legislation on waste. Italy has been sent a final written warning suggesting the country could face fines unless it rapidly takes action towards closing and cleaning up thousands of illegal and uncontrolled waste disposal sites across the country.

## Better regulation and implementation

	Italy			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	60	45	35	451

In July 2009, a law introducing provisions to facilitate the transposition of the EU Community Directives at the national level was approved. The law includes general and specific instructions and guidelines for the implementation of several EU Directives. In the environmental area, this law defines how to transpose three EU Directives: the Directive on air quality, the Directive on the protection of marine environment and the Directive relating to the assessment and management of environmental noise.

## Use of market-based instruments

	Italy			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	7.4%	6.0%	5.7%	6.1%

## Environmental technologies

In September 2009, the role of the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) was redefined. The Agency's activities will focus on research, innovation technology and advanced

services in the field of sustainable economic development and energy including nuclear energy. In 2009, the Agency started developing several strategic projects in areas such as carbon capture technologies, renewable energy sources, and biofuels.

### Green economy initiatives in the economic recovery plan

The national recovery package for Italy presented several green economy initiatives, including low interest rate loans to support low carbon technologies, income tax deduction for energy efficient building renovations as well as high-energy efficiency domestic electric appliances, televisions and computers, and investments in public transport and railways. The government also decided to install a car scrapping scheme: a contribution of 1500 euro was granted for end-of-life vehicles of the category Euro 0/1/2 and the simultaneous purchase of new vehicles included in the categories Euro 4/5 emitting less than 140 g of CO<sub>2</sub> per kilometre.

### Outlook for 2010

The initiative 'Environment 2010' will involve the main institutional and non-institutional actors (e.g. researchers and non-governmental organisations) in the field of biodiversity in order to contribute to the dissemination of monitoring data on biodiversity in Italy. This will be undertaken in line with the Convention on Biological Diversity and to the EU Action Plan to 2010 and beyond.

The programme "School, Environment, Legality" has been conceived by the Ministry of Environment and the Ministry of Education with the aim to promote environmental awareness and sustainable consumption habits among the youth throughout the school year 2009-2010. The two Ministries will jointly allocate funds for the implementation of the project.





## Latvia

### Highlights in 2009

Latvia has been strongly affected by the global economic crisis. As a consequence of this downturn an important institutional reform was carried out in 2009 with the aim to optimise the functioning of existing structures and rationalise the

budgets. In the field of environmental public administration, several structures were reorganised or merged. For instance, a single state-owned company named Latvian Environment, Geology and Meteorology Centre, Ltd. replaced the Latvian Environmental, Geological and Meteorological

Agency and The Hazardous Waste Management State Agency in August 2009. The new company's mission is to gather information about the environment and sustainable development, ensure the monitoring of the country's environment and provide information on environmental issues.

Meanwhile, Latvia has showed commitment to the reduction of CO<sub>2</sub> emissions. The aim of the Latvian government to reduce the country's energy dependence, together with the objectives set out in the EU climate and energy policy, resulted in the government setting the promotion of the use of sustainable energy as a priority for 2009. Hence, support for increasing energy efficiency measures, use of cogeneration and renewable energy and the development of environmental technologies were promoted in 2009 through multi-annual plans, calls for proposals, amendments to existing laws and new legislative initiatives. For instance, the targeted share of electricity produced from renewable energy in the total electricity consumption for 2010 was revised upwards from 49.3% to 54.5%.

### Climate change and energy

	Latvia				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tons (Mt) CO <sub>2</sub> eq.	10.2	12.3	11.9	23.8 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	7.4	8.9	8.5		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	2.2	3.8	3.6		961.8	
					EU-27 average	rank in EU-27
– per capita (tons CO <sub>2</sub> eq.)	4.3	5.4	5.2		9.9	1



	2000	2007	2008	target	EU-27 average	rank in EU-27
– per GDP (tons CO <sub>2</sub> eq. per 1000€ GDP)	1 203.1	790.4	799.9		458.8	19
– trend (% change compared to base year*)	-60.6%	-52.6%	-54.1%	-8.0% (by 2008-12)	-14.3%	1
Projected 2008-2012 emissions compared to base year:	On track to meet its Kyoto target					
– with existing measures, Kyoto mechanisms and carbon sinks				-8.0% (by 2008-12)	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks					-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

	Latvia				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	192.4 (2004)	183.5	180.6	130 (by 2012-15) for EU-27	153.5	27
Electricity produced from renewable energy sources (% of gross electricity consumption)	47.7%	36.4%	41.2%	49.3%	16.7%	3
– from hydropower	47.6%	35.2%	39.9%	(by 2010)	9.7%	
– from wind	0.1%	0.7%	0.8%		3.5%	
– from biomass	0%	0.6%	0.6%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	31.3% (2006)	29.7%	29.9%	40.0% (by 2020)	10.3%	3
Combined heat and power (CHP) generation (% of gross electricity generation)	n.a.	40.9%	33.6%	18% (by 2010) for EU-15	11.0%	4
Energy consumption per capita (kg oil eq.)	1 573	2 088	2 023		3 616	2
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	441	307	309		167	19

The Kyoto target for Latvia for the period 2008-2012 is to achieve an 8% decrease compared to the base year level. In 2008, the country's greenhouse gas emissions were already 54.1% lower than the base year emissions. This, together with the most recent projections for 2010 indicate that Latvia is well on the way towards fulfilling its Kyoto commitments.

Following the adoption of the climate and energy package in April 2009, Latvia agreed not to allow its greenhouse gas emission growth in non-ETS sectors (e.g. buildings, road transport and farming) to exceed 17% by 2020 compared to 2005 levels. Furthermore, Latvia has committed to achieving a share of 40% of energy from renewable sources in gross final energy consumption by 2020.

The government commitments with regard to climate change are outlined in the Climate Change Mitigation Programme in Latvia 2005-2010. This includes the following priorities: raising energy efficiency, designing an environmentally acceptable transport system, and implementing best available and clean technologies. In the course of 2009, Latvia has signed contracts with the governments of the Netherlands, Portugal, Austria, Spain and Japan on the sale of emission units in the framework of the international emission trading scheme linked to the Kyoto Protocol mechanism. The sale has brought in more than 180 million euro to the Latvian State.

In 2009, Latvia created a specific mechanism called the Climate Change Financial Instrument to administer and manage revenues from the international emission trading scheme. It was decided that all revenues obtained by Latvia in this framework until July 2013 would be used to finance activities related to the use of renewable energy sources, such as solar, wind, hydro, geothermal, as well as investments in the areas of energy efficiency and waste management.

Funding is given to projects which are selected through open calls for proposals. For instance, in September a call for proposals to increase energy efficiency in buildings yielded 69 project applications for improving energy efficiency in 253 buildings for a total cost of 44 million euro<sup>9</sup>.

The Strategy of the Development of Energy Sector for 2007-2016, approved by the government in 2006, set up several measures to reduce Latvia's energy dependency and to ensure a sustainable use of energy. Under this Strategy in 2009 two calls for proposals were launched, aiming to diversify the supply of primary energy resources and increase self-provision of electricity, lessening amounts of imported fossil fuel and decreasing CO<sub>2</sub> emissions. Those calls concerned the Development of Combined Heat and Power installations using renewable energy sources and Measures Regarding the Increase of Efficiency of Centralised Heat Supply Systems. Both will be co-financed by European Structural Funds and will be administered by the Ministry of Economy.

In 2009 the legislative framework regulating high efficiency cogeneration plants as well as green electricity producers has been modified. Hence, since March 2009 electricity producers in high efficiency cogeneration mode can opt for guaranteed capacity payments (a mechanism which can limit market risk) instead of electricity purchase obligation with feed-in tariffs. Producers of electricity generated from renewable energy resources benefit from a new price-setting mechanism. For the first time, the legislative framework gives them the opportunity to opt for guaranteed capacity payments.

<sup>9</sup> Amounts are reported in euro using the exchange rate 1 euro /0,68 LVL of end 2009.

## Nature and biodiversity

	Latvia					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under the Habitats and Birds Directives) as a % of terrestrial area		11.0%	11.0%	11.3%		17.6%	
Sufficiency of site designation under the Habitats Directive		89.4%	89.4%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	0.3%	8.2%	9.0%			4.5%	5
Freight transport (billion tkm)	18.1	31.5	31.9			EU total 2469.6	
– % road	26.5%	41.9%	38.7%			76.7%	1 of 26
– % rail	73.5%	58.1%	61.3%			17.4%	1 of 26

In May 2009, the government adopted amendments to the Law on Landowners' Rights to Compensation for the Legal Restriction established in Protected Territories, which provides compensation for the economic loss of owners whose land has been designated as Special Protection Areas (SPAs) and which is therefore subject to certain restriction with regard the forestry activities. In the context of the economic downturn and budgetary restrictions the amendments do not foresee compensations to owners in 2011 and 2012, however.

A Strategy for Environmental Monitoring programme 2009-2012 addressing inter alia the issue of biological diversity was adopted in March 2009 within the

framework of the Environmental Monitoring Programme 2006-2012. Environment monitoring aims at determining the situation of the environment in order to evaluate future tendencies and perspectives, as well as to base future policy recommendations on sound environmental data and information. The new Environmental Monitoring programme – being developed in 2009 – will include also the monitoring of Natura 2000 territories, which account for 11.3 % of the Latvian territory. The process of designation of Natura 2000 protected sea territory took place in Latvia in 2009 and 7 protected sea territories were created.

## Environment and health

	Latvia				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	n.a.	n.a.	23.8	30.0	26.8	10 of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	3 801 (1999)	1 758 (2006)	1 354	n.a.	3 884	2 of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	15	4	3	101	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	40	41	38	61	10 397	
– non-methane volatile organic compounds (NMVOCs)	56	57	54	136	8 296	
– ammonia ( $\text{NH}_3$ )	13	16	16	44	3 799	
	1991	2005	2007			
Water exploitation index	1.3%	0.7%	0.6%			1

A report on air quality was published by the Latvian Environment, Geology and Meteorology Agency in 2009. According to the report, the general air quality in Latvia is good, although  $\text{NO}_2$  and particles  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  in Riga exceeded allowed limits fixed in the Directive on ambient air quality. Amendments to the legislative Act regulating Procedure of Environmental Noise Assessment were proposed by the government in 2009 with the purpose of revising the definition of “marginal noise”.

Latvia started consultations in 2009 on draft River Basin Management Plans required by the Water Framework Directive, and published the plans with a slight delay in 2010.

## Natural resources and waste

	Latvia			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	542	810		5 987	1
– % hazardous	1.3%	3.5%		3%	
– % landfilled on total waste treated*	66.1%	59.4%		51.6%	17
– % incinerated on total waste treated*	3.2%	1.1%		4.9%	
– % recycled , on total waste treated*	30.7%	39.6%		43.5%	14
	2000	2007	2008		
Municipal waste generated (kg per capita)	270	377	331	524	3
– % landfilled	93.3%	85.4%	93.7%	39.5%	26
– % incinerated	0%	0.5%	0.3%	19.5%	
	2004	2006			
Households waste (kg per capita)	234	372		436	11
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	45.6%	42.2%	39.6%	55%-80% (by 2015)	24 of 26

\* see Note to the reader

In 2009, several legislative acts have been adopted in the field of waste management. For example, the Latvian government adopted rules obliging operators of landfill sites to carry out tests of underground water quality before starting their activities. Additionally, new requirements for waste collection, separation and composting places for biological waste were approved. This legislation sets out requirements for creation and management of different types of waste collection and sorting sites. In October 2009 draft amendments to the 'Law on End-of-Life Vehicles management' were submitted to the

government. They propose to set requirements for the producers of vehicles to encourage them to increase the use of recycled materials in production process of vehicles and other products.

The geological structure in Latvia is suitable for underground natural gas storage. In 2009, the only site where natural gas underground storage was performed has an active capacity of around 2.3 billion m<sup>3</sup> and ensures a stable supply of gas during the winter. Geological research has started in Latvia to identify other potential underground storage sites. The goal of this research is

to investigate possibilities for Latvia to integrate with the common natural gas system of Europe. The final report with the results of this geological investigation will be released in 2010.

## Better regulation and implementation

	Latvia			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	9	12	6	451

Reducing the administrative burden is an important issue for the Latvian government. Optimisation of the number of policy documents has also taken place in the framework of the institutional reform (mentioned above) in order to optimise budgetary means of various governmental structures. Other concrete steps have been initiated to lessen administrative burden such as the amendments to the Law on Pollution adoption in September 2009. Pursuant to those legislative changes, permits for certain categories of pollution will no longer be time-limited and the time dedicated to the assessment of operator's applications by the Ministry of Environment will be shortened. Furthermore, amendments to the Law on Natural Resource tax adopted by the parliament in May 2009 remove the obligation for economic operators holding category C polluting permits i.e. permits for activities of minor polluting effects, to submit declarations. Only notifications shall be submitted to the regional Environmental Board at least 30 days prior of such activities take place.

## Use of market-based instruments

	Latvia			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	8.1%	6.8%	6.7%	6.1%

The Law on Natural resource tax adopted in 2005 defines taxes on natural resources used for economic reasons. Taxes are applicable to extraction of natural resources, environmental pollution with waste storage, air pollution, water pollution etc. The use of subterranean structures such as pumping natural gas or greenhouse gases into geological structures is also covered by the tax. The purpose of the Natural resources tax is to restrict the inefficient use of resources and pollution of the environment by reducing the manufacture and sale of polluting substances, promoting the use of more efficient technologies, supporting the strategy of sustainable development in the economy, as well as ensuring a financial basis for environmental protection measures. In 2009, several amendments have been brought into the Law on Natural Resource Tax, in particular, relating to tax rates for waste disposal. From 2010 an increase in the tax rate will be applicable to the disposal of municipal waste and construction waste at landfill sites. In addition, there will also be an increase of the CO<sub>2</sub> tax rate for installations in energy sector starting from January 2010, and for industry installations from 2013.

## Green economy initiatives in the economic recovery plan

A programme aiming at ensuring the economic stability called Economic Stabilisation and Growth Revival Programme Action Plan adopted in late 2008 and amended in 2009, does primarily foresee measures in the fiscal, monetary and financial areas, in order to achieve sustainable growth of gross domestic

product and balanced state budget. However, outside the recovery programme, initiatives related to environment and aimed at stabilising the economy and promoting economic recovery have been pursued (e.g. energy efficiency, renewable energy related measures, promotion of green public procurement, etc.), in particular through budgetary amendments voted throughout 2009.

## Outlook for 2010

Among the main policy developments in 2010 is the finalisation of the draft National Sustainable Development Strategy until 2030. This is hierarchically the highest development planning document in the country and will set out long-term strategic goals and measures to be achieved for sustainable development in Latvia until 2030. In relation to environment, some of its strategic goals are: creation of an attractive living environment for the citizens and the preservation of the natural ecosystems; becoming an EU leader in the area of nature conservation, increase and sustainable use of nature capital and strengthening Latvia's position in EU in full and efficient exploitation of the local renewable energy potential.

Work on climate change and related issues will continue to be a priority area in 2010. Implementation of initiatives under the Climate Change Financial Instrument will continue with the aim to limit CO<sub>2</sub> emissions by improved energy efficiency and investment in new technology R&D projects. Finalisation of activities foreseen under the 'Energy Efficiency Action Plan 2008-2010 aiming at reducing CO<sub>2</sub> and improving energy efficiency will also take place in the course of 2010. Concerning the transposition of EU's energy and climate package, amendments to the current legislation to include aviation in the European Trading System are foreseen.

Nature conservation and protection of biodiversity will continue to be an important field of action in 2010. Protected sea territory areas will be set in the course of 2010, more specifically seven protected sea territories with a total area 436 662 ha will be created in order to protect biotopes, species habitats as well as rangy birds feeding and wintering grounds. The ports will not be included in protected zones, with the exception of Mersraga Port outer roadstead which provides the protection of certain species of birds.





## Lithuania

### Highlights in 2009

Environment policy in Lithuania mainly focused on climate change and energy related issues in 2009. The year started with the new government creating a new Ministry of Energy with competences over policies concerning energy efficiency, renewable energy sources and radioactive waste management.

Following the commitments taken by the Lithuanian government during the accession negotiations with the EU, the Ignalina Nuclear Power Plant was decommissioned by end of 2009. Since this power plant generated up to 70% of the country's electricity production, energy supply issues were at the heart of the public debate. A law on the alternative and renewable energy sources has been drafted and is expected to be passed in 2010. In order to tackle energy efficiency problems in the housing sector, the reform of the dwellings' renovation programme and the pursuit of financing of a large-scale household modernisation programme were identified in the government's programme. Concerning climate change, in 2009 the Law on Financial Instruments for Climate Change Management was adopted, stipulating the rights, duties and liability of economic actors whose activities result in greenhouse gas emissions. Lastly, Lithuania's National Sustainable Development Strategy was updated in 2009.

### Climate change and energy

	Lithuania				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	19.3	25.5	24.3	45.4 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	11.0	13.4	13.2		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	3.2	5.2	5.2		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	5.5	7.5	7.2		9.9	5
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	1 566.4	1 193.4	1 109.5		458.8	21



	2000	2007	2008	target	EU-27 average	rank in EU-27
– trend (% change compared to base year*)	-60.8%	-48.5%	-50.8%	-8.0% (by 2008-12)	-14.3%	3
Projected 2008-2012 emissions compared to base year:	On track to meet its Kyoto target					
– with existing measures, Kyoto mechanisms and carbon sinks				-8.0% (by 2008-12)	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks					-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	187.5 (2004)	176.5	170.1	130 (by 2012-15) for EU-27	153.5	23
Electricity produced from renewable energy sources (% gross electricity consumption)	3.4%	4.6%	4.6%	7.0% (by 2010)	16.7%	22
– from hydropower	3.4%	3.3%	3.1%		9.7%	
– from wind	0%	0.8%	1.0%		3.5%	
– from biomass	0%	0.4%	0.5%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	14.7% (2006)	14.2%	15.3%	23.0% (by 2020)	10.3%	9
Combined heat and power generation (% gross electricity generation)	n.a.	13.2%	12.7%	18% (by 2010) for EU-15	11.0%	10
Energy consumption per capita (kg oil eq.)	2 013	2 698	2 720		3 616	8
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	571	428	418		167	22

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

In 2008, Lithuania's greenhouse gas emissions were 50.8% lower than the base year level, compared to its Kyoto target of an 8% reduction for the period 2008-2012. According to the latest data, Lithuania is projected to significantly over-achieve its target.

Following the adoption of the climate and energy package in April 2009, Lithuania agreed not to increase its greenhouse gas emissions in non-ETS sectors (e.g. buildings, road transport, farming) by more than 15% by 2020 compared to 2005 levels. Furthermore, Lithuania has committed to achieving a 23% share of energy from renewable sources in gross final energy consumption by 2020.

Considering Lithuania's decommissioning of the Ignalina Nuclear Power Plant which took place on 31 December 2009, energy issues were among the top priorities on the political agenda this year. Energy saving and greater efficiency were seen as crucial points in this context. Steps forward have been also made in further developing national legislation on climate change management, namely by adopting, in July 2009, the Law on Financial Instruments for Climate Change Management. The law covers areas such as trading in allowances and

Kyoto units, joint implementation and clean development mechanism projects. It also foresees the preparation (without yet fixing the dates) of a National Strategy for Climate Change Management Policy and defines the main provisions of the Special Climate Change Programme, expected to start in 2010, which will raise additional funding for climate change management measures.

## Nature and biodiversity

	Lithuania				target	EU-27 average	rank in EU-27
	2000	2007	2008	2009			
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		13.9%	13.9%	13.9%		17.6%	
Sufficiency of site designation under the Habitats Directive		61.2%	61.2%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	4.5%	4.6%			4.5%	15
Freight transport (billion tkm)	16.7	34.7	35.2			EU total 2469.6	
– % road	46.6%	58.5%	58.0%			76.7%	3 of 26
– % rail	53.4%	41.5%	41.9%			17.4%	3 of 26

The number of Special Protection Areas (SPA), i.e. protected sites classified in accordance with the Birds Directive, has increased: 2 new national protected areas important for birds were established in 2009. An amendment of the ministerial order on Special Protection Areas designation was under preparation in 2009, which will design 5 new nationally protected areas as SPA. In addition, the amendment is to correct the boundaries of several existing areas and will add new qualifying species for several areas. Concerning the progress with

regard to the designation of Sites of Community Importance, which are classified in accordance with the Habitats Directive, 139 potential Sites of Community Importance were identified and information was sent to the European Commission.

In March 2009, a government resolution established a list of Lithuania's protected areas or parts of protected areas that contain territories important for conservation of natural habitats. In August 2009, a ministerial order laid down

the guidelines of analysing proposals (from non-governmental organisations and other legal and natural persons), on the designation of protected areas and of altering their boundaries and/or protection regimes. The order also established a commission in charge of carrying out this analysis on a regular basis. It comprises specialists from the Ministry of Environment and the State Service for Protected Areas under the Ministry of Environment.

Lithuania is one of the eight EU Member States involved in the Baltic Sea Strategy and Action Plan for the Baltic Sea region aimed, among other things,

at cleaning up the heavily polluted sea, interconnect grids and transport networks. The Strategy, on which the European Commission adopted a Communication presented mid-2009, aims at better integrating various initiatives by Member States and regional co-operation networks, focuses on the four core priorities environment, economy, energy and transport, safety and security. 80 flagship projects are listed in the accompanying Action Plan, which will be reviewed regularly.

## Environment and health

	Lithuania				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	23.3 (2004)	20.2	17.4	30.0	26.8	4 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	2 909 (2004)	1 995	3 617	3 456	3 884	15 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	5 867	
– sulphur dioxides ( $\text{SO}_2$ )	42	39	32	145	10 397	
– nitrogen oxides ( $\text{NO}_x$ )	46	69	68	110	8 296	
– non-methane volatile organic compounds (NMVOCs)	70 (2002)	74	71	92	3 799	
– ammonia ( $\text{NH}_3$ )	25	36	29	84	5 867	
	1990	2005	2007			
Water exploitation index	17.6%	9.7%	9.3%			13

The 2009 efforts to improve air quality are being made based on the National Programme 2008-2010 for dealing with air emissions. The programme forecasts the emission trends and establishes goals and measures in order to ensure that national emission ceiling targets for SO<sub>2</sub>, NO<sub>x</sub>, VOC and NH<sub>3</sub> are not exceeded by 2010. The programme provides for the preparation of some legal acts for energy, transport, industry and agriculture sectors on the reduction of

emissions; control and monitoring of the implementation of these legal acts and implementation of the measures for emission reductions.

Lithuania started consultations in 2009 on draft River Basin Management Plans required by the Water Framework Directive, but the plans have not yet been published.

## Natural resources and waste

	Lithuania			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	2 034	2 252		5 987	3
– % hazardous	1.3%	1.7%		3%	
– % landfilled on total waste treated*	73.3%	60.7%		51.6%	19
– % incinerated on total waste treated*	4.2%	3.2%		4.9%	
– % recycled , on total waste treated*	22.5%	36.1%		43.5%	18
	2000	2007	2008		
Municipal waste generated (kg per capita)	363	400	407	524	6
– % landfilled	94.8%	92.0%	90.2%	39.5%	24
– % incinerated	0%	0%	0%	19.5%	
	2004	2006			
Households waste (kg per capita)	175	382		436	14
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	32.7%	37.0%	42.9%	55%-80% (by 2012)	23 of 26

\* see Note to the reader

The National Strategic Waste Management Plan sets the target to expand, by 2009, the public municipal waste management service so it is used by at least 95% of the population. In 2009, this target was successfully achieved.

The infrastructure for waste sorting and recycling is not yet fully in place in Lithuania and most non-hazardous waste is disposed of in landfills. In 2009, reform of the municipal waste management system continued: 10 regional waste management systems have been created, establishing 10 regional waste management centres that manage 11 regional non-hazardous waste landfills. These modern and strictly controlled landfills are the only ones to be used in Lithuania because in July 2009, complying with the Landfill Directive, all landfills that do not meet the requirements were closed down. In 2009, several law amendments have been drafted concerning waste management, namely, the requirements to promote waste sorting and recycling, and to avoid untreated waste being disposed of at the landfills. The amendments should be discussed in the parliament in 2010.

## Better regulation and implementation

	Lithuania			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	10	14	11	451

The Programme on Better Regulation and the related Action Plan was adopted in February 2008 and amended in May 2009. The Programme aims at establishing a better regulatory policy, improving business and investment environment, reducing administrative burden and the delivery of public services.

Concerning the reduction of administrative burden in the environmental area, changes in the Pollution Tax Law, adopted in May 2009, will result in a fee to be paid once a year instead of the previous quarterly and half-yearly payments.

## Use of market-based instruments

	Lithuania			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	8.1%	6.0%	5.5%	6.1%

In June 2009, amendments to the Law on Pollution charges Tax were adopted. The new tax rates on pollutants discharged to the atmosphere from mobile sources (road transport, railway transport, ferry and air transport) were set. According to these amendments, all pollution charges from January 2010 will be paid once a year, on annual basis.

## Green economy initiatives in the economic recovery plan

In February 2009, the government approved the Economic Stimulus Plan providing for 1.65 billion euro (5.52 billion Litass) support for business. One of the five parts of the Plan concerns the extension of energy efficiency of buildings. The Lithuanian Plan also foresaw investment in public transport infrastructure and supporting energy generation from wind power. Energy-efficiency related identified in the Stimulus Plan are foreseen to be financed mainly using European Investment Bank and European Bank for Reconstruction and Development loans.

## Outlook for 2010

In 2010, given that the Ignalina Nuclear Power Plant has been closed down, Lithuania will be even more heavily dependent on imported energy sources and energy. There is a risk that trying to satisfy the energy demand by the existing fossil fuel power plants will make Lithuania's greenhouse gas emissions increase sharply, making the development of alternative energy sources ever more crucial. In this context, one of the main priorities in Lithuania's environment policy will be the development and adoption of the Law on Renewable Energy Sources.

Following the Law on Financial Instruments for Climate Change Management adopted in 2009, the secondary legal acts, such as rules on the management of the funds of the Special Climate Change Programme are expected to be adopted in 2010. This will allow the implementation of the projects under a Green Investment Scheme relating to energy efficiency enhancement and the promotion of renewable energy sources.

The Lithuanian government has committed to preparing a new biodiversity strategy in 2010 which should allow the integration of the protection of biodiversity into every sector of the Lithuanian economy and enforcing international obligations in order to halt biodiversity loss.





## Luxembourg

### Highlights in 2009

In April, the Luxembourgish parliament adopted a regulation introducing a financial support scheme for energy savings and renewable energy. Financial support to the energy performance of buildings is linked to the type of insulation works and to

the surface that is improved.

After the parliamentary elections in June, the government decided to merge different ministries into a new Ministry for Sustainable Development and Infrastructure with four departments: Environment, Transport, Public Works and Town and Country Planning. According to the government, this merger will ensure more coherence and faster decision making. In December, the new Ministry launched a public consultation on the preliminary version of the National Plan for sustainable development. It is meant to pinpoint the challenges that will need to be addressed and identifies a list of 14 unsustainable trends in areas such as the overuse of natural resources, including land and soil, the erosion of biodiversity, habitat fragmentation and the unrestrained growth of transport. It sets 18 objectives in response to these negative trends, such as related to sustainable town and country planning, sustainable consumption and production and protection of natural resources.

### Climate change and energy

	Luxembourg				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	9.9	12.8	12.5	9.5 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	8.3	11.3	11.0		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	4.8	6.6	6.7		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	22.8	26.9	25.8		9.9	27
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	450.1	433.6	423.4		458.8	8
– trend (% change compared to base year*)	-24.8%	-2.9%	-5.1%	-28.0% (by 2008-12)	-14.3%	16

	2000	2007	2008	target	EU-27 average	rank in EU-27
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-28.9%	-28.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-29.90%	(by 2008-12)	-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Luxembourg only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment

	Luxembourg				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	176.7	165.8	159.5	130 (by 2012-15) for EU-27	153.5	18
Electricity produced from renewable energy sources (% gross electricity consumption)	2.9%	3.7%	4.1%	5.7%	16.7%	24
– from hydropower	1.7%	1.3%	1.7%	(by 2010)	9.7%	
– from wind	0.4%	0.8%	0.8%		3.5%	
– from biomass	0.8%	1.3%	1.4%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	0.9% (2006)	2.0%	2.1%	11.0% (by 2020)	10.3%	26
Combined heat and power generation (% gross electricity generation)	17.7%	9.9%	11.9%	18% (by 2010) for EU-15	11.0%	13
Energy consumption per capita (kg oil eq.)	8 388	9 776	9 432		3 616	27
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	165	158	155		167	8



Luxembourg is far from achieving its climate change commitments. In 2008, Luxembourg's greenhouse gas emissions were 5.1% lower than the base year level, well above its Kyoto target of -28% for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Luxembourg is projected to achieve its non-ETS part of the target using existing measures, Kyoto mechanisms and carbon sinks. To address this key environmental issue, the government has launched several initiatives aimed at reducing emissions from transport, and other sectors by providing incentives for low-emission behaviour while at the same time penalising energy- and emission-intensive activities.

Following the adoption of the climate and energy package in April 2009, Luxembourg agreed to a 2020 reduction target of 20% in greenhouse gas emissions compared to 2005 levels in sectors like buildings, road transport and farming that are not covered by the Emissions Trading System. Furthermore, Luxembourg has committed to achieving a share of energy from renewable sources in gross final energy consumption of 11% by 2020.

In April 2009, the parliament adopted a regulation introducing a financial support scheme for energy savings and renewable energy. Financial support

for the energy performance of buildings is linked to the type of insulation works and to the surface that is improved, and can be provided either through investment in new highly efficient buildings or the energy improvement of already-existing ones. The law also introduces financial support for renewable energy installations such as solar thermal installations, photovoltaic installations, heat pumps, biomass boilers, and works to link households to a district heating network. The level of the subsidy depends on the type and the size of the facility. For example, for the installation of solar thermal installations financial aid of 50% of the effective costs can be provided. While the ceiling is limited to 3000 euro per project for schemes allowing for the production of hot water only, those for the production of hot water combined with heating the project support can be granted up to 5000 euro.

Throughout 2009, the government launched a series of public campaigns to make the population aware of the other financial support programmes to reduce energy consumption, such as through energy efficient cooling appliances, household appliances and low emission vehicles. For example, since January 2009, financial support of 150 euro is provided for the purchase of energy efficient refrigerators and freezers.

## Nature and biodiversity

	Luxembourg					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		17.8%	17.8%	17.8%		17.6%	
Sufficiency of site designation under the Habitats Directive	96.7% (2004)	96.7%	96.7%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	0.8%	2.6%	2.7%			4.5%	18
Freight transport (billion tkm)	8.7	10.3	11.2			EU total 2469.6	
– % road	87.8%	92.5%	94.2%			76.7%	22 of 26
– % rail	7.9%	4.1%	2.5%			17.4%	24 of 26

In April 2009, the former game enclosure, Grünewald, which totals an area of 4500 ha and is part of the largest forest area in Luxembourg, was officially opened to the public by the Minister of Environment. On this occasion, the Minister presented the 48 areas, including the Grünewald, which are in the process of being designated as Special Areas of Conservation (SACs) under the Habitats Directive.

In May 2009 a law concerning the evaluation of the impact on the natural and human environment of road, rail and airport infrastructure projects was adopted. The law specifies which information the developer needs to provide and the content of the impact analysis. It also provides guidance on the public consultation process and specifies the procedure for establishing compensatory measures.

## Environment and health

	Luxembourg				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	n.a.	n.a.	n.a.	30.0	26.8	
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	n.a.	n.a.	n.a.		3 884	
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	1	1	3	4	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	16	14	18	11	10 397	
– non-methane volatile organic compounds (NMVOCs)	10	9	4	9	8 296	
– ammonia ( $\text{NH}_3$ )	6	5	4	7	3 799	
	1990	1999	2007			
Water exploitation index	n.a.	3.7%	n.a.			8*

\* The ranking is based on the data of the last available year.

In March 2009, the government presented a draft Action Plan to combat the noise of the Airport of Luxembourg, in the context of the implementation of the EU Directive on the Assessment and the Management of Environmental Noise. Among the measures foreseen are a renewal of the fleets of Cargolux and Luxair, to set and optimise flight trajectories and to adapt a noise measurement system. In addition, based on a map of noise impact, subsidies will be made available to households for the acoustic insulation of buildings. As a next step, action plans were drafted for areas affected by noise levels over set thresholds and a public consultation took place in mid-2009. Once the public's views have been taken into account, the government will send them for approval by the European Commission.

One of the core objectives of the Water policy Framework Directive is to achieve good status of water in 2015. The Luxembourgish water management plan was presented to the public in December 2009. The plan foresees a total investment of 1.19 billion euro within the next 18 years to achieve a good status of all water bodies by 2027. An investment of 390 million euro is needed by 2015 to achieve a significant improvement of the quality of watercourses. Funds will also be provided for the improvement of the structure and ecological continuity of water courses to allow for the rehabilitation of certain habitats for fish and other species. In this context, investments will be undertaken to ease the passage of 45 "priority" dams.

## Natural resources and waste

	Luxembourg			target	EU-27 average	rank in EU-27
	2004	2006				
Total waste generated (kg per capita)	18 292	20 436			5 987	26
– % hazardous	1.5%	2.4%			3%	
– % landfilled on total waste treated*	45.7%	35.5%			51.6%	11
– % incinerated on total waste treated*	1.8%	1.8%			4.9%	
– % recycled , on total waste treated*	52.5%	62.8%			43.5%	10
	2000	2007	2008			
Municipal waste generated (kg per capita)	658	694	701		524	24
– % landfilled	21.0%	18.9%	18.7%		39.5%	7
– % incinerated	43.2%	35.3%	35.4%		19.5%	
	2004	2006				
Households waste (kg per capita)	486	408			436	15
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	45.0%	63.8%	62.5%	55%-80% (by 2008)	58.0 %	5 of 26

\* see Note to the reader

In November 2008, a law on the management of waste from the extractive industry was passed. This law transposed the Directive regarding the management of waste from the extractive industry. This new legislation applies to waste resulting from the extraction, treatment and storage of mineral resources and the working of quarries. This particular type of waste must be managed in specialized facilities in accordance with specific rules. For example, the operator from the extractive industry should establish a management plan for the reduction, treatment, and processing of the waste generated by the

mineral resource extraction process. The establishment of the management plan is meant to encourage a safe disposal of the extracted waste and in some cases its upgrade through recycling.

In May 2009, the government launched the public consultation procedure as part of the development of a new General Waste Management Plan which is meant to review and replace the previous one dating from 2000. In line with EU's approach to waste management the draft Plan sets waste prevention as

the priority, followed by the preparation for its reuse, recycling, other recovery methods such as incineration with energy recovery, with waste disposal as a last resort. The draft plan establishes the principles of auto-sufficiency and proximity, which requires that household waste is disposed of in a national waste disposal installation and that the land filling of inert wastes, such as sand, drywall and concrete, is done in the closest regional landfill.

## Better regulation and implementation

	Luxembourg			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	20	16	8	451

In 2004 the government created the Committee for the Reduction of the Administrative Burden, which is meant to ensure the integration of the “better regulate” criteria in the transposition process of EU Directives and the adoption of laws and regulations. Following this, an action plan was adopted in 2007. According to the government, out of the 85 actions in this Action Plan, 52 had been realised early 2009, 19 actions were being realised and 14 had yet to be realised.

## Use of market-based instruments

	Luxembourg			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	7.1%	7.1%	7.0%	6.1%

In March 2009, amendments were passed in the parliament related to the 2006 legislation introducing a yearly Tax on Road Vehicles which is calculated based on the CO<sub>2</sub> emissions of a car. The amendments foresee a partial reimbursement of the tax for large families and a full exemption for households including an invalid person. According to the Ministry for Sustainable Development and Infrastructure, about 15 500 households are expected to be able to claim the partial reimbursement for large families.

## Environmental technologies

In January 2009, the government gave its approval to the ‘Ecotechnologies Action Plan’. The Action Plan foresees to encourage the development of Luxembourgish eco-businesses and to create new activities. In February 2009, Luxinnovation – which is the national agency for the promotion of innovation and research – officially launched and presented a cluster for environmental technologies and sustainable development “EcoDev”, as announced by the Action Plan. The cluster aims to create a network for companies and R&D centres, and offers various services to businesses in the context of eco-innovation, such as advice on the national and EU sources of funding for R&D projects, investment decision support, and the organisation of working groups around specific R&D initiatives related to eco-technologies. One such working group, dealing with energy efficiency of buildings, was set up by the end of 2009.

## Green economy initiatives in the economic recovery plan

The Luxembourgish economic recovery plan was launched in March 2009. According to the government, the set of green measures within this plan are built around both the idea of advancing environment and supporting the purchasing power of consumers. For example, it includes an extension of

financial support for the promotion of cars with low CO<sub>2</sub> emission levels. The subsidy of 750 euro that was provided since January 2008 to those who bought a car emitting less than 120 g of CO<sub>2</sub>/km has been extended to legal entities. Since January 2009 this subsidy is also granted for the purchase of a vehicle which does not emit more than 160 g of CO<sub>2</sub>, provided the car is going to be used by a person suffering disabilities. The recovery plan also introduces a 'scrapping premium' which is granted when a new car with lower CO<sub>2</sub> emissions (120-150 CO<sub>2</sub>/km) is bought in exchange of a car older than 10 years. The premium ranges from 1500 to 1750 euro depending on the level of emissions. Taken together these two measures cost the state budget approximately 14.5 million euro to in 2009.

Other measures in the recovery plan seek to promote energy efficiency in households. Since January 2009 financial support is provided to natural persons and legal entities for the purchase of energy efficient refrigerators and freezers. The recovery plan also foresees an increase in subsidies for the promotion of energy efficiency of buildings targeted, for example, at energy efficiency improvements of existing houses and the installation of condensation boilers with a hydraulic balance. Furthermore, Luxembourg foresaw measures aimed at increasing the subsidies in the domain of renewable energy for buildings.

## Outlook for 2010

A National Pact for the Climate and Sustainable Development will be developed and presented by the government in 2010 for debate with stakeholders and approval by the parliament. It should establish mid-term and long-term objectives on climate action and sustainable development, and related policy initiatives.

Another upcoming item for the Ministry for Sustainable Development and Infrastructure is the simplification of administration. The objective is not to eliminate requirements but to increase the level of transparency by harmonizing the legislation, further coordinating procedures and establishing clear deadlines.

Regarding town and country planning, four 'Primary Sectoral Plans' (Housing, Landscape Conservation, Industrial Zones, and Transport) were developed 2009 and are expected to be approved in 2010.





## Malta

### Highlights in 2009

In the field of climate change and energy, in 2009 Malta presented a proposal for a national energy policy and a report on a national strategy of policy measures and reduction of greenhouse gas emissions, open to consultations. New regulations on

energy performance of buildings also entered into force.

Furthermore, the government announced a number of measures to improve and stimulate public transportation and released a draft air quality plan which aims to achieve a reduction in vehicle emissions, encourage modal shift,

reduce the traffic impact of new developments, manage the road network and promote cleaner vehicle technologies.

A draft update of the solid waste management strategy and a waste management plan for the period up to 2012 were published for consultation in 2009. Key aims of the strategy are to build new facilities for the treatment, recycling and disposal of waste; provide new systems for waste control and enforcement, and raise public awareness. Three waste water treatment plants have been developed in different parts of the country, in order to comply with the provisions in the Urban Wastewater Directive. Two plants are operational, the one in the southern part of Malta is expected to be operational in 2010 with EU co-financing.

In November 2009, the 'Eco Gozo' vision strategy was presented, which includes a wide range of ideas and measures to turn the Maltese island of Gozo into an eco-island by 2020. It is expected to be subject to another phase of public consultations to collect views on priority short-term actions.

### Climate change and energy

	Malta				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	2.6	3.0	3.0	No Kyoto target	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	2.3	2.7	2.7		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	0.5	0.5	0.5		961.8	
					<b>EU-27 average</b>	<b>rank in EU-27</b>
– per capita (tonnes CO <sub>2</sub> eq.)	6.8	7.4	7.2		9.9	4
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	615.5	628.5	606.8		458.8	15

	2000	2007	2008	target	EU-27 average	rank in EU-27
– trend (% change compared to base year*)	+26.9%	+46.9%	+44.2%	No Kyoto target	-14.3%	26
Projected 2008-2012 emissions compared to base year:				No Kyoto target		
– with existing measures, Kyoto mechanisms and carbon sinks					-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks					-16.5%	

\* No base year under the Kyoto protocol; change refers to 1990.

	Malta				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	148.8 (2004)	147.8	146.9	130 (by 2012-15) for EU-27	153.5	5
Electricity produced from renewable energy sources (% gross electricity consumption)	0%	0%	0%	5.0% (by 2010)	16.7%	27
Energy from renewable energy sources (% gross final energy consumption)	0.1% (2006)	0.2%	0.2%	10.0% (by 2020)	10.3%	27
Combined heat and power generation (% gross electricity generation)	0%	0%	0%	18% (by 2010) for EU-15	11.0%	27
Energy consumption per capita (kg oil eq.)	2 123	2 320	2 311		3 616	3
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	191	198	195		167	14



Malta has no quantitative emission reduction commitments under the Kyoto Protocol, but as an EU Member State, it is bound by the obligations set out in the Emissions Trading Directive. Malta also expressed the intention to change its status to Annex I under the Kyoto Protocol. Nevertheless, Malta's greenhouse gas emissions have almost doubled compared to 1990 levels.

Following the adoption of the climate and energy package in April 2009, Malta agreed to a maximum increase of its greenhouse gas emissions of 5% by 2020 (compared to 2005 levels) in non-ETS sectors (e.g. buildings, road transport and agriculture). Furthermore, the Maltese government has committed to achieving a share of energy from renewable sources in gross final energy consumption of 10% by 2020.

A proposal for an energy policy was published in April 2009, and a related public consultation closed in June. The draft policy identified six main priorities for action, including energy efficiency and emissions reduction. Notably, the policy contains a target of 9% energy savings by 2016 in end use, as well as a target of 10% of energy coming from renewable sources and a sub target of 10% of renewable fuels in transport fuels, in line with the EU climate and energy package.

In January 2009, a report provided by the national Climate Change Committee, contained more than 80 recommendations to the Maltese government on the Climate Change Strategy. In light of the consultation results, a finalised Strategy was presented in September 2009. It contains 96 actions in the field of energy, waste, water, transport and agriculture, which were meant to reduce greenhouse gas emissions by 108 GgCO<sub>2</sub> eq by 2020. Examples of actions include grants and eco-contributions to improve energy efficiency and stimulate the uptake of renewable energy technologies and efforts to continue the ongoing improvements of waste infrastructures. In April 2009 the Maltese government also announced it would explore the feasibility of the construction of 3 wind farm parks, one bigger off-shore and 2 smaller ones on-shore. In total, it could produce around 9.6 % of the country's electricity demand.

New regulations regarding energy consumption requirements for buildings came into force in 2009. These require the production of energy performance certificates prior to the issue of a development permit, in line with the requirement of the Energy Performance of Buildings Directive. The Maltese law also devises a common procedure to calculate the energy performance of buildings, sets minimum standards for new and renovated buildings and requires the inspection and evaluation of large heating and cooling equipments.

## Nature and biodiversity

	2000	2007	Malta 2008	2009	target	EU-27 average	rank in EU-27
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		12.1%	13.0%	13.0%		17.6%	
Sufficiency of site designation under the Habitats Directive		92.6%	92.6%	n.a.	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	0.2%	0.2%			4.5%	27
Freight transport (billion tkm)	n.a.	n.a.	n.a.			EU total 2469.6	
– % road	100%	100%	100%			76.7%	
– % rail*	—	—	—			17.4%	

\* The railway system is missing due to the geography of the country.

Spring hunting of quails and doves represents a significant threat to the Maltese biodiversity. In 2008 the European Commission took Malta to the European Court of Justice for failing to provide adequate protection for birds. In September 2009 the Court ruled that spring hunting was a breach of the obligations under the Directive on the conservation of wild birds.

Out of the Cohesion Policy funds relative to the 2007-2013 period, around 25 million euro were allocated for biodiversity and nature protection, promotion of natural assets and natural heritage. The Maltese Environment and Planning Authority applied in 2009 for a 6 million euro grant under the European Agricultural Fund for Rural Development for the development of management plans for all terrestrial Natura 2000 sites. The application is under examination and a final decision is expected in 2010. The completion of the plans is foreseen to last 3 years and is meant to be accompanied by a wide information campaign.

Following extensive public consultations in 2008-2009, the 'Eco Gozo' vision strategy was presented in November 2009. The document is a compendium of measures to turn the Maltese island of Gozo into an eco-island by 2020. Proposed environmental initiatives include measures on transport such as the setting up of an electric cab system, more efficient irrigation techniques, nature conservation measures including tree planting, and the exploration of opportunities for wind farms. In total, 25 million euro<sup>10</sup> was allocated to the initiative until 2012. It is expected to be subject to another phase of public consultations to collect views on priority short-term actions.

<sup>10</sup> Amounts are reported in euro using the exchange rate 1 euro = 0.429 MTL.

## Environment and health

	Malta				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	n.a.	29.3	n.a.	30.0	26.8	
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	n.a.	8 156.	6 318		3 884	24 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	24	17	16	9	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	8	12	11	8	10 397	
– non-methane volatile organic compounds (NMVOCs)	3	3	3	12	8 296	
– ammonia ( $\text{NH}_3$ )	2	2	2	3	3 799	
	1990	2005	2007			
Water exploitation index	31.8%	20.9%	20.9%			23

In September 2009 the government released a draft Air Quality Plan proposing a number of short- to medium-term policies to improve compliance with EU legislation, such as measures to encourage a modal transport shift and promote cleaner vehicle technologies. The final plan is expected to be adopted in 2010.

In 2008 Malta was one of the Member States with the highest percentage of bathing waters meeting the stricter EU guideline values, i.e. 94.3% of the bathing sites. A substantial improvement of bathing water quality is expected when new waste water treatment plants will become operational in 2010. The

new waste water treatment plant in the south of Malta was developed in 2009 and works are expected to be concluded in 2010. It will have a capacity to treat about 80% of all sewage generated in Malta.

Malta did not start the consultations on draft River Basin Management Plans, which should have started in December 2008 at the latest as required by the Water Framework Directive, and has not yet established final River Basin Management Plans.

## Natural resources and waste

	Malta			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	6 207	7 065		5 987	20
– % hazardous	0.1%	1.8%		3%	
– % landfilled on total waste treated*	98.6%	94.5%		51.6%	25
– % incinerated on total waste treated*	0.0%	0.0%		4.9%	
– % recycled , on total waste treated*	1.4%	5.5%		43.5%	25
	2000	2007	2008		
Municipal waste generated (kg per capita)	547	652	696	524	23
– % landfilled	85.0%	92.9%	93.1%	39.5%	25
– % incinerated	0%	0%	0%	19.5%	
	2004	2006			
Households waste (kg per capita)	250	250		436	3
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	n.a.	10.8%	n.a.	55%-80% (by 2013)	58.0%

\* see Note to the reader

Draft updates of the Solid Waste Management Strategy and the Waste Management Plan for the period until 2012 were released in 2009 for consultation. Key aims of the strategy are to build new facilities for treatment, recycling and disposal of waste; to provide new systems for waste control and enforcement, and to raise public awareness. In parallel, a Strategic Environmental Assessment (SEA) of the waste strategy has been prepared in September 2009. The Strategy is being revised to address the SEA findings and the comments raised during the consultation.

Maltese landfills were developed at a time when the full environmental impact of such operations was unknown. As a result, the Maltese islands were left with landfill sites that had no system in place to control landfill leachate or gas. The rehabilitation of three landfills, started in 2005, was meant to capture and treat landfill gases, reducing their emissions by 50%. The rehabilitation of one of the landfills was completed in 2009, while it is still ongoing in the other two installations. A system to contain landfill gases is also being developed in the disused dump of Marsascala. Works to convert the area into a family park started in 2009.

## Better regulation and implementation

	Malta			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	26	12	12	451

Out of a total of 451 environment-related infringement cases in the EU at the end of 2009, Malta accounted for 12 cases: 5 on air, 1 on water, 1 on impact, 1 on nature, 2 on waste, 1 on greenhouse gas emissions and 1 on information. Issues of nature (particularly bird hunting and trapping and infrastructural developments affecting Natura 2000 sites), EU environmental legislation relating to land use (EIA and SEA), waste management and air quality are seen as the most problematic areas.

In September 2009 the European Court of Justice ruled that, by authorising spring hunting of quails and turtle doves from 2004 to 2007, Malta failed to comply with the Birds Directive (see above). In October 2009 the European Court of Justice ruled that Malta has failed to fulfil its obligations under the Large Combustion Plants Directive, in relation to the operation of the Phase-One steam plant of the Delimara and Marsa power stations.

## Use of market-based instruments

	2000	Malta		EU-27 average
		2007	2008	
Share of environmental taxes in total tax revenue	13.1%	10.9%	10.2%	6.1%

A reform of the Annual Vehicle Registration and Annual Circulation Tax was introduced in 2009 with the aim to incentivise new vehicle buyers to purchase smaller and less polluting vehicles. Registration Taxes are based on CO<sub>2</sub> emissions and vehicle size, while the Annual Circulation Tax is based on the emissions and age of the vehicle.

Furthermore, in 2009, a number of market-based mechanisms to support improvements in energy efficiency and uptake of solar and wind energy have been set up for households and companies. These initiatives included the renewal of grants and tax credits for the purchase of solar water heaters and photovoltaic panels, the use of feed in tariffs (0.07/kWh) for excess electricity produced through solar panels and grants encouraging the use of roof insulation and double-glazed glass.

## Environmental technologies

The National Strategic Plan for Research and Innovation 2007-2010 identified Energy and Environment as a priority research area. Concerning Malta's dependence on imported fossil fuels, the development of alternative energy sources was highlighted as an important measure, as were improvements in the energy efficiency of buildings. Another aim of the plan is to improve the energy efficiency of the desalination process (which accounts for almost 60% of water provision in Malta) and the development of capacity to convert waste into 'green' energy (as incineration is not developed in Malta, and gas emissions are an issue in disused landfills). In 2009, design modification of reverse osmosis processes were completed and were estimated to lead to a 20% energy saving.

## Green economy initiatives in the economic recovery plan

Although not hit by the economic crisis as badly as other Member States, Malta has been negatively affected by the international recession. Though not presenting a specific recovery plan, Malta has included various measures directed towards the environment in the budgets of 2009 and 2010.

### Outlook for 2010

The Malta South wastewater treatment plant will become operational in 2010 and will feature anaerobic sludge digestion facilities with biogas production. The methane produced will be combusted in a Combined Heat and Power plant for energy recovery. In order to promote renewable energy sources, a scheme offering grants to households will allocate 3.8 million euro for photovoltaic systems and 4.2 million euro for solar water heaters. The government further announced the intention to set up a fund to help support investment and incentives on renewable energy which will be financed by an increase in excise duty of 0.035 euro per litre of petrol and 0.02 euro cent per litre of diesel. Malta also plans to apply an eco-contribution tax on the sale of incandescent and fluorescent light bulbs to encourage the purchase of more energy efficient equipments.





## The Netherlands

### Highlights in 2009

As in most EU Member States, Dutch governmental policies in 2009 were dominated by the impact of and the response to the economic recession. The Dutch economic recovery plan, presented in March, contains a package of measures with a total

value of 6 billion euro, of which about one third can be considered as an impetus for sustainable economic development. It includes, among others, investments in and subsidies for energy efficiency improvements, a scrapping scheme for old cars, and additional money for off-shore wind power, electric vehicles and environmental investments in agriculture.

On top of the measures in the recovery plan, a number of other environment and climate related initiatives were announced in 2009, including for instance

steps towards carbon capture and storage projects. A decision was also made on the subsidy scheme for renewable energy which will be financed in future by a surcharge on the electricity rates. A bill for a new system of car taxes ('kilometre pricing') was also presented but will be discussed further after the parliamentary elections in June 2010.

The national Dutch climate change objectives for 2020 are in some respects more ambitious than the Dutch commitments under the EU climate and energy package. As those national targets are unlikely to be achieved without additional policies, however, the government will review climate policies in 2010 and consider additional measures.

A further streamlining and simplification of environmental procedures and reducing administrative burdens was pursued in 2009, for instance by replacing individual environmental permits for many activities by general rules. For activities for which a permit is still required, a single permit was created covering all environmental and spatial aspects. In September, a 'Crisis and Recovery Act' was proposed which should speed up the realisation of several construction and infrastructure projects, such as by streamlining environmental procedures.

### Climate change and energy

	The Netherlands				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	214.6	206.9	206.9	200.2 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	164.7	167.8	172.1		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	32.9	35.7	36.0		961.8	

	2000	2007	2008	target	EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	13.5	12.6	12.6		9.9	21
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	513.4	432.8	424.3		458.8	9
– trend (% change compared to base year*)	+0.7%	-2.9%	-2.9%	-6.0% (by 2008-12)	-14.3%	17
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-6.4%	-6%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-6.40%	(by 2008-12)	-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	174.2	164.8	157.9	130 (by 2012-15) for EU-27	153.5	15
Electricity produced from renewable energy sources (% gross electricity consumption)	3.9%	7.5%	8.9%	9.0%	16.7%	15
– from hydropower	0.1%	0.1%	0.1%	(by 2010)	9.7%	
– from wind	0.8%	2.8%	3.4%		3.5%	
– from biomass	3.0%	4.5%	5.4%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	2.5% (2006)	3.0%	3.2%	14.0% (by 2020)	10.3%	24
Combined heat and power generation (% gross electricity generation)	37.6%	30.1%	33.6%	18% (by 2010) for EU-15	11.0%	3
Energy consumption per capita (kg oil eq.)	4 869	5 229	5 100		3 616	23
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	185	179	172		167	11

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Netherlands only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment



In 2008, the Netherlands' greenhouse gas emissions were 2.9% lower than the base year level, compared to its Kyoto target of -6% for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, the Netherlands is projected to achieve its non-ETS part of the target using existing measures, Kyoto mechanisms and carbon sinks.

Following the adoption of the EU climate and energy package in April 2009, the Netherlands agreed to reduce greenhouse gas emissions in non-ETS sectors (e.g. buildings, road transport and farming) by 16% by 2020 compared to 2005 levels. Furthermore, the Netherlands have committed to achieving a share of energy from renewable sources in gross final energy consumption of 14% by 2020.

The economic recovery plan, presented in March 2009, includes substantial funds for energy efficiency improvements in (semi-)public buildings and private dwellings, as well as from off-shore wind energy (contributing to the objective of 6000 megawatt capacity by 2020 compared to around 2000 megawatt in 2008). A scrapping scheme for old cars was introduced and electric vehicles will receive extra financial stimuli. Under the scrapping

scheme, more than 50 000 cars had been scrapped by the end of December 2009 and replaced by newer ones. In 2009, preparations also started for carbon capture and storage demonstration projects in the Netherlands.

The national climate change objectives for 2020 in some respects go beyond the Dutch targets under the EU climate and energy package and include a 30% reduction of greenhouse gas emissions compared to 1990, an average energy efficiency improvement of 2% per year, and a share of 20% renewable energy in primary energy use. According to the Dutch Environmental Report, however, it is unlikely that the national objectives for 2020 will be met with existing policies, even when the additional measures announced in 2009 are taken into account.

As of 1 January 2010, a new energy label for dwellings will be introduced. Among other aspects, stricter quality controls will apply to the certifying institutions. This improved scheme should enhance the uptake of the label. Under the previous system, the energy label was obligatory when a house was sold, however this obligation was not enforced and many houses were sold without a label.

## Nature and biodiversity

	The Netherlands					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		13.9%	13.9%	13.8%		17.6%	
Sufficiency of site designation under the Habitats Directive	100% (2004)	100%	100%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	1.6%	2.4%	2.59%			4.5%	20
Freight transport (billion tkm)	125.4	127.0	133.4			EU total 2469.6	
– % road	63.4%	61.4%	61.1%			76.7%	4 of 26
– % rail	3.7%	5.7%	4.4%			17.4%	21 of 26

\* The Netherlands has also an important Natura 2000 marine area, consisting of around 11.8 thousands km<sup>2</sup> in 2009

The national designation of all 162 Natura 2000 sites in the Netherlands is expected to be finalised in 2010. In some habitat types the quality of nature is also increasing. However, especially vulnerable ('Red List') species are still on the decline. Environmental (e.g. water, nitrogen) and spatial conditions remain bottlenecks for species preservation. Furthermore, according to the Dutch Nature Report, there is little interest in private and agricultural nature management and the quality of nature in agricultural areas is declining.

In 2009, a Task Force on Biodiversity and Natural Resources was established. This Task Force will propose concrete measures for biodiversity conservation and the sustainable use of natural resources. It should develop a vision on how the Netherlands can reduce its claim on natural resources and which additional efforts are possible to conserve valuable ecosystems in the Netherlands and abroad.

The Wadden Sea, one of the most important Dutch nature protection areas, which the country shares with Germany and Denmark, was added to the Unesco World Heritage List in June 2009.

A new system of subsidies for nature and landscape management was announced in 2009 and will be introduced as of 2010. It is intended to be less complicated and rigid than the previous one, and to provide a stable basis for long-term financing. For each type of nature management a standard cost price is calculated. In the government budget for 2010, a total amount of 500 million euro is included for nature protection.

The aforementioned Crisis and Recovery Act provides for a temporary standstill approach to nitrogen deposition of individual installations to sites that are vulnerable to nitrogen deposition. The new approach allows existing and new activities to take place only if total nitrogen deposition does not increase above 2005 levels.

## Environment and health

	The Netherlands				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	30.1	29.6	25.2	30.0	26.8	14 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	1 247	1 153	1 565	1 518	3 884	4 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	73	60	52	50	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	390	299	293	260	10 397	
– non-methane volatile organic compounds (NMVOCs)	227	164	160	185	8 296	
– ammonia ( $\text{NH}_3$ )	155	137	135	128	3 799	
	1990	2006	2007			
Water exploitation index	8.7%	10.9%	n.a			14*

\* The ranking is based on the data of the last available year.

The Netherlands has been granted a 'derogation' for the EU air quality standards for particulates (until mid-2011) and for nitrogen dioxide (until 2015). In order to achieve these standards, the National Cooperation Programme on Air Quality entered into force in August 2009. This programme provides for measures to improve air quality while leaving room for new spatial developments. Furthermore, a draft decree containing more stringent emission limits for medium-sized combustion plants will apply as from 2010. However, the derogation as granted may have changed in the meantime on the package National Cooperation Programme on Air Quality and so the Commission services are waiting for the final package to be communicated.

After intensive consultations with the Commission services, the Netherlands adopted a new nitrate action programme under the Nitrates Directive. The new programme forms the basis for extension of the derogation granted by the Commission which allows farmers, under strict conditions, to apply higher levels of livestock manure than the threshold set in the Nitrates Directive. The new programme and derogations applies for the period 2010-2013.

The Netherlands carried out consultations in 2009 on draft River Basin Management Plans required by the Water Framework Directive, and published the plans with a slight delay in early 2010.

## Natural resources and waste

	The Netherlands			target	EU-27 average	rank in EU-27
	2004	2006				
Total waste generated (kg per capita)	5 419	5 743			5 987	16
– % hazardous	2.2%	5.3%			3%	
– % landfilled on total waste treated*	22.8%	22.7%			51.6%	5
– % incinerated on total waste treated*	8.1%	8.5%			4.9%	
– % recycled , on total waste treated*	69.2%	68.8%			43.5%	5
	2000	2007	2008			
Municipal waste generated (kg per capita)	616	630	622		524	22
– % landfilled	9.3%	2.2%	1.1%		39.5%	2
– % incinerated	30.8%	31.7%	32.6%		19.5%	
	2004	2006				
Households waste (kg per capita)	581	576			436	27
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	59.0%	59.7%	60.7%	55%-80% (by 2008)	58.0%	7 of 26

\* see Note to the reader

In January 2009, the Minister of Environment, the organisation of Dutch municipalities and the industry using packaging signed an agreement on the separate collection of plastic packaging waste. The municipalities will either collect plastic packaging separately 'at the source' (which means that households have to offer it separately), or they can apply a system of 'post-separation', in which plastic packaging is separated from other waste in special installations.

## Better regulation and implementation

	The Netherlands			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	8	7	5	451

The government's objective is to reduce the administrative burden in the area of the environment by 25% between 2007 and 2011. Among other measures, it aims to achieve this by reducing the number of installations that need an individual environmental permit. Instead, more activities will be covered by general rules applying to all installations within a certain category of activities. Furthermore, a single permit covering all environmental and spatial aspects will replace a number of existing permits.

In September 2009, the government proposed a 'Crisis and Recovery Act', which should streamline and simplify procedures so as to speed up several kinds of construction and infrastructure projects, including for example wind energy parks. Among the regulatory changes is a reform of environmental impact assessment (EIA) requirements.

## Use of market-based instruments

	The Netherlands			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	9.8%	9.8%	9.9%	6.1%

The Dutch government aims at a further 'greening' of the fiscal system. Many of the green tax incentives (those existing, introduced in 2009 and planned for 2010) relate to motor vehicles and transport. They are intended to promote the use of energy efficient and low-emission cars and trucks. However, the tax on air travel tickets was terminated in 2009 as part of the Dutch Economic Recovery Plan.

In November 2009, a bill for a new system of car taxation was presented. Under this system (the 'kilometre pricing'), taxes on the purchase and possession of a car will be replaced by a tax per kilometre driven. However, a final decision will be taken only after new parliamentary elections in mid-2010.

In addition to the existing emissions trading schemes (the EU ETS and the national NO<sub>x</sub> trading which exists since 2005) a system for the equalisation of CO<sub>2</sub> emission reduction costs in the greenhouse horticulture sector has been developed, to be introduced in 2011.

With respect to green public procurement, the government's aim is to achieve 100% sustainable purchasing in central government in 2010. For municipalities, the target is 75% and for provinces and 50% for water boards in 2010. In 2008, the average for all public authorities was about 35%, with only the core departments of central government slightly exceeding 50%. In 2009, the official criteria for sustainable public procurement were finalized and published. They relate to 52 product groups, covering all main areas of government spending and including both environmental and social criteria.

## Environmental technologies

Fiscal incentives for innovative environmental investments amount to some 100 million euro per year, and the available budget has been increased under the economic recovery plan. Furthermore, various programmes have been approved in 2009 under the 'Innovation Agenda Energy' with a total budget of 264 million euro.

## Green economy initiatives in the economic recovery plan

The Dutch economic recovery plan, presented in March 2009 contains a package of measures with a total value of 6 billion euro, of which about one third can be considered as an impetus for sustainable economic development. It includes, among other measures, investments in and subsidies for energy efficiency improvements, additional money for off-shore wind power and electric vehicles, environmental investments in agriculture and a scrapping scheme for old polluting cars. On the latter, a subsidy between 750-1750 euro is given for scrapping older cars and vans being replaced by newer less polluting vehicles.



## Outlook for 2010

By mid-2010, an evaluation of the Dutch climate policies will be presented, and then the government will decide whether additional measures are needed to reach its objectives (30% reduction of greenhouse gas emissions in 2020 compared to 1990; average energy efficiency improvement of 2% per year; and a share of 20% renewable energy in primary energy use). The first monitoring of the National Cooperation Programme on Air Quality will be also finalised in 2010.

The Ministry of Environment will, together with social partners, formulate long-term objectives for the development of sustainable product chains. The results should lead to an 'environmental gain' of 20% in at least four product chains by 2015. An action plan to meet the emission limit values for ammonia from existing livestock housing will be implemented. A decree on emissions of particulate matter from livestock housing will also be introduced.



## Poland

### Highlights in 2009

Several important initiatives took place in 2009 in the area of climate change mitigation and adaptation. A new institution, the National Centre for Emission Balancing and Management was established in July 2009. Its main duty will be to manage the National Emission Register.

In the light of disputes in recent years between infrastructure development and environmental protection, such as in the Rospuda Valley case which was resolved in 2009, more attention has been given to the area of biodiversity protection. More specifically, to achieve better management of the Natura 2000 areas and better cooperation between stakeholders affected by the establishment of the Natura 2000 network, the government launched a project called Development of the Management Plans for the Polish Natura 2000 sites.

In the area of health and environment, the government adopted in June 2009 an act amending the previous one on chemicals. Penalties are introduced for non-compliance with the EU chemicals legislation REACH as well as institutions which are responsible for its control. In addition, a Polish regulation on the monitoring of air pollutants was adopted in 2009.

### Climate change and energy

	Poland				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	390.2	399.9	395.6	529.6 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	321.4	319.8	315.5		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	32.7	38.8	42.7		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	10.1	10.5	10.4		9.9	14
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	2 101.0	1 630.7	1 536.2		458.8	23
– trend (% change compared to base year*)	-30.7%	-29.0%	-29.8%	-6.0% (by 2008-12)	-14.3%	8

		target	EU-27 average	rank in EU-27
Projected 2008-2012 emissions compared to base year:	On track to meet its Kyoto target			
– with existing measures, Kyoto mechanisms and carbon sinks		-6.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks		(by 2008-12)	-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1988 and for F-gases is 1995.

	Poland			target	EU-27 average	rank in EU-27
	2000	2007	2008			
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	154.1 (2004)	153.7	153.1	130 (by 2012-15) for EU-27	153.5	9
Electricity produced from renewable energy sources (% gross electricity consumption)	1.7%	3.5%	4.2%	7.5%	16.7%	23
– from hydropower	1.5%	1.5%	1.4%	(by 2010)	9.7%	
– from wind	0%	0.3%	0.5%		3.5%	
– from biomass	0.2%	1.7%	2.2%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	7.4% (2006)	7.4%	7.9%	15.0% (by 2020)	10.3%	17
Combined heat and power generation (% gross electricity generation)	n.a.	17.3%	16.9%	18% (by 2010) for EU-15	10.9%	7
Energy consumption per capita (kg oil eq.)	2 348	2 565	2 591		3 616	5
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	489	399	384		167	20



In 2008, Poland's greenhouse gas emissions were 29.8% lower than the base year level, and much better than its Kyoto target of -6% for the period 2008-2012. Poland is projected to significantly go beyond its target.

Following the adoption of the EU climate and energy package in April 2009, a 21% EU-wide greenhouse gas emissions reduction target for 2020 (compared to 2005 levels) was agreed for power plants and large industrial emitters i.e. the sectors covered by the EU Emissions Trading System (ETS). Furthermore, Poland agreed to a maximum increase in its greenhouse gas emissions of 14% by 2020 compared to 2005 levels in non-ETS sectors. The Polish government has also committed to achieving a share of energy from renewable sources in gross final energy consumption of 15% by 2020.

In July 2009, the Polish parliament adopted the Act on the Management System for Greenhouse Gas Emissions or Other Substances. Its main objective is to use the surplus Assigned Amount Units granted to Poland under the Kyoto Protocol, to support a national system of "green investments" in order to finance initiatives in climate and air protection. This law sets up the National Centre for Emission Balancing and Management within the Institute of Environmental Protection in Warsaw (KOBIZE). The Centre will be responsible for the management of the National Emission Rights Register. The government was in 2009 also preparing the transposition of Directive on carbon capture and storage (CCS) into Polish law.

As concerns the EU Emissions Trading Scheme for the 2008-2012 trading period, the European Commission decided in 2007 that certain aspects of the Polish National Allocation Plan (NAP) were not compatible with the EU Emission Trading Directive. Poland brought an action against this decision before the Court of First Instance. In September 2009, the Court of First Instance annulled the Commission's first decision, and in December 2009, the Commission appealed against this judgment on a number of legal grounds. The appeal is pending before the European Court of Justice. In parallel, the Commission adopted in December 2009 a decision rejecting the original NAP. Taking into account the judgement of the Court of First Instance, the new decision did not indicate what changes to the original NAP would be acceptable to the Commission. As a result of the rejection, in April 2010, Poland has notified a new NAP which respects the terms of the Directive and is in line with the Commission decision of 2007. The plan maintains the total amount of allowances at 208.5 Mt per year. The only change to the earlier NAP concerns some technical rules governing the reserve of allowances not allocated to companies.

As regards renewable energy, the law on granting state aid for investments in the construction or reconstruction of power generation units from renewable sources was adopted in February 2009. It guarantees financial support for renewable energy plants in the range of 30% to 65% of investment costs.

## Nature and biodiversity

	2000	2007	Poland		target	EU-27 average	rank in EU-27
			2008	2009			
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		16.5%	18.1%	19.4%		17.6%	
Sufficiency of site designation under the Habitats Directive*		17.0%	17.0%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	1.9%	2.03%			4.5%	21
Freight transport (billion tkm)	128.0	205.4	213.9			EU total 2469.6	
– % road	56.9%	73.5%	77.1%			76.7%	15 of 26
– % rail	42.2%	26.4%	22.8%			17.4%	9 of 26

\* Data for 2007 and 2008 and assessment are under revision.

In April 2009 the Special Protection Areas network in Poland was recognised by the European Commission as completed. The Commission therefore decided to close the case against Poland following the designation of all sites necessary for the protection of birds within its territory. Moreover, a new proposal of Sites of Community Importance was submitted to the European Commission in October 2009. As of July 2009, Poland has designated 141 Special Protection Areas, which amounts to approximately 55 118 km<sup>2</sup> and 364 Sites of Community Importance with the total area of 28 911km<sup>2</sup>.

The Rospuda valley case, which was a conflict between the protection of parts of the Augustow Primeval Forest in north-eastern Poland and development plans for an expressway part of the Via Baltica road system, was resolved in 2009. The Natura 2000 site in the Rospuda river valley contains a mosaic of unspoilt habitats within one of the largest and best maintained primeval forests in Central Europe and pristine wetland. In 2007 the Polish authorities

gave contractors the go-ahead to start the works for constructing the road, which was immediately responded by Commission legal action requesting the European Court of Justice an injunction to prevent work from going ahead. As a result of this action, works on the road were halted. After extensive consultation of stakeholders, the Polish government announced in March 2009 it had selected a new route for the bypass, the so-called Raczki variant, located outside Natura 2000 sites. In light of the decision, the Commission has decided to withdraw legal proceedings. Another issue is a threat to the future of large parts of Europe's last ancient forest - Bialowieza Primeval Forest. It has been a UNESCO World Heritage Site since 1979.

Poland has received a first written warning from the European Commission for breaching nature protection laws by approving and almost completing an expressway in the Szczecin - Gorzów section that cuts through four Natura 2000 sites. In order to avoid this kind of breaches in the future, a

Strategic Environmental Assessment of the Program for Road Construction 2010 – 2015 has been launched at the beginning of 2010 and several other projects were initiated in Poland in 2009. One of them is called 'Development of the plans for protection of Polish NATURA 2000 sites'. It will cover around 300 NATURA sites. For each site workshops will be organised for all stakeholders (inhabitants, local government, NGOs etc.) in order to harmonise

management and allow for a smooth implementation of the development plans. The cost of the project is around 6 million euro<sup>11</sup> and is co-financed by EU funds.

<sup>11</sup> Amounts are reported in euro using the exchange rate 1 euro = 3.9 PLN

## Environment and health

	Poland				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, µg/m <sup>3</sup> )	41.8	34.0	33.4	30.0	26.8	20 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, µg/m <sup>3</sup> . day)	3 269	3 603	3 418	2 493	3 884	13 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides (SO <sub>2</sub> )	1 511	1 216	999	1 397	5 867	
– nitrogen oxides (NO <sub>x</sub> )	838	860	831	879	10 397	
– non-methane volatile organic compounds (NMVOCs)	599	568	583	800	8 296	
– ammonia (NH <sub>3</sub> )	322	289	285	468	3 799	
	1990	2005	2007			
Water exploitation index	24.0%	18.3%	n.a			21*

\* The ranking is based on the data of the last available year.

A new regulation on the monitoring of air pollutants was adopted by the Polish parliament in January 2009. For example, it sets levels for sulphur dioxide, nitrogen dioxide, carbon monoxide, PM10, benzene and ozone in the air. Criteria for the location of sampling points of the pollutant as well as the minimum number of measurement stations are also outlined.

In June, various amendments were adopted to the law on chemicals. For example, penalties were introduced for non-compliance with the EU chemicals

legislation REACH as well as institutions which are responsible for its control. Poland carried out consultations in 2009 on draft River Basin Management Plans required by the Water Framework Directive<sup>12</sup>, but the plans have not yet been published.

<sup>12</sup> Directive 2000/60/EC, article 14 (consultations), article 13 (establishment of plans by 22.12.2009) and article 15 (reporting of plans).

## Natural resources and waste

	Poland			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	6 579	6 991		5 987	18
– % hazardous	0.6%	0.9%		3%	
– % landfilled on total waste treated*	20.8%	17.3%		51.6%	3
– % incinerated on total waste treated*	3.3%	1.8%		4.9%	
– % recycled , on total waste treated*	75.9%	80.8%		43.5%	1
	2000	2007	2008		
Municipal waste generated (kg per capita)	316	322	320	524	2
– % landfilled	98.1%	74.2%	71.3%	39.5%	17
– % incinerated	0%	0.3%	0.6%	19.5%	
	2004	2006			
Households waste (kg per capita)	177	180		436	1
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	28.3%	37.1%	48.2%	55%-80% (by 2014)	58.0 % 19 of 26

\* see Note to the reader

Despite the transposition of numerous European Directives in the field of waste, in particular the Waste Electrical and Electronic Equipment Directive and the Directive on Packaging and Packaging Waste, shortcomings in implementation and waste management persist in Poland. To respond to this, a new Act on Waste was under preparation in 2009 and is expected to be adopted in 2010. However in order to implement the waste directives and Landfill Directive, in particular by the end of the transition period (July 2012), major investments in waste infrastructure are required.

A campaign focused on raising awareness of waste-related issues was launched in 2009. The principal objective of the project is to raise citizens' awareness and promote positive social attitudes to waste management. The main part of the campaign will be implemented in 2010 using different tools including media as well as direct educational and information activities.

### Better regulation and implementation

	Poland			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	13	16	23	451

The government adopted in March 2009 the objective of reducing the administrative burden in a number of priority areas. By the end of 2010, administrative burden should be reduced by 25% in the following areas: environment, land use planning, social security, labour law, and tourism services.

### Use of market-based instruments

	Poland			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	6.4%	7.7%	7.5%	6.1%

A new act was introduced in January 2009 regarding the conditions and procedures for granting financial aid to support projects related to environmental management systems and the implementation of eco-certified products under the Operational Programme Infrastructure and Environment 2007-2013. This law applies to companies that incurred costs associated with the implementation of environmental management systems (ISO 14001, EMAS) and eco-certified products between 2007 and 2013.

### Environmental technologies

The Ministry of Economy was developing a "Knowledge base" during 2009, which updates and promotes new technologies developed by scientific institutes and other research and development units supervised by the Ministry of Economy. The whole system will cover about 300 technologies, among which there are a number of environmental relevance.

Moreover, the Ministry of Environment has started to prepare a system of environmental technologies monitoring. This is the priority action under the Implementation Programme for the National Environmental Technologies Action Plan for 2007-2009 with a perspective for 2010-2012. The monitoring of an environmental technologies system will be probably be based on voluntary notifications.

## Green economy initiatives in the economic recovery plan

The Polish National Environmental fund was to elaborate new instruments to finance and co-finance investments in renewables. The fund will be fed by 250 million euro coming mainly from car registration tax revenues. This action was expected to produce investment worth 250-800 million euro boosting demand in construction sector at the same time.

## Outlook for 2010

Among the important initiatives planned for 2010 are the adoption of the Fifth National Communication under the United Nations Framework Convention on Climate Change and the Adaptation Strategy to Climate Change. Furthermore, Noise Action Plans and a new Act on Waste are being drafted and expected for 2010. In the area of air pollution, the National Implementation Plan for the Stockholm Convention on persistent organic pollutants is planned as well as a law on the system of balancing and accounting for the emissions of sulphur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) for large combustion sources.





## Portugal

### Highlights in 2009

Several important funds were created in 2009 in the context of environmental protection and improvement. In the area of nature conservation and biodiversity, the Fund for the Conservation of Nature and Biodiversity was launched. This fund

will have an important function as a promoter of nature conservation by focusing on the allocation of resources to projects and investments needed for management and conservation of nature in Portugal.

The National Fund for the Protection of Hydrological Resources was also set up in 2009, with the key objective of preventing and mitigating the impacts of pollution on water ecosystems. The fund aims to promote the rational use and protection of such resources by allocating funds to projects and investments that lead to their optimal use.

In the area of waste and resources management, a new law was passed which sets the legal and technical requirements for the landfilling of waste, as well as the technical requirements that must be observed in the construction, management and decommissioning of landfill sites. Legislation has also been adopted which introduces measures for the waste management of batteries and accumulators, as well as used cooking oils.

In the area of climate change, it was decided to fund three major projects under the Portuguese Carbon Fund to support the reduction of greenhouse gas emissions. A new Decree-Law was also adopted in 2009 to promote renewable energy in the area of transport.

### Climate change and energy

	Portugal				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	81.3	79.9	78.4	76.4 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	59.4	57.0	55.5		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	19.2	19.6	19.3		961.8	
					<b>EU-27 average</b>	<b>rank in EU-27</b>
– per capita (tonnes CO <sub>2</sub> eq.)	8.0	7.5	7.4		9.9	7
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	664.9	581.6	571.0		458.8	14

	2000	2007	2008	target	EU-27 average	rank in EU-27
– trend (% change compared to base year*)	+35.2%	+32.8%	+30.3%	+27.0% (by 2008-12)	-14.3%	24
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			26.8%	+27.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			25.9%	(by 2008-12)	-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	169.2	144.2	138.2	130 (by 2012-15) for EU-27	153.5	1
Electricity produced from renewable energy sources (% gross electricity consumption)						
– from hydropower	29.4%	30.1%	26.9%	39.0%	16.7%	8
– from wind	25.3%	18.4%	12.3%	(by 2010)	9.7%	
– from biomass	0.4%	7.4%	10.4%		3.5%	
– solar	3.5%	3.9%	3.9%		3.2%	
– geothermal	0.2%	0.4%	0.07%		0.2%	
			0.35%		0.2%	
Energy from renewable energy sources (% gross final energy consumption)	20.5% (2006)	22.2%	23.2%	31.0% (by 2020)	10.3%	5
Combined heat and power generation (% gross electricity generation)	10.0%	12.3%	11.9%	18% (by 2010) for EU-15	11.0%	14
Energy consumption per capita (kg oil eq.)	2 460	2 451	2 347		3 616	4
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	197	189	182		167	13

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Portugal only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment



In 2008, Portugal's greenhouse gas emissions were 30.3% higher than the base year level, which is well above its Kyoto target which allows a 27% increase for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Portugal is projected to achieve its non-ETS part of the target using existing measures, Kyoto mechanisms and carbon sinks.

Following the adoption of the EU climate and energy package in April 2009, Portugal agreed to a maximum increase of its greenhouse gas emissions by 2020 by 1% compared to 2005 levels for non-ETS sectors (e.g. buildings, road transport and agriculture). Furthermore, Portugal has committed to achieving a share of energy from renewable sources in gross final energy consumption of 31% by 2020.

A Decree-Law introducing an alteration to the national legal regime for the Emissions Trading Scheme was adopted in July 2009. It amends the 2004 Decree-law, which establishes the commercial regime for emissions licensing, and transposes into national law the Emission Trading Directive. Although the

new law does not change emission targets, it does alter some of the rules laid down by the previous law. For example, it offers some flexibility with regard to carbon credits, which may now be used at any moment throughout 2008-2012, as opposed to having limitation of annual use. Heavier penalties have also been introduced for a breach of terms in the license.

To support continuing efforts to reach Kyoto targets, a Decree-Law introducing mechanisms for the promotion of biofuels for road transport vehicles was adopted. It states that diesel fuel should be composed of 10% by the end of 2010. This percentage is above the 2010 voluntary target of 5.57%, as set in EU Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport.

The second round of applications to the Program for Project Support, granted by the Portuguese Carbon Fund, was launched in September 2009. In the first phase, the program supported three projects which aimed to reduce emissions of nitrous oxide, an important greenhouse gas.

## Nature and biodiversity

	Portugal			target	EU-27 average	rank in EU-27
	2000	2007	2008			
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		20.4%	20.3%	20.9%	17.6%	
Sufficiency of site designation under the Habitats Directive	81.6%	87.7%	87.9%	n.a	100%	
Area occupied by organic farming (% of Utilised Agricultural Area)	1.2%	6.7%	6.7%**	7%* (by 2008)	4.5%	9
Freight transport (billion tkm)	29.0	48.8	41.6		EU total 2469.6	
– % road	92.5%	94.7%	93.6%		76.7%	21 of 26
– % rail	7.5%	5.3%	6.1%		17.4%	20 of 26

\* Indicative target according to the proposed action plan, which was not implemented.

\*\* PT: 2008 data not available and estimates considers 2007 data

To meet some of the fundamental goals of the National Biodiversity Strategy Action Plan, which aims to promote and preserve areas of natural heritage and biodiversity, the Fund for the Conservation of Nature and Biodiversity was established in August 2009. The main objective of the Fund is to support the management of basic infrastructure to support conservation, particularly in relation to areas that comprise the Basic Network for Nature Conservation. The Fund focuses on the allocation of resources to projects and investments needed for management and conservation in Portugal. It promotes the valuation of biodiversity by compensating for the loss of biodiversity and developing market instruments that support biodiversity conservation policies.

In September 2009, the National Strategy for the Integrated Management of the Coastal Zone came into force. The strategy's main aim is to achieve the harmonious and sustainable development of Portugal's coastal area, taking on a systems approach, and valuing its natural resources. The strategy also aims to harmonise and reconcile the different policies that affect the coastal zone, to facilitate the balancing of interests of all those responsible for the management, planning, maintenance and development of these areas, as well as those who use it.

In February 2009, the European Commission issued stern warnings to Portugal for failing to take sufficient measures to protect nature. The cases concern the failure to designate a number of protected areas in Madeira and the Azores, as well as adopt the necessary conservation measures.

## Environment and health

	Portugal				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	32.4	30.4	24.3	30.0	26.8	12 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	2 203	3 969	2 698	1 632	3 884	9 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	281	154	107	160	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	299	263	252	250	10 397	
– non-methane volatile organic compounds (NMVOCs)	244	201	198	180	8 296	
– ammonia ( $\text{NH}_3$ )	63	52	51	90	3 799	
	1990	1998	2007			
Water exploitation index	9.9%	15.1%	n.a.			19

\* The ranking is based on the data of the last available year.

New air emissions limits were fixed, in June 2009, as part of a regime for the prevention and control of pollutant emissions into the atmosphere. Further, a National Fund for the Protection of Hydrological Resources was created in 2009 which aims to promote the rational use and protection of such resources by allocating funds to projects and investments that lead to their optimal use. Also a new system for the identification, management, monitoring and classification of bathing water, was adopted in 2009. This system was launched

as a response to the EU Directive concerning the management of bathing water quality.

Portugal did not start the consultations on draft River Basin Management Plans, which should have started in December 2008 at the latest as required by the Water Framework Directive, and has not yet established final River Basin Management Plans.

## Natural resources and waste

	Portugal			EU-27 average	rank in EU-27	
	2004	2006	target			
Total waste generated (kg per capita)	2 795	3 663		5 987	10	
– % hazardous	7.7%	15.7%		3%		
– % landfilled on total waste treated*	46.4%	53.5%		51.6%	13	
– % incinerated on total waste treated*	11.2%	7.2%		4.9%		
– % recycled , on total waste treated*	42.3%	39.2%		43.5%	15	
	2000	2007	2008			
Municipal waste generated (kg per capita)	472	472	477	524	11	
– % landfilled	71.6%	62.9%	64.4%	39.5%	15	
– % incinerated	20.3%	19.3%	19.1%	19.5%		
	2004	2006				
Households waste (kg per capita)	437	439		436	18	
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	31.0%	51.4%	56.5%	55%-80% (by 2011)	58.0 %	14 of 26

\* see Note to the reader

In 2009 a new law was passed which sets the legal requirements for the landfilling of waste, and also sets the technical requirements that must be observed in the conception, licensing, construction, use, decommissioning, and post-decommissioning activities of landfill sites.

New laws for the collection, storage, treatment and recycling of waste batteries and accumulators were adopted in 2009. Under these new laws, producers are responsible for taking the necessary measures to guarantee a 25% collection rate by the end of 2011, increasing to a 45% collection rate by the end of 2015 of portable waste batteries and accumulators. With regard to extended producer responsibility, producers are also required to design batteries that contain progressively fewer and fewer hazardous substances, and are designed in a way that facilitates their management at the end-of-life stage.

### Better regulation and implementation

	Portugal			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	26	21	23	451

According to an OECD report published in 2009, Portugal's transposition record for EU regulations is below the EU average. However, the Portuguese government adopted a resolution in late 2008 which reinforces the institutional framework for the transposition of directives. The resolution provides for the establishment of the System for Control of Normative Acts to monitor deadlines with respect to transposition of directives and adoption of secondary regulations.

A new law adopted in 2008 which aims to decrease the administrative burden for the industrial sector entered into force in 2009. The law seeks to adapt and accelerate the process of environmental permitting and to ensuring coherence with other permitting systems. This law has been set up in an effort to simplify

legislation and administration, with a view to achieving efficiency gains. It has also led to the establishment of the Industrial Activity Regime, which aims to safeguard health, safety and environmental quality in the framework of sustainable development and corporate social responsibility.

### Use of market-based instruments

	Portugal			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	8.0%	8.0%	7.2%	6.1%

To increase the electric vehicle fleet in Portugal, the government approved a 5000 euro subsidy for individuals wishing to purchase an electric vehicle. This figure rises to 6500 euro if the acquisition of the electric vehicle results in the disposal of an end-of-life vehicle at a certified treatment facility. However, it was announced in January 2010 that this measure will only be extended to the first 5000 electric vehicles purchased in Portugal before 2012.

In September 2009, the regime for the constitution, management, and functioning of the Organised Waste Market was established in Portugal. This voluntary economic instrument establishes a negotiating platform for buyers and sellers of various types of waste in Portugal and aims to facilitate and promote the trade of various types of waste, to enhance recovery and return in order to reduce the demand for primary raw materials, and to promote industrial symbiosis.

### Environmental technologies

Under the provisions of the National Technological Plan, the Support for Innovation Fund was created in late 2008 to promote renewable energy sources

and energy efficiency innovation. The fund is to finance the national scientific system in the field of innovation and technological development, primarily in the area of renewable energy with an emphasis on wind power. In February 2009, funding was approved for a third project under this scheme. The WindFloat project will involve the installation of wind turbines in marine areas that were previously considered inaccessible, such as areas with a depth of over 50 metres. The Budget Initiative for Investment and Employment programme was also launched, which will facilitate the development and introduction of solar panels, to improve the energy performance of residential buildings.

The Programme for Electric Mobility was launched in 2009. It establishes a network to recharge batteries for electric vehicles, and its pilot phase is due to end by 2011. The launch of this project has made Portugal the first European country to establish a national network for the recharging of electric vehicles.

### Green economy initiatives in the economic recovery plan

A Law establishing the budget programme for initiatives in investment and employment was established in March 2009. It contains measures to mitigate the effects of the 2008 financial and economic crisis, as well as to restore growth and employment. The majority of measures of environmental relevance in the programme relate to the promotion of renewable energy and energy efficiency, which are identified as priority areas. It was decided that in 2009 and 2010, additional support would be provided to improve the energy performance of residential buildings. An agreement was also signed in February 2009 between the Portuguese government and various financial institutions. It aims at establishing and regulating a protocol for the conditions to promote the installation of solar power equipment by individuals in residential buildings. Through this scheme, individuals receive immediate funding support for the purchase of solar power system and an additional tax break worth 30% of the cost of investment (with a ceiling of 796 euro). In 2009, Portugal also introduced a car scrapping scheme offering 1000 euro “eco-premium” for scrapping cars older than 10 years, and 1250 euro for cars older than 15 years.

### Outlook for 2010

Several Directives are expected to be transposed into national law in 2010, such as on the inclusion of aviation in the European Emissions Trading Scheme, on flood risk assessment and standards for environmental water quality and on the Directive on ambient air quality. In 2009, Portugal also prepared a new Nitrate action Programme and the designation of 4 new vulnerable areas (defined as ‘Litoral Centro’, ‘Campo Maior’, ‘Alter do Chilo’ and ‘Cano’) within the context of the Nitrates Directive. The programme is set to come into force in 2010. Further, a proposed National Climate Change Strategy has been published by the Portuguese Commission for Climate Change. It was sent for public consultation and expected for approval in 2010. It was also proposed that the Portuguese Carbon Fund will receive additional funding. The Spatial Plan for Maritime Spaces is also expected for 2010. One of the key objectives is to ensure the sustainable use, conservation and regeneration of maritime resources by directing present and future activities in this domain.



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## Romania

### Highlights in 2009

Climate change was the focus of Romanian environmental policy in 2009. Romania is projected to significantly surpass its target and will meet the Kyoto Protocol's commitments. It is estimated that Romania will have a potential

surplus of approximately 350 million Assigned Amount Units (AAUs) under the Kyoto Protocol. Under the 'Green Investment Scheme', this surplus will be put on the market and the proceeds of this sale will be used to finance environmental investments. The introduction of a tax on plastic bags, a car scrapping scheme and the adoption of implementation measures for the Environmental Technologies Action Plan 2010-2013 were other important measures in 2009.

The year 2009 was also highlighted by political changes and difficulties and the Romanian government resigned in October. A new government was appointed in December which introduced some institutional changes for environment policy such as the inclusion of forestry activities in the responsibilities of the extended Ministry of Environment.

### Climate change and energy

	Romania				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	136.2	152.6	145.9	255.9 (by 2008-12)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	94.9	104.0	100.1		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	9.4	12.9	14.7		961.8	
<b>Total Kyoto GHG emissions</b>					<b>EU-27 average</b>	<b>rank in EU-27</b>
– per capita (tonnes CO <sub>2</sub> eq.)	6.1	7.1	6.8		9.9	2
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	3 351.2	2 479.4	2 207.9		458.8	26
– trend (% change compared to base year*)	-51.0%	-45.1%	-47.6%	-8.0% (by 2008-12)	-14.3%	4

<i>Total Kyoto GHG emissions</i>		<b>target</b>	<b>EU-27 average</b>	<b>rank in EU-27</b>
Projected 2008-2012 emissions compared to base year:	On track to meet its Kyoto target			
– with existing measures, Kyoto mechanisms and carbon sinks		-8.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks		(by 2008-12)	-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1989 and for F-gases is 1989.

	Romania					
	2000	2007	2008	target	EU-27 average	rank in EU-27
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	n.a	154.8	156.0	130 (by 2012-15) for EU-27	153.5	13
Electricity produced from renewable energy sources (% gross electricity consumption)	28.8%	26.9%	28.4%	33.0%	16.7%	7
– from hydropower	28.8%	26.8%	24.8%	(by 2010)	9.7%	
– from biomass	0%	0.1%	0.03%		3.2%	
– from wind			0.01%		3.5%	
Energy from renewable energy sources (% gross final energy consumption)	17.5% (2006)	18.7%	20.4%	24.0% (by 2020)	10.3%	6
Combined heat and power generation (% gross electricity generation)	n.a.	10.7%	9.6%	18% (by 2010) for EU-15	11.0%	17
Energy consumption per capita (kg oil eq.)	1 653	1 877	1 887		3 616	1
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	913	657	615		167	26

In 2008, Romania's greenhouse gas emissions were 47.6% lower than the base year level, achieving more than the targeted reduction of -8% for the period 2008-2012. Romania is projected to significantly surpass its target and will meet the Kyoto Protocol's commitments.

Following the adoption of the climate and energy package in April 2009, a 21% EU-wide greenhouse gas emissions reduction target for 2020 (compared to 2005 levels) was agreed for power plants and large industrial emitters i.e. the sectors covered by the EU Emissions Trading System (ETS). Romania also agreed to a maximum increase of its greenhouse gas emissions of 19% by 2020 compared to 2005 levels in non-ETS sectors (e.g. buildings, road transport and farming). Furthermore, Romania has committed to achieving a share of energy from renewable sources in gross final energy consumption of 24% by 2020.

According to the government, Romania is not only expected to meet its Kyoto commitments, but, based on its greenhouse gas emission projections for the period 2008-2012 it will also have a potential surplus of approximately 350 million Assigned Amount Units under the Kyoto Protocol, which corresponds to emissions of 350 million tonnes of CO<sub>2</sub>. Under the 'Green Investment Scheme', these units will be put on the market and the proceeds of their sale will be used to finance environmental investments.

Financing Guidelines for the 'Green House' programme were published in October 2009. The programme is to provide financial support for the installation of solar, geothermal and wind energy systems for a maximum of 50% of the total project value (40% in the Bucharest-Ilfov area), not exceeding 30 million RON (around 7 million euro) per project. The other 50% of the total project value will have to be financed through other means, i.e. private investors.

## Nature and biodiversity

	Romania					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		13.2%	20.5%	17.9%		17.6%	
Sufficiency of site designation under the Habitats Directive			81.8%	n.a.	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	1.0%	1.0%			4.5%	25
Freight transport (billion tkm)	33.3	83.5	79.2			EU total 2469.6	
– % road	42.9%	71.3%	71.2%			76.7%	10 of 26
– % rail	49.1%	18.9%	17.9%			17.4%	13 of 26



Since November 2009, the National Agency for Protected Areas has been replaced by a Directorate within the Ministry of Environment. The Ministry Directorate takes over the responsibilities of the previous Agency for the preparation and implementation of the management plans for each of the areas designated for protection and will participate in the approval of environmental assessment studies for the main land-use changes and investments.

As of the end of 2009, Romania has failed to designate sufficient Special Protection Areas (SPAs) for birds, which is an obligation under the EU Birds Directive. Following written warnings in 2007 and 2008, the European Commission brought Romania before the European Court of Justice in December 2009.

Romania still needs to make further efforts with a view to improving the implementation of the protection regime under the Habitats Directive, in particular the provisions under Article 6(3) & (4) thereof. The most recent action taken by the new Directorate for the administration of protected areas was an open call to select administrators for those protected areas without administration.

Future actions will include completion of the Natura 2000 network as requested by the conclusions of the Biogeographical seminar held in Sibiu in 2008, the securing of better expert studies for informed project design, the introduction and monitoring of new indicators for complex performance measurement, the promotion of eco-efficient technologies, the consistent application of EU regulations regarding maritime zones, and the integrated management of coastal areas.

## Environment and health

	Romania				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, µg/m <sup>3</sup> )	53.0 (2004)	43.1	41.1	30.0	26.8	23 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, µg/m <sup>3</sup> . day)	6 333 (2004)	3 784	3 153	n.a.	3 884	11 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides (SO <sub>2</sub> )	460	575	562	918	5 867	
– nitrogen oxides (NO <sub>x</sub> )	304	309	295	437	10 397	
– non-methane volatile organic compounds (NMVOCs)	265	436	449	523	8 296	
– ammonia (NH <sub>3</sub> )	206	203	187	210	3 799	
	1990	2005	2007			
Water exploitation index	41.4%	2.4%	2.7%			6

In Romania, urban population exposure to air pollution by ozone is slightly lower than the EU average but exposure by particles this is 1.5 times higher (2007). Romania received a written warning by the European Commission in November 2009 regarding the country's failure to improve air quality, in particular air pollution by particle (PM 10) levels whose exceedances have serious impacts on human health. Romania had failed to provide the Commission with a notification in this regard by March 2009. In March 2010, Romania requested under article 22 of the Air Quality Directive an exemption from the obligation to apply the limit values on PM 10 until June 2011 for certain agglomerations and zones. The Commission is in the process of assessing this notification. It also needs to be mentioned that the notification made by Romania does not cover all agglomerations and areas that recorded exceedances.

During 2009, the connection of households to water networks increased from 49.46% in 2008 to 51.39%. Regarding sewerage networks, a household connection percentage of 42.65% was reached. At the same time, works for the modernisation of five wastewater treatment plants were finalised.

In June, the European Council requested the Commission to present a Strategy for the Danube region by the end of 2010. This strategy is then to be discussed and endorsed by the European Council in 2011 under the Hungarian EU presidency. The focus of the strategy will lie on transport, environment and economic development. Furthermore, it is expected to include concrete measures and identify Member State responsibilities for the actual implementation. In addition to Romania, Member States that are most concerned by this initiative are Austria, Bulgaria, Germany, Hungary and Slovakia.

Romania increased in 2008 its designation of nitrates vulnerable zones under the Nitrates Directive from 14% to 49% of its agricultural area. The Romanian authorities prepared in 2009 a new nitrates action programme for the new designated area that would take effect in 2010. In the context of the River Basin Management Plans required by the Water Framework Directive, Romania carried out consultations in 2009, but the plans have not yet been published as finally approved.



## Natural resources and waste

	Romania			target	EU-27 average	rank in EU-27
	2004	2006				
Total waste generated (kg per capita)	17 111	15 357			5 987	25
– % hazardous	0.6%	0.3%			3%	
– % landfilled on total waste treated*	96.4%	98.2%			51.6%	26
– % incinerated on total waste treated*	0.4%	0.4%			4.9%	
– % recycled , on total waste treated*	3.2%	1.4%			43.5%	26
	2000	2007	2008			
Municipal waste generated (kg per capita)	355	378	382		524	5
– % landfilled	82.8%	75.1%	75.1%		39.5%	20
– % incinerated	0%	0%	0%		19.5%	
	2004	2006				
Households waste (kg per capita)	168	295			436	4
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	n.a.	28.6%	30.6%	55%-80% (by 2013)	58.0%	25 of 26

\* see Note to the reader

The amount of glass, plastic, paper, and board packaging waste that is recycled in Romania is well below the EU average. In 2007, the recycling rate of packaging waste was nearly half of the EU 27 average at 30.6% compared to 58%. The amount of municipal waste collected in 2008 was 382 kg per capita, 75% of this was landfilled. For total waste, 98.2% of the total waste treated is landfilled.

In 2009 the Ministry of Environment together with economic operators organised recycling campaigns to raise the public's awareness of recycling,

especially regarding packaging, waste of electrical and electronic equipment and other waste. The campaign, which is called 'Recycling Movement' lasted four months and included public debates as well as communication campaigns through television, radio, print and online media.

Through a LIFE+ project, the Industrial Symbiosis concept brings together companies from all business sectors with the aim of improving cross-industry resource efficiency through the commercial trading of materials, energy and

water as well as by sharing assets, logistics and expertise. The concept was successfully implemented in the UK and is being tested in Romania with the view to develop it at national level in the future.

## Better regulation and implementation

	Romania			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	3	7	12	451

With the purpose of supporting the Action Programme for Reducing Administrative Burdens in the European Union, the Romanian government adopted the Strategy for Better Regulation at the Central Level of Public Administration 2008 – 2013 in 2008. In 2009, newly established executive and consultative structures were put in place. This is a process of a comprehensive re-evaluation of the national, sectoral and regional plans, strategies and operational programmes in order to make sure that they are in conformity with the principles and practice of sustainable development and with the evolving set of relevant EU regulations.

## Use of market-based instruments

	Romania			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	11.4%	7.1%	6.3%	6.1%

In July 2008, a pollution-based tax on cars was introduced to replace the former tax on the first registration of cars (effective from 2007 until July 2008). These amendments brought a fall in the number of new cars and boosted the import of second-hand cars. Therefore, the government decided via an emergency ordinance in December 2008 to triple the tax on second-hand cars, and to suspend it for new cars with 4 euro engines of up to 2 000 cm<sup>3</sup>. In June 2009, the Commission requested information from Romania as regards the legislation on the application of the car pollution tax. The Commission supports policy measures aimed at favouring less polluting cars, but they must be compatible with EU law. It is of the opinion that the provisions of the Romanian legislation, according to which the application of the pollution tax for certain motor vehicles is suspended while it is increased for certain used cars coming from other Member States, might discriminate against used cars brought from other Member States and protect the domestic new car industry.

In January 2009, a tax of 0.2 RON (around 0.05 euro) for each distributed plastic bag was introduced. Six months thereafter, the use of plastic bags had decreased by 30% and several big supermarkets decided not to provide them anymore. At the same time, many small district shops still offer plastic bags for free. The law was also criticised by some NGOs for being too vague. A follow-up is expected especially with respect to the definition of a biodegradable bag.

## Environmental technologies

According to the government, one of the main challenges for the promotion of environmental technologies in Romania is the lack of consistent statistical and comparable data on environmental technologies and eco-innovation. In May 2009, measures for the Romanian Roadmap for the implementation of the Environmental Technologies Action Plan corresponding to the period 2010-2013 were being discussed. An example of such a measure is the project

'Developing Emergent Ecological Markets in Romania' (ECOEMERGE). It has two sets of interrelated actions: one set of activities is directed at the private sector, improving technology transfer and the use of eco-innovative technologies and practices in industry and the other aims to promote green public procurement practices within the public administration. These activities will be implemented between July 2009 and April 2011.

### Green economy initiatives in the economic recovery plan

Romania was among those EU Member States that decided to introduce or extend car scrapping schemes as part of its economic recovery response. Romania introduced a premium of approximately 900 euro for scrapping a car more than 10 years old. The incentive was not specifically linked to CO<sub>2</sub> emissions of the new cars. At the end of 2009, 27 000 cars of the targeted 60 000 cars were scrapped and the programme was extended to 2010.

### Outlook for 2010

As part of the obligations of the EU Renewable Energy Directive, Romania will prepare and present to the European Commission a National Action Plan including concrete targets for the share of renewable energy sources used for transport, power generation, and heating and cooling along with the corresponding measures to meet those targets. Furthermore, the National Plan for the Implementation of the Environmental Technologies Action Plan will be adopted for the period 2010-2013.

In 2010 the Ministry of Environment and Forests will continue preparing urban infrastructure projects. Regarding water and waste water treatment, 23 projects with a total budget of 2.4 billion euro will be presented to the European Commission for co-financing approval. In the waste management sector the number of projects to be presented to the European Commission will be 21 with a total budget of 699 million euro. The latter represents a significant increase from the 3 projects with a total budget of 99 million euro that were approved in this sector in 2009. Finally, further initiatives and information on a revision of the pollution tax on cars are expected in 2010.

## Slovakia



### Highlights in 2009

In June, the Act on the Support of Renewable Energy Sources and Highly Efficient Combined Production was adopted. It will give renewable electricity producers and highly

efficient combined electricity and heat producers incentives such as a preferential connection to the grid and a minimum price as stipulated in the Decree of the Energy Regulation Office. Another initiative in the field of renewable energy – and also part of the Slovak National Recovery Plan – was the establishment of a grant scheme for households to incentivise the installation of solar panels and biomass boilers. Furthermore, the Slovak parliament adopted in 2009 an amendment to the Waste Act which introduced changes in the collection system of waste electronic and electrical equipment and batteries.

### Climate change and energy

	Slovakia				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	49.2	47.7	48.8	66.2 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	34.1	30.6	32.1		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	4.2	6.6	6.7		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	9.1	8.9	9.0		9.9	10
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	2 232.8	1 421.7	1 369.6		458.8	22
– trend (% change compared to base year*)	-31.7%	-33.7%	-32.2%	-8.0% (by 2008-12)	-14.3%	7

		target	EU-27 average	rank in EU-27
Projected 2008-2012 emissions compared to base year:	On track to meet its Kyoto target			
– with existing measures, Kyoto mechanisms and carbon sinks		-8.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks		(by 2008-12)	-16.5%	

\* Base year is 1990.

	Slovakia			target	EU-27 average	rank in EU-27
	2000	2007	2008			
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	na	152.7	150.1	130 (by 2012-15) for EU-27	153.5	8
Electricity produced from renewable energy sources (% gross electricity consumption)	16.9%	16.6%	15.5%	31.0% (by 2010)	16.7%	11
– from hydropower	16.9%	14.9%	13.7%		9.7%	
– from biomass	0%	1.7%	1.8%		3.2%	
– from wind			0.02%		3.5%	
Energy from renewable energy sources (% gross final energy consumption)	6.2% (2006)	7.4%	8.4%	14.0% (by 2020)	10.3%	15
Combined heat and power generation (% gross electricity generation)	n.a.	25.6%	24.0%	18% (by 2010) for EU-15	10.9%	5
Energy consumption per capita (kg oil eq.)	3 250	3 351	3 430		3 616	12
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	796	538	520		167	23

In 2008, Slovakia's greenhouse gas emissions were 32.2% lower than the base year level, compared to its Kyoto target of an 8% reduction during the period 2008-2012. According to the latest data, Slovakia is projected to significantly go beyond its target. Following the adoption of the climate and energy package in April 2009,

Slovakia agreed not to increase its greenhouse gas emissions in non-ETS sectors (e.g. buildings, road transport and farming) by more than 13% by 2020 compared to 2005 levels. Furthermore, Slovakia has committed to achieving a share of energy from renewable sources in gross final energy consumption of 14% by 2020.

The Act on the support of renewable energy sources and highly efficient combined production adopted by parliament in June 2009 guarantees renewable electricity producers and highly efficient combined electricity and heat producers preferential connection to the electricity grid and distribution of electricity within the regional network. It also introduces a minimum price which is set through Decrees from the Energy Regulation Office. The producers of renewable energy will also be reimbursed for network loss. Additional incentives are available to small scale producers. Apart from the preferential connection to the grid, all incentives are granted during the facility's first 15 years of operation with the exception of facilities with an output of less than one MW output, which are to be granted a lifelong support. Slovak renewable energy production mostly comprises large hydropower plants. Therefore, with this Act, the government hopes to achieve further diversification of renewable electricity sources in order to achieve its 2020 renewable target under the EU climate and energy package.

A grant scheme was opened in April 2009 to achieve the aim of a higher share of renewable energy as outlined in the Programme for Higher Utilisation of Biomass and Solar Power in Households adopted in 2007. This grant scheme distributes funding for installing solar panels on family houses or apartment blocks or installing biomass boilers with the first round of applications approved in October. Applicants may be granted a subsidy of 200 euro per m<sup>2</sup> on solar panels installed on a family house, provided the total size of solar panels is no more than 8 m<sup>2</sup> (when the installed surface is larger 50 euro per m<sup>2</sup> is granted). Installations on an apartment building are eligible for a subsidy claim of 100 euro per m<sup>2</sup> of solar panels. The subsidy on biomass boilers is set at 30% of the purchasing price of the boiler but the maximum amount paid is 1000 euro. The grant scheme will be open until the total sum of 8 million euro is being allocated.

## Nature and biodiversity

	Slovakia					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		28.9%	28.9%	28.9%		17.6%	
Sufficiency of site designation under the Habitats Directive		72.3%	72.3%	n.a.	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	6.1%	7.3%		5% *	4.5%	8
Freight transport (billion tkm)	27.0	37.8	39.6			EU total 2469.6	
– % road	53.0%	71.8%	73.8%			76.7%	12 of 26
– % rail	41.7%	25.5%	23.4%			17.4%	7 of 26

\* Indicative target according to the action plan not yet implemented.



Slovakia has not yet published all of the designated NATURA 2000 sites. Out of 38 established terrestrial Special Protection Areas (SPAs), only 26 SPAs had been officially designated and published by the end of 2009 and only five of those were actually adopted during 2009.

Many valuable natural areas, primarily those in High Tatras National Park, in Slovakia were damaged in a large storm in 2004. To address this loss, and

increase the number of protected areas in the country, the government has been considering extending tourism facilities into SPAs. In November 2009 the government established an inter-ministerial Commission for Zoning in Special Protection Areas, which will draft a legislative proposal to modify nature protection laws accordingly. No official deadline for issuing this proposal has been announced.

## Environment and health

	Slovakia				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	28.5	26.3	25.0	30.0	26.8	13 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	6 734	5 735	5 118	4 424	3 884	19 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	127	71	69	110	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	107	97	95	130	10 397	
– non-methane volatile organic compounds (NMVOCs)	67	68	68	140	8 296	
– ammonia ( $\text{NH}_3$ )	32	27	25	39	3 799	
	1990	2005	2007			
Water exploitation index	2.6%	1.3%	0.9%			2

Industrial and agricultural activities which were toxic-intensive in the past have left Slovakia with the environmental burden of a number of contaminated sites. Some of these sites have been left abandoned which is a barrier to property development and urban development. To overcome this problem, the Operational Programme for Competitiveness and Economic Growth was launched in 2009, in the context of which projects seeking to create industrial

parks on brownfield sites or greenfield land (previously used for agricultural purposes) may apply for funding. The total sum allocated for this call is 50 million euro; with maximum 6 million euro being allocated for each project on a greenfield site and 10 million euro per project on a brownfield site. The greenfield projects should not benefit from more than 40 % of the funds. Municipalities and regions are eligible to apply.

A draft of the new Ambient Air Act which is meant to transpose Directive on Ambient Air Quality and Cleaner Air for Europe was published by the Ministry of Environment in September 2009. One of the new changes introduced is the setting of limit values and obligatory monitoring of PM<sub>2.5</sub>.

Slovakia carried out consultations in 2009 on draft River Basin Management Plans required by the Water Framework Directive, and published the plans early 2010.

## Natural resources and waste

	Slovakia			EU-27 average	rank in EU-27	
	2004	2006	target			
Total waste generated (kg per capita)	1 983	2 691		5 987	7	
– % hazardous	4%	3.7%		3%		
– % landfilled on total waste treated*	40.8%	55.8%		51.6%	14	
– % incinerated on total waste treated*	5.0%	4.3%		4.9%		
– % recycled , on total waste treated*	54.2%	39.9%		43.5%	13	
	2000	2007	2008			
Municipal waste generated (kg per capita)	254	309	332	524	4	
– % landfilled	77.2%	77.7%	76.5%	39.5%	21	
– % incinerated	15.4%	10.7%	8.7%	19.5%		
	2004	2006				
Households waste (kg per capita)	274	301		436	6	
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	36.3%	36.3%	61.1%	55%-80% (by 2012)	58.0%	6 of 26

\* see Note to the reader

The Slovak parliament adopted an amendment to the Waste Act in June 2009. It introduced changes in the collection systems of waste electronic and electrical equipment and batteries. Electronic and electrical equipment producers objected the amendment claiming that it would raise the price of electrical and electronic equipment by 10 to 20%. The bill was also vetoed by the Slovak President on the same grounds. The parliament addressed the President's objections and the bill was passed in September 2009 without the obligatory fee for producers of electronic and electrical equipment. Battery and accumulator producers are subject to the payment of this fee, however, starting November 2009 when the amendment entered into force.

Slovakia has some high quality uranium reserves - comprising almost 400 km<sup>2</sup> in total, most of which are located in Special Protection Areas (SPAs) which are part of the Natura 2000 network. In the last years several North American mining companies have applied to conduct geological research activities to investigate the potential for uranium mining in Slovakia. Although the Slovak government had declared that there were no prospects of allowing large-scale mining in the future, geological research started nevertheless in 2006. In September 2009, several environmental NGOs submitted to the Slovak parliament a petition signed by 113 000 people; calling on the Members of the parliament to outlaw uranium mining in Slovakia and to give municipalities stronger competencies in spatial planning. As a result of the discussion of petition claims during a session of the parliament in December, the parliamentary Committee for Agriculture, Environment and Nature Protection submitted bills to amend the Mining Act, the Geological Act and the Building Act to implement the petition's request.

## Better regulation and implementation

	Slovakia			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	8	15	19	451

In October 2009, the Ministry of Economy published the first results of a study which seeks to map out the administrative burden of entrepreneurship, as foreseen in the Action Plan to Reduce Administrative Burden of Entrepreneurship adopted in 2007. This Action Plan implements the EU Better Regulation Action Plan including the 25% target of lowering administrative burden of enterprises by 2012. The study results showed that the highest burden is attributed to laws on state health insurance (more than 50 %). The research also considered administrative burden imposed by environmental laws. This share was, however, minimal. Based on these results, concrete measures to lower administrative burden will be proposed by the Slovak government.

## Use of market-based instruments

	Slovakia			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	6.5%	7.2%	6.8%	6.1%

In 2009, the government amended the Act on Income Tax. This Act had introduced a rule in 2004 according to which a tax-payer may assign up to 2% of the total paid income tax to non-governmental non-profit organisations including environmental NGOs. After several proposals a consensus between the government and NGOs was reached in 2009 and a progressive reduction of the 2% tax assignment to NGOs was adopted.

### Green economy initiatives in the economic recovery plan

The Slovak National Recovery Plan, the Strategic Plan to Recover Economic Growth, was adopted in June 2009 and consists of a list of 62 concrete measures with a specification of the financial allocation and the Ministry responsible for each measure. Environmentally-relevant measures include fostering higher energy efficiency, applied research in the field of environment and the grant scheme to support biomass and solar energy. Further, Slovakia also introduced in 2009 a car scrapping scheme with a total budget of 33 million euro, offering 1000-1500 euro “eco-premium” for cars older than 10 years.

### Outlook for 2010

The new Ambient Air Act, which seeks to transpose the Air Quality Directive, is expected for 2010. Further, a reorganization is scheduled for 2010, transferring the environmental portfolio to the Ministry of Agriculture. In 2010, the government is also expected to present a document which re-designs the Natura 2000 network.





## Slovenia

### Highlights in 2009

In the last decade, the accession to the European Union facilitated the definition of the environmental legislation and green investments in Slovenia. In 2009, Slovenia has promoted green economy initiatives supporting clean and technologically

advanced industries. Several projects were launched in Slovenia to promote green growth – sometimes co-financed by the European Investment Bank. A review of environmental taxes was also carried out in order

to assess their effectiveness in achieving environmental goals and to eventually redefine tax rates.

Slovenia has set up a High Level Group on Climate Change. The objective was to prepare a platform to establish a comprehensive Slovenian policy strategy on climate change, including a possible drafting of Climate Change Law. In July 2009 the government passed a new Operational programme for the reduction of greenhouse gases emissions until 2012 which sets more strict and binding measures to be implemented in order to fulfil Kyoto obligations for Slovenia. It also places more emphasis on the regular monitoring of its implementation.

A number of national plans promoting sustainable tourism were also developed. They defined several measures, including the setting up of the basic sustainable conditions for tourism in protected areas, support to sustainable tourism infrastructure construction, and more stringent rules for green tourism investments such as the obligation to perform environmental impact assessment and environmental capacity assessment.

### Climate change and energy

	Slovenia				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	18.8	20.6	21.3	18.7 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	15.0	16.4	17.5		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	3.8	5.2	6.2		961.8	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	9.5	10.2	10.6		9.9	16
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	878.1	708.7	708.6		458.8	17

	2000	2007	2008	target	EU-27 average	rank in EU-27
– trend (% change compared to base year*)	-7.5%	+1.1%	+4.6%	-8.0% (by 2008-12)	-14.3%	19
Projected 2008-2012 emissions compared to base year:	On track to meet its target with existing and planned measures, including Kyoto mechanism and carbon sinks					
– with existing measures, Kyoto mechanisms and carbon sinks				-8.0% (by 2008-12)	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks					-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1986 and for F-gases is 1995.

	Slovenia				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	152.7 (2004)	156.3	155.9	130 (by 2012-15) for EU-27	153.5	12
Electricity produced from renewable energy sources (% gross electricity consumption)	31.7%	22.1%	29.1%	33.6%	16.7%	5
– from hydropower	31.2%	21.4%	27.2%	(by 2010)	9.7%	
– from biomass	0.6%	0.7%	1.95%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	15.5% (2006)	15.6%	15.1%	25.0% (by 2020)	10.3%	10
Combined heat and power generation (% gross electricity generation)	n.a.	7.2%	6.7%	18% (by 2010) for EU-15	11.0%	21
Energy consumption per capita (kg oil eq.)	3 226	3 644	3 848		3 616	17
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	299	252	258		167	18

In 2008, Slovenia's greenhouse gas emissions were 4.6% higher than the base year level, well above its Kyoto target of -8% for the period 2008-2012. However, Slovenia projects that it will meet its target when all the existing and planned measures will deliver as expected.

Following the adoption of the EU Climate and Energy Package in April 2009, Slovenia agreed to a maximum increase in its greenhouse gas emissions of 4% by 2020 compared to 2005 levels in non-Emission Trading System sectors (for example buildings, road transport and farming). Furthermore, Slovenia has committed itself to achieve a share of energy from renewable sources in its gross final energy consumption of 25% by 2020.

In 2009, the Slovenian government set up two main political tools to improve the implementation of the national and the EU legislation on energy and climate change. First, a High Level Group on Climate Change and a governmental Climate Change Service were set up in order to build a comprehensive Slovenian

policy strategy on climate change and draft a Climate Change Law. The group consists of State secretaries from the Prime Minister's Office, nine relevant Ministries and governmental offices. The purpose of this High Level Group is to steer domestic policies, stress the added value of a horizontal approach and recognise synergies among economic development and social cohesion.

Following this, the government approved a new Operational Programme for the reduction of greenhouse gas emissions until 2012, setting more strict and binding measures to be implemented in order for Slovenia to fulfil its Kyoto obligations. The Programme also aims to strengthen the efforts to reduce greenhouse gas emissions and put more emphasis on the regular monitoring of its implementation. Its preparation was based on the review of the implementation of the earlier versions from 2004 and 2006. It concluded that from 25 key measures only 10 were implemented in a satisfactory way. The greatest deficit was identified within the transport sector.

## Nature and biodiversity

	Slovenia				EU-27 average	rank in EU-27
	2000	2007	2008	2009	target	
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		35.5%	35.5%	35.5%		17.6%
Sufficiency of site designation under the Habitats Directive		72.6%	72.6%	n.a.	100%	
Area occupied by organic farming (% of Utilised Agricultural Area)	n.a.	6.0%	6.1%		20% * (by 2015)	4.5% 11
Freight transport (billion tkm)	9.2	17.3	19.8			EU total 2469.6
– % road	71.9%	79.2%	82.2%			76.7% 17 of 26
– % rail	28.1%	20.8%	17.8%			17.4% 14 of 26

\* Indicative target according to the Plan of Long-term Development of organic farming in Slovenia.

In 2009, 12.6% of Slovenia's territory was covered within protected areas designated under national law. However, while 35.5% of Slovenia's terrestrial territory was protected under Natura 2000 area, the sufficiency index for site designation under the Habitat's Directive was only 72.6% while the target is

100%. Management of Natura 2000 sites is based on the governmental Operational Programme 2007-2013 which defines measures for each Natura 2000 site, and integrates them into regional plans.

## Environment and health

	Slovenia				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	30.9 (2002)	32.4	29.9	30.0	26.8	19 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	6 806	6 514	5 838	3 831	3 884	21 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	99	15	14	27	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	50	45	47	45	10 397	
– non-methane volatile organic compounds (NMVOCs)	49	41	38	40	8 296	
– ammonia ( $\text{NH}_3$ )	19	19	18	20	3 799	
	1990	2005	2007			
Water exploitation index	1.4%	2.8%	2.9%			7

Air quality is one of the major environmental and health issues in Slovenia. In particular, the exposure levels to ozone and particulate matter are of concern. The exposure of the population to ozone and particulate matter is much higher than the average level in the EU-27. Moreover, Slovenia is the only new Member State projected to stay above its  $\text{NO}_x$  2010 emissions ceiling.

In March 2010, the Commission referred Slovenia to the Court of Justice for exceeding the limit values for  $\text{PM}_{10}$ , in the absence of a notification for

exemption from the obligation to apply limit values for  $\text{PM}_{10}$  pursuant to Article 22 of Directive on Ambient Air Quality.

As regards the implementation of its obligations under the Water Framework Directive, Slovenia should have adopted the first two water management plans for the river basin districts of the Danube and for the Adriatic Sea by December 2009. Slovenia has signed and ratified the Danube River Basin Convention, which forms the basis for cooperation. The main aim of the Convention is the sustainable and equitable use of surface waters and



groundwater and the conservation and restoration of ecosystems. Slovenia has committed itself to fully implement the EU Water Framework Directive.

Slovenia prepared the Regulation on water quality standards which is important for the implementation of the Water Framework Directive as well as Regulations concerning standards for surface and groundwater. In December 2009, the transposition of the Floods Directive was in its final stage and in March 2010

the infringement case for non-transposition was closed. Meanwhile, the preparation of the preliminary assessment of flood risk has already showed first results, and the transposition and the preparation for the implementation of Marine Directive has started. In 2009 Slovenia established a new action programme under the Nitrates Directive. The new programme entered into force in January 2010 for a period of four years.

## Natural resources and waste

	Slovenia			EU-27 average	rank in EU-27	
	2004	2006	target			
Total waste generated (kg per capita)	2 890	3 013		5 987	9	
– % hazardous	1.9%	1.9%		3%		
– % landfilled on total waste treated*	30.9%	40.7%		51.6%	12	
– % incinerated on total waste treated*	10.0%	11.7%		4.9%		
– % recycled , on total waste treated*	59.1%	47.5%		43.5%	12	
	2000	2007	2008			
Municipal waste generated (kg per capita)	513	441	459	524	9	
– % landfilled	78.4%	77.6%	74.3%	39.5%	19	
– % incinerated	0%	0%	1.5%	19.5%		
	2004	2006				
Households waste (kg per capita)	331	544		436	24	
	2000	2006	2007			
Packaging waste recycled (as % total packaging waste)	34.3%	40.0%	46.9%	55%-80% (by 2012)	58.0%	21 out of 26

\* see Note to the reader

Approximately 75% of the municipal waste in Slovenia is landfilled; for total waste this figure is 40% of all the waste treated. No waste prevention targets for specific waste streams have been specified so far.

To date, 15 Operational Programmes in the field of waste exist, aiming at reducing the quantity of biodegradable waste disposed in landfill sites and optimising waste collection. These include an Operational Programme on waste disposal aimed at reducing the quantities of biodegradable waste landfilled and an Operational Programme on the elimination of separately collected fractions of municipal waste for the period of 2007–2009. Moreover, in the Operational Programme on Environmental and Transport Infrastructure Development for the period of 2007–2013, major necessary investments have been included in the area of waste management to build up regional waste management facilities.

In 2009, the government Office for Growth presented an action plan for green public procurement for 2009–2012, stating that at least 50% of public tenders will select environmentally-friendly products, including vehicles, electronic equipment, construction, cleansers, electricity and food.

## Better regulation and implementation

	Slovenia			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	7	8	6	451

Out of a total of 451 environment-related infringement cases in the EU as per December 2009, 6 cases concerned Slovenia. In December 2009 the infringement procedure concerning PM<sub>10</sub> exceedances under the Ambient Air Quality Directive was at a stage of a reasoned opinion, whereas a case on the

partially insufficient designation of Special Protection Areas under the Birds Directive was temporarily frozen in view of further negotiations. At the end of 2009, a proposal to refer Slovenia to the European Court of Justice was adopted on account of the lack of IPPC permits for existing installations under the IPPC Directive. Two main complaints were treated under this case concerning the operation of Cinkarna Celje and Lafarge Cement.

In 2009, the government amended the Environment Protection Act in order to facilitate the transposition of several EU Directives on the greenhouse gas emissions trading scheme (aviation activities) and air quality.

## Use of market-based instruments

	Slovenia			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	7.9%	8.0%	8.1%	6.1%

Market-based instruments for the environment were first introduced in Slovenia in the 1990s, such as charges on water, CO<sub>2</sub> and waste which have been introduced in order to implement the polluter-pays principle. In 2009 the government defined the Green Budget Reform, which includes the use of environmental economic instruments in Slovenia as one of its priorities. A review of environmental taxes is being undertaken and a landfill tax introduction is planned as a dissuasive measure for waste disposal.

## Environmental technologies

In 2009, the 'Environmental Technologies Excellence Centre' was set up in order to provide an integrated solution to the environmental problems favouring the collaboration among academic researchers and industry. Some interdisciplinary research and development projects, currently in progress, deal with a broad variety of environmental problems: development of analytical methods, application of sustainable methods of wastewater treatment, as well as development and optimisation of new environmentally-sound production technologies.

The links between companies, universities and other research institutions in the field of environmental technologies have also been promoted by the Ministry of Higher Education, Science and Technology in the form of financial incentives for sustainable development, energy efficiency and renewable energies projects. The incentives are allocated, as a priority, to investments in knowledge and skills, key technologies and the creation of jobs and they are granted by means of public tenders. In assessing the projects, account is also taken of the positive impact on sustainable development, efficient use of energy (eco-innovation) and orientation towards renewable sources of energy.

## Green economy initiatives in the economic recovery plan

In the policy packages presented by the governmental crisis group, several measures to support sustainable development and measures aimed at improving the use of cohesion funds have been approved. For instance, a loan by the European Investment Bank to the Slovenian Investment Bank to finance environmental protection and energy efficiency projects by clean and technologically advanced industries was proposed (e.g. eligible automotive-sector investments aimed at development of new generation vehicles and emissions reduction). A 50 million euro loan will support such projects.

Slovenia has also earmarked 20 million euro for measures related to weatherproofing of public buildings and broadband connections to be implemented in 2009-2011.

## Outlook for 2010

By the end of 2010, Slovenia will plan additional actions to raise awareness on waste prevention and treatment and the negative impacts of consumption patterns. The governmental Budget 2010, with its new cross-sectoral budget programming and planning approach, will facilitate integration of common environment and sustainable tourism policy objectives.



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## Spain

### Highlights in 2009

Several policy initiatives have been taken in 2009, related particularly to the development and promotion of renewable energies and energy efficiency in the context of the implementation of the Spanish Climate Change and Clean Energy

Strategy 2007-2012-2020. For example, the government approved the Spanish Strategy for Sustainable Mobility in April 2009 which includes 48 measures structured around different priority areas. A new

regulation was also adopted on feed-in tariffs for electricity from renewable energy sources. Furthermore, Spain is examining the potential of carbon capture and storage as a means of fighting global warming.

In the context of the Spanish economic recovery package, in May 2009 the government announced a set of new measures aimed at promoting a more sustainable model of economic growth, including the creation of different funds and a new law on sustainable economy. In this respect, the government approved end 2009 a draft Bill of the new Law on Sustainable Economy which is structured around different pillars, including environmental sustainability.

In the field of waste management, the National Integrated Plan for Waste came into force in February 2009, valid for the period until 2015. It includes measures and objectives for dealing with 13 separate categories of waste, in order to comply with the EU Waste Framework Directive. In addition, the plan also includes actions to reduce biodegradable waste spills.

### Climate change and energy

	Spain				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	380.8	438.7	405.7	333.3 (by 2008-12)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	288.7	345.4	218.3		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	86.4	110.0	103.5		961.8	
					<b>EU-27 average</b>	<b>rank in EU-27</b>
– per capita (tonnes CO <sub>2</sub> eq.)	9.5	9.9	9.0		9.9	9
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	604.2	550.2	504.6		458.8	13

	2000	2007	2008	target	EU-27 average	rank in EU-27
– trend (% change compared to base year*)	+31.4%	+51.4%	+40.0%	+15.0% (by 2008-12)	-14.3%	25
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			17.8%	+15.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			14.6%	(by 2008-12)	-16.5%	

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Spain only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment

	Spain				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	159.2	153.2	148.2	130 (by 2012-15) for EU-27	153.5	7
Electricity produced from renewable energy sources (% gross electricity consumption)	15.7%	19.7%	20.6%	29.4%	16.7%	9
– from hydropower	12.8%	9.1%	7.8%	(by 2010)	9.7%	
– from wind	2.1%	9.2%	10.6%		3.5%	
– from biomass	0.8%	1.2%	1.3%		3.2%	
– solar	0%	0.2%	0.8%		0.2%	
Energy from renewable energy sources (% gross final energy consumption)	9.1%	9.6%	10.7%	20.0% (by 2020)	10.3%	12
Combined heat and power generation (% gross electricity generation)	9.2%	7.1%	7.0%	18% (by 2010) for EU-15	11.0%	20
Energy consumption per capita (kg oil eq.)	3 087	3 297	3 133		3 616	11
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	196	184	176		167	12

Spain is far from achieving its Kyoto target. In 2008, Spain's greenhouse gas emissions were 40.0% higher than the base year level, far above its Kyoto target of +15% for the period 2008-2012. Part of the Kyoto compliance will be achieved through the EU emission trading scheme. According to the latest data, Spain is projected to achieve its non-ETS part of the target using existing and additional measures, Kyoto mechanisms and carbon sinks.

Following the adoption of the Climate and Energy Package in April 2009, Spain agreed to a greenhouse gas emission reduction target of 10% by 2020 compared to 2005 levels for non-ETS sectors (e.g. buildings, road transport and farming). Furthermore, Spain has committed to achieving a share of energy from renewable sources in gross final energy consumption of 20% by 2020.

The Spanish Strategy for Sustainable Mobility was approved by the government in April 2009. It includes 48 measures, structured around different priority areas such as the promotion of proximity town planning, the promotion of public transport and alternative energy sources. As part of this strategy, it became mandatory in 2009 for public fleets to be at least 20% biofuel-driven.

In relation to renewable energies, a legal framework based on feed-in tariffs with premium price promoting the development of renewable energy has

been in place since 2004 and was revised in 2007. The scheme has contributed to the important penetration of renewable energies in the country. In 2009, a new regulation was adopted on feed-in tariffs for electricity from renewable energy sources, revising the 2007 Decree. The new scheme introduces new technology-specific and capacity-specific limits for receiving support. For example, renewable energy facilities are covered by the special regime only if their installed capacity does not exceed 100 MW (50 MW for hydro facilities). With a capacity of up to 50MW, operators can choose between receiving a feed-in tariff price, or a feed-in premium paid on top of the market electricity price. The feed-in tariffs are paid during the entire time of a system's operation, though these are reduced after a specified number of years.

Spain is also examining the potential of carbon capture and storage as a means of fighting global warming. The utility company ENDESA and the public research, development and demonstration (RD&D) foundation CIUDEN have created a joint venture to develop a Carbon Capture and Storage Technology pilot plant at the Compostilla power plant (El Bierzo, Spain). The plant is expected to be operational in September 2010. Within the first 20 years of operation, it is expected that the power plant will prevent 18 million tonnes of CO<sub>2</sub> being emitted to the atmosphere.

## Nature and biodiversity

	Spain					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area*		26.6%	26.7%	28.7%		17.6%	
Sufficiency of site designation under the Habitats Directive	93.5%	95.4%	95.8%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	1.5%	3.2%	5.2%			4.5%	14

	Spain					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Freight transport (billion tkm)	160.3	270.0	253.1			EU total 2469.6	
– % road	92.8%	95.9%	96.0%			76.7%	23 of 25
– % rail	7.2%	4.1%	4.0%			17.4%	22 of 25

\* Spain has also an important Natura 2000 marine area, consisting of around 10.4 thousands Km<sup>2</sup> in 2009.

In 2009 the Spanish government started the implementation of the Spanish Plan for Forestation for the period 2009-2012, which foresees the plantation of 45 million trees as part of a 90 million euro plan to combat desertification and the effects of climate change. The reforestation plan will protect indigenous tree species and will be carried out over a total area of 61 300 hectares (0.12% of Spain's surface area). At the same time, planting trees will lead to the recovery and increase of biodiversity and of indigenous ecosystems, the improvement and preservation of the landscape, and the consolidation of ecological corridors (a strip of vegetation used by wildlife and potentially allowing movement of species between two areas). This Plan is part of the Spanish Forest Strategy 2002-2030.

Regarding the protection of habitats of high value, during 2009 new sites were approved for inclusion under Ramsar Convention<sup>13</sup>. In June 2009, the government decided to include 5 new protected wetlands located in the Autonomous Community of Andalucía in the list of wetlands. Taking into account these new wetlands, as of November 2009 68 wetlands covering a total surface of 284 415 hectares in Spain were included under the Ramsar Convention.

<sup>13</sup> The Convention on Wetlands (Ramsar, Iran, 1971), called the "Ramsar Convention", is an inter-governmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the sustainable use of all of the wetlands in their territories.

In 2009 there was an increased focus on completing the Natura 2000 network for the marine environment. For example, the European LIFE+ funding programme is helping with the designation of the off-shore Natura 2000 sites in the framework of the LIFE+ INDEMARES project. Its main objective is to contribute to the protection and sustainable use of the biodiversity in the Spanish seas through the identification of valuable areas for the Marine Natura 2000 Network, in particular 10 areas in the Atlantic, Mediterranean and Macaronesic regions. The project actions will be carried out from January 2009 to December 2013. The budget is 15.4 million euro and the European Commission will co-finance 50% of the project.

The 2007 Law on Natural Heritage and Biodiversity established the statutory system of conservation, sustainable use, improvement and restoration of the Spanish natural heritage and biodiversity. In this context, a decree was adopted in June 2009 establishing a State Council on Natural Heritage and Biodiversity. The main objective of this Council is to promote and ensure public participation, and to inform different stakeholders about the latest developments related to the implementation of biodiversity policy. The Council was established in November 2009 and consists of representatives from academia, the private sector, industry associations and non-governmental organisations.

However, further efforts are needed in the area of nature and biodiversity. The European Commission warned Spain in 2009 about several breaches of nature

conservation legislation. An example of a warning concerns a failure to assess the environmental impact of open-cast mining in a Natura 2000 conservation area in Castilla-León, which is home to a number of threatened species such as brown bears and capercaillie. In a similar case of failure to comply with nature conservation laws, the Commission sent Spain a final written warning about its failure to implement a court ruling on the Segarra-Garrigues irrigation project

in Catalonia. The Commission also decided to take Spain to Court for its ongoing failure to provide 174 Natura 2000 sites on the Canary Islands with an adequate level of legal protection. Spain had until December 2007 to adopt the required conservation measures, but almost two years after the deadline the situation was still not resolved.

## Environment and health

	Spain				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	33.3	32.9	27.7	30.0	26.8	17 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	3 117	4 247	4 528	3 104	3 884	17 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	1 463	1 170	527	746	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	1 394	1 416	1 236	847	10 397	
– non-methane volatile organic compounds (NMVOCs)	1 018	863	816	662	8 296	
– ammonia ( $\text{NH}_3$ )	380	388	358	353	3 799	
	1991	2006	2007			
Water exploitation index	33.2%	30.4%	n.a			25*

\* The ranking is based on the data of the last available year.

The Spanish 2008 Law on air quality and atmospheric sets out obligations for municipalities with a population of more than 100 000 inhabitants. These include establishing assessment facilities and networks, informing the public about air quality and pollution levels, and drafting plans and programmes to meet the established targets. This legislation allows the 17 Autonomous

Communities in Spain to exert more rigorous control as well as to regulate inspection procedures and the penalty system. In the context of the National Emission Ceilings Directive, a public consultation was launched in October 2009 on a draft action plan to implement this Directive. The action plan is expected to be adopted in 2010.



In the field of water quality, a Decree was adopted in October 2009 to regulate the protection of groundwater against pollution and degradation. It establishes specific criteria and measures to prevent and reduce groundwater pollution, such as criteria to evaluate the chemical status of groundwater. In 2009, Spain received a final written warning from the European Commission on Spain's failure to implement a 2007 European Court of Justice ruling on urban waste water in the Spanish region of Valencia. The court ruling states that Spain failed in its obligation to appropriately treat the waste water from the cities of Sueca, Benifaió, Sollana, Almussafes and other coastal towns discharged into a sensitive area, the Frente coastline of the Albufera Nature Park, located close to Motilla Beach.

Spain only started consultations on draft River Basin Management Plans in 2 of the 24 River Basin Districts. These consultations should have started in December 2008 at the latest according to the Water Framework Directive. Final River Basin Management Plans have not yet been established.

Within the context of an infringement case on non compliant implementation of the Nitrates Directive, the Spanish authorities drafted and/or established several new legal texts on nitrate action programmes and designation of vulnerable zones. The infringement involves 14 Spanish regions and the Spanish authorities committed to bring legal texts in compliance with the Directive by end 2009.

## Natural resources and waste

	Spain			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	3 794	3 678		5 987	11
– % hazardous	1.9%	2.5%		3%	
– % landfilled on total waste treated*	74.8%	67.7%		51.6%	22
– % incinerated on total waste treated*	2.5%	2.9%		4.9%	
– % recycled , on total waste treated*	22.7%	29.4%		43.5%	20
	2000	2007	2008		
Municipal waste generated (kg per capita)	662	590	575	524	19
– % landfilled	51.2%	56.8%	56.9%	39.5%	13
– % incinerated	5.6%	8.6%	9.2%	19.5%	
	2004	2006			
Households waste (kg per capita)	576	550		436	25
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	40%	54%	52.3%	55%-80% (by 2008)	16 of 26

\* see Note to the reader

Spain faces important challenges with respect to waste management. The percentages of waste landfilled remain high and are above the European average. In October 2008 Spain received a final written warning from the European Commission for the poor application of the EU legislation on the treatment of waste. In March 2009, the European Commission also sent a written warning to Spain on another case, regarding the breach of EU laws governing the treatment and disposal of industrial waste. It concerns the stockpiling of solid industrial waste in the Huelva estuary without the necessary waste management measures for the protection of the environment being required.

In order to comply with those challenges, a National Integrated Plan for Waste for the period until 2015 came into force in February 2009. It includes measures and objectives for dealing with 13 separate categories of waste, in order to comply with the EU Waste Framework Directive. More specifically, the plan covers household and similar wastes, contaminated soils, as well as agrarian and non-dangerous industrial wastes, which are relevant because of their quantity and their impact on the environment. The Plan also includes the Strategy on the Reduction of Biodegradable Waste Spills which seeks to improve their management and to achieve substantial reductions in greenhouse gas emissions. In the context of waste management, the Spanish Ministry of Environment organised several workshops in June 2009 in order to share experiences between main stakeholders (e.g. manufacturers, retailers, private companies in the waste sector, etc.) and the administration.

## Better regulation and implementation

	Spain			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	42	37	40	451

In the context of the Spanish Law on Environmental Liability, which came into force in 2007 transposing the Environmental Liability Directive, a technical committee on the prevention and remedying of environment damage was established and began to operate in April 2009. Representatives of corporate organisations and trade unions are part of expert groups which work together with the Committee to define methodological guidelines and recommendations and support information exchange for studies on risk analysis and remediation projects.

In 2008, the government adopted 2 packages of 81 measures in total as part of administrative burden reduction programme. In April 2009, the government adopted a third package of 78 measures, including for example the suppression of certain certification and authorizations for the production of certain agricultural products, and a reform of the procedures for the environmental impact assessment process.

## Use of market-based instruments

	Spain			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	6.5%	4.9%	4.9%	6.1%

The Spanish parliament voted in February 2009 to double an existing 10% tax rebate for environmental spending for companies, and to extend the rebate beyond its present 2011 expiry date. The rebate will also be increased to 30% for small and medium sized companies. This rebate will also cover all energy-saving and efficiency measures being reclassified as environmental spending. Although the amendment has yet to be formally passed into law, the consensus shown by all political parties on this issue should favour its adoption.

## Environmental technologies

The current National Plan for Scientific Research and Technological Development for the period 2008-2011 constitutes the main instrument of Spain's research policy. The 2008-2011 Plan seeks to fund R&D activities in specific programmes that will support sustainable energy production, including a greater use of renewable energy, emerging clean combustion, and improved energy efficiency. Programmes on sustainable mobility and modal change in transportation are being supported. Furthermore, the Plan is funding programmes aimed at non-energy related mitigation, climate change research and adaptation.

## Green economy initiatives in the economic recovery plan

In November 2008, the Spanish government launched an economic recovery plan, known as 'PlanE', which, inter alia, includes measures related to the green agenda, such as the promotion of renewable energy and energy efficiency, public transport and eco-innovation. One of the objectives of the 'PlanE' is to reinforce the implementation of the Spanish Climate Change and Clean Energy Strategy 2007-2012-2020. Spain also installed a car scrapping scheme to replace old polluting cars.

In December 2009, the government approved the launch of the Sustainable Economy Fund for 2010 and 2011 with the aim of supporting a new growth model committed to sustainable development. This fund will be backed up by the Law on Sustainable Economy, whose draft was adopted by the government in December 2009. It will be managed by Spain's Official Credit Institute and will include both public and private funds.

## Outlook for 2010

In the first semester of 2010, Spain held the six-month rotating presidency of the European Union. In this context, Spain acted in close coordination with the two

following EU presidency holders Belgium and Hungary. One of the key priorities was the Europe 2020 strategy, the successor to the Lisbon strategy for growth and jobs, which seeks to ensure that Europe not only exits the economic crisis but also becomes stronger, and paves the way for smart, green and inclusive growth. The Europe 2020 Strategy was adopted by the European Council in June 2010.

An important upcoming action for Spain is the preparation of a new Renewable Energy Plan 2011-2020, which should ensure that the objective of having 20% of the energy mix coming from renewable energies by 2020 is achieved, in line with the European Climate and Energy package. Furthermore, in the transport field, a number of vehicle-related measures are expected by the government, including the promotion of more fuel-efficient driving (e.g. via awareness campaign), and a series of public transport initiatives. The government is also expected to establish a preference criterion for cars with an energy class "A" rating in its public procurement procedures. In the field of biodiversity, the implementing measures and associated tools for the implementation of the Law on National Strategy on Natural Heritage and Biodiversity will continue during 2010. One of the measures planned includes the development of the Strategic National Plan on Natural Heritage and Biodiversity, which will aim at defining the specific objectives, actions and criteria to promote conservation, sustainable use and restoration of the national natural heritage.





## Sweden

### Highlights in 2009

Sweden held the presidency over the European Union during the second half of 2009. The focus of the Swedish presidency was, to a large extent, environmental issues, promoting the shift to a low-carbon, resource efficient economy; including

preparations for the negotiations for the Climate Change Conference in Copenhagen in December 2009 and actions to implement an EU Baltic Sea Strategy.

Swedish domestic environmental policy of 2009 concentrated on climate actions. In March 2009, a proposition for climate policy called 'A Coherent

Climate and Energy Strategy' was presented by the Swedish government. Ecological sustainability, competitiveness and secured energy resources were the key elements of this strategic plan and goals for reduced greenhouse gas emissions decreases and an increase in renewable energy production were stipulated. In addition, a new subsidy for green cars was launched in July 2009 following the end of the green car rebate which was installed in 2007.

Green public procurement has received much attention in Sweden in 2009. The Swedish Environment Management Council published a report in December 2009 that will constitute the basis for new criteria for public procurement in the forestry sector. Efforts for biodiversity involved a new action plan for the 'Programme for Diversity of Cultivated Plants', a new policy for the management of large predators and a proposal for the management of marine waters.

In June 2009 the yearly progress report on Sweden's 16 Environmental Quality Objectives, concluded that most of the objectives will be impossible to reach by 2020. A new Environmental Objectives Bill, reviewing the Environmental Quality Objectives, will be presented in 2010.

### Climate change and energy

	Sweden				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	68.9	66.2	64.0	75.1 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	50.3	48.5	46.7		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	19.7	21.2	20.7		961.8	

	2000	2007	2008	target	EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	7.8	7.3	7.0		9.9	3
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	256.7	200.4	194.6		458.8	1
– trend (% change compared to base year*)	-4.6%	-8.3%	-11.3%	+4.0% (by 2008-12)	-14.3%	12
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-10.8%	+4.0%	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-12.0%	(by 2008-12)	-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	200.0	181.4	173.9	130 (by 2012 -15) for EU-27	153.5	25
Electricity produced from renewable energy sources (% gross electricity consumption)	55.4%	52.0%	55.5%	60.0%	16.7%	2
– from hydropower	52.3%	44.0%	46.6%	(by 2010)	9.7%	
– from wind	0.3%	1.0%	1.3%		3.5%	
– from biomass	2.8%	7.0%	7.6%		3.2%	
Energy from renewable energy sources (% gross final energy consumption)	42.7% (2006)	44.2%	44.4%	49.0% (by 2020)	10.3%	1
Combined heat and power generation (% gross electricity generation)	5.9%	8.2%	9.6%	18% (by 2010) for EU-15	11.0%	16
Energy consumption per capita (kg oil eq.)	5 371	5 507	5 444		3 616	24
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	177	152	152		167	7

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for Sweden only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment.

In 2008, Sweden's greenhouse gas emissions were 11.3% lower than the base year level, which is much better than its Kyoto target of +4% for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, Sweden is expected to achieve its non-Emissions Trading System part of the target using existing measures, Kyoto mechanisms and carbon sinks.

Following the adoption of the Climate and Energy Package in April 2009, Sweden agreed to a 2020 reduction target of 17% compared to 2005 levels for greenhouse gas emissions in the sectors not covered by the Emissions Trading System (e.g. buildings, road transport and farming). Furthermore, Sweden has committed to achieving a share of energy from renewable sources in gross final energy consumption of 49% by 2020.

In 2009 the government presented a new proposition for climate policy called 'A Coherent Climate and Energy Strategy'. One of its key goals is to reduce greenhouse gas emissions by 40% by 2020 compared to 1990 levels, which is more ambitious than Sweden's commitments within the EU Climate and Energy Package. In this context, the government also decided to phase out of the use of fossil fuels for heating by 2020 and to acquire a vehicle stock that is independent of fossil fuels by 2030. The strategy states that the reduction will also be achieved through investments in other EU member states and flexible tools such as Clean Development Mechanism.

In 2007 the government introduced a green car rebate of 970 euro for private individuals who purchased new 'green' cars. Green cars were defined by the

Swedish government as vehicles that are energy efficient and emit low levels of CO<sub>2</sub> and other environmentally unfriendly and unhealthy substances. The rebate was abolished in June 2009 and replaced by a new five-year long policy consisting of a subsidy for green cars to continue to stimulate an increase in the percentage of environmentally friendly cars.

The Climate Bill that was put forward in the budget of 2007 for the period 2008-2010 is still in effect. The Climate Bill finances climate research, the streamlining of energy production, support for biofuels, development of national wind power networks, sustainable biomass production and development of sustainable cities.

Production of renewable energy sources is increasing in Sweden. By the end of 2008 there were 1138 wind turbines in Sweden, compared to 1009 in 2007 and 817 in 2004 and there are two financial support schemes in effect to promote wind power: the Electricity Certificate and The Wind Power Pilot Project. The Electricity Certificate was launched in 2003 with the aim to increase renewable energy production by 17TWh (terra watt hours) by 2016 in relation to 2002. The Wind Power Pilot Project is a financial aid supporting the introduction of large-scale wind power initiatives on the market. It was introduced in 2003 and was extended to 3 million euro for the period 2008-2012. Wind power is still a marginal source of renewable energy in Sweden compared to hydropower. A new financial aid scheme supporting installations of solar cells by private persons or companies was launched in July 2009. The total budget is 14 million euro for the period 2009-2011.

## Nature and biodiversity

			Sweden			EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area		13.6%	14.5%	13.8%		17.6%	
Sufficiency of site designation under the Habitats Directive	91.4%	92.3%	99.0%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	5.7%	9.9%	10.8%		20% * (by 2010)	4.5%	2
Freight transport (billion tkm)	55.7	63.8	65.5			EU total 2469.6	
– % road	63.9%	63.6%	64.7%			76.7%	6 of 26
– % rail	36.1%	36.4%	35.3%			17.4%	4 of 26

\* Indicative target according to the action plan "Regeringens skrivelse 2005/06:88: Ekologisk produktion och konsumtion - Mål och inriktning till 2010".

2009 was celebrated as 'Nature's Year' in order to commemorate the 100 year anniversary of the designation of the first nine national parks, which were established in 1909 in Sweden. A number of social activities, lectures, excursions and exhibitions were planned and implemented under this initiative through cooperation between over 20 different organisations and government institutions. In addition, the first Swedish national park with a marine focus, Kosterhavet, was officially opened in September 2009, bringing the total number of national parks to 29 and covering approximately 7400 km<sup>2</sup>. In addition, the new National Park Plan for 2009-2013 specifies the creation of 13 new national parks and the extension of 6 existing ones.

In 2009, the government issued the 'Coherent Marine Strategy', where a new financial instrument (LOVA) of around 110 million SEK (approx. 11 million euro) was launched aiming to support local initiatives that improve the marine

environment, mainly in terms of decreasing eutrophication. Eutrophication is also the main focus of other new measures taken for the marine environment, and it was given a special focus during the Swedish EU Presidency in 2009. Examples include a legislation regulating the release of toilet waste from leisure boats, a pilot study evaluating an emission trading system on discharges of phosphorus and nitrogen into marine waters and the ban on phosphates in washing machine detergents that will come into effect July 2011.

Swedish marine management also entails transboundary cooperation under the OSPAR Convention, the Helsinki Commission (HELCOM) and the Barents Euro-Arctic Council. In addition, the Baltic Sea Strategy, which was one of the top priorities under the Swedish presidency, was adopted by the Council of Ministers in October 2009. The aim of this strategy is to progress regional development in the Baltic Sea region and to improve the marine environment.

## Environment and health

	Sweden				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	17.0	17.3	17.6	30.0	26.8	5 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	1 598	1 727	2 579	1 715	3 884	7 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	41	33	31	67	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	211	164	154	148	10 397	
– non-methane volatile organic compounds (NMVOCs)	199	180	173	241	8 296	
– ammonia ( $\text{NH}_3$ )	56	50	50	57	3 799	
	1990	2005	2007			
Water exploitation index	1.7%	1.5%	1.4%			3

In January 2009 Sweden passed a law forbidding the usage of mercury in all products on the Swedish market, an initiative in line with the aim to achieve the Environmental Quality Objective 'A Non-Toxic Environment'. The law came in to effect in June 2009 and the only product exception is lighting fittings that are regulated at EU level. Another new measure is the new action plan 'Sustainable Usage of Biocides' developed by the Swedish Environment Protection Agency for 2010-2013. The action plan stipulates that a special focus should be put on education, information, research, development, legislation, monitoring in association with biocides usage and follow-up. The latter would

include, for example, statistics and environment surveys. The Delegation for Sustainable Cities, an initiative with the aim to advance on the sustainable development of cities, was reinforced in 2009 through the establishment of financial support of approximately 3 million euro.

After intensive consultations with the Commission services, Sweden adopted a new action programme under the Nitrates Directive, which has entered into force as from January 2010. In the context of the River Basin Management Plans, required by the Water Framework Directive, Sweden carried out consultations in 2009 and published the plans at the end of 2009.



## Natural resources and waste

	Sweden			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	12 227	12 775		5 987	22
– % hazardous	1.5%	2.3%		3%	
– % landfilled on total waste treated*	69.3%	59.3%		51.6%	16
– % incinerated on total waste treated*	11.6%	17.1%		4.9%	
– % recycled , on total waste treated*	19.1%	23.6%		43.5%	22
	2000	2007	2008		
Municipal waste generated (kg per capita)	428	518	515	524	14
– % landfilled	22.9%	4.1%	2.9%	39.5%	3
– % incinerated	38.3%	46.3%	48.5%	19.5%	
	2004	2006			
Households waste (kg per capita)	454	480		436	22
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	58.0%	58.1%	59.3%	55%-80% (by 2008)	58.0 % 9 of 26

\* see Note to the reader

On the initiative of the Swedish government, a new agreement on waste recycling was established between the municipalities, county counsels, recycling companies and manufacturers of recyclable paper and packaging in January 2009. The aim of the agreement was to strengthen the cooperation between the parties and improve recycling efforts. For example, there will be an increase in the number of available recycling stations.

The situation of several commercial fish stocks in Swedish waters is alarming and bycatch (i.e. unintended catches of species not targeted) remains too large. In the Kattegat Sea, cod populations experienced a severe decrease during the 1990s, a crash similar to the one seen in cod stocks outside the coasts of Newfoundland. In order to relieve the pressure on the threatened fish stocks, the aim of the government is to decrease the fishing-fleet and to support the development of new less harmful fishing gear. However, the Environmental Quality Objective 'A Balanced Marine Environment - Flourishing Coastal Areas and Archipelagos' is regarded as being impossible to reach by 2020 partly due to the situation of the commercial fish stocks and the fact that fishing of several threatened species (e.g. cod (*Gadus morhua*), piked dogfish (*Squalus acanthias*)) is still allowed in Sweden.

The forestry sector has seen various new schemes in 2009. Within the Rural Development Programme for Sweden 2007-2013, financed by EU funds, new grants for forest owners were developed in 2009. The In-service Training Grants scheme aims to support training in sustainable forestry to safeguard both socioeconomic and ecological aspects in forestry practices. The Forest Diversity Grants award financial compensation to forest owners carrying out actions that raise the ecological value of forest areas. The Hardwood Forest Grants provide financial compensation to forest owners that establish new hardwood forests.

## Better regulation and implementation

	Sweden			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	10	9	10	451

## Use of market-based instruments

	Sweden			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	5.4%	5.5%	5.8%	6.1%

## Environmental technologies

The 2007-2010 Budget directed around 51 million euro to environmental technologies and specified particular focus on small and medium-sized enterprises and their business and export opportunities. In 2008 the government established a new delegation for environmental technologies, Swentec, Sweden's environmental technology council. Swentec's mission is to distribute knowledge within the environmental technology sector, illuminate best practice and enhance collaboration within relevant areas. SymbioCity is another initiative launched by the government in this context. The online platform was opened in 2008 with the aim to promote Swedish environmental technologies and sustainable building by initiating projects and international cooperation.

## Green economy initiatives in the economic recovery plan

As response to the crisis, Sweden foresaw a number of green measures, which included around 143 million euro investment in energy efficiency projects. The Swedish government has also tightened the requirements for the share of environmental cars in public procurement. The government decided that all cars bought or leased from central government have to meet certain environmental standards. As part of the recovery package, Sweden also foresaw investment in research & development to commercialize green technologies (32 million euro for 2009-2011) and to support pilot and demonstration projects for second-generation biofuels (83 million euro for 2009-2011).

## Outlook for 2010

In 2010 the government will put forward a new Environmental Objectives Bill evaluating the Environmental Quality Objectives. In addition, a new five-year energy efficiency programme will be launched in 2010 for the period 2010-2014 allocating a yearly amount of 29 million euro towards local and regional energy and climate action, including developing local and regional strategies and supporting networking and advisory services. A main focus of this programme will be to bridge the knowledge gaps present in different sectors associated to climate change challenges, energy efficiency and regional cooperation.

The Comet programme, for which guidelines and measures were elaborated during the autumn of 2009, will be initiated in 2010. The Comet Programme is an initiative that targets land owners and aims to inspire and encourage voluntary and formal initiatives that protect and conserve ecologically valuable areas. The programme will be implemented in five counties and the objective is that it will, to some extent, replace the former process where the County Councils and the Swedish Forest Agency were the initiative parties.



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## United Kingdom

### Highlights in 2009

The most pressing area of environmental policy in the United Kingdom during 2009 has been climate change. In November of 2008 the United Kingdom formally adopted its Climate Change Act which set legally binding targets to tackle climate change. In

the United Kingdom government's White Paper 'The Low Carbon Transition Plan', published in July 2009, and in the Renewable Energy Strategy, the government outlined a large number of policies and intended policies in order to achieve its climate change targets. For example, the government aims to produce 30 per cent of United Kingdom electricity from renewable sources by 2020. Feed-in tariffs are planned for introduction in 2010 to support micro- and small-scale renewable projects. There are also plans for investments in renewable energy, energy efficiency and low carbon transport.

The Climate Change (Scotland) Act in the Scottish parliament received Royal Assent in August 2009. This Act creates a statutory framework for greenhouse gas emission reductions by setting an interim 42 % reduction target for 2020, with the power for this to be varied based on expert advice, and an 80 % reduction target for 2050.

A number of developments have occurred in 2009 to spur the use of clean technologies in the United Kingdom. These include a recent strengthening of the Renewables Obligation which should act as a greater incentive to renewable electricity technologies and higher build rates. The country made also progress towards selecting and financing Carbon Capture and Storage sites as part of a United Kingdom competition.

Aside from climate change and energy, one of the main new items of legislation is the Marine and Coastal Access Act which was adopted in November 2009. The Act aims to ensure clean healthy, safe, productive and biologically diverse oceans and seas, by putting in place better systems for delivering sustainable development of marine and coastal environment. The Bill relates to seas around England and Wales. In Scotland the Marine (Scotland) Bill was introduced to parliament in April 2009.

### Climate change and energy

	United Kingdom				EU-27 total	rank in EU-27
	2000	2007	2008	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	672.6	640.0	628.2	679.3 (by 2008-2012)	4 939.7	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	557.6	543.7	533.2		3 907.0	
– from transport (Mt CO <sub>2</sub> eq.)	125.2	132.6	128.5		961.8	

	2000	2007	2008	target	EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	11.4	10.5	10.3		9.9	13
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	419.8	334.7	326.8		458.8	3
– trend (% change compared to base year*)	-13.4%	-17.6%	-19.1%	-12.5% (by 2008-12)	-14.3%	11
Projected 2008-2012 emissions for non-ETS sectors compared to base year**:						
– with existing measures, Kyoto mechanisms and carbon sinks			-22.2%	-12.5% (by 2008-12)	-15.0%	
– with existing and additional measures, Kyoto mechanisms and carbon sinks			-22.10%		-16.5%	
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	185.4	164.7	158.2	130 (by 2012-15) for EU-27	153.5	17
Electricity produced from renewable energy sources (% gross electricity consumption)	2.7%	5.1%	5.6%	10% (by 2010)	16.7%	18
– from hydropower	1.3%	1.3%	1.3%		9.7%	
– from wind	0.2%	1.3%	1.8%		3.5%	
– from biomass	1.1%	2.5%	2.5%		3.2%	
– solar	0%	0.1%	0.1%		0.2%	
Energy from renewable energy sources (% gross final energy consumption)	1.5% (2006)	1.7%	2.2%	15.0% (by 2020)	10.3%	25
Combined heat and power generation (% gross electricity generation)	6.1%	6.4%	6.4%	18% (by 2010) for EU-15	11.0%	22
Energy consumption per capita (kg oil eq.)	3 940	3 624	3 572		3 616	13
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	145	115	114		167	3

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

\*\* The target and EU-27 projections refer to the total greenhouse gas emissions. The projections for United Kingdom only refer to GHG emissions from the non-ETS sectors. As all Member States participate in the EU ETS, they are obliged to meet their National Allocation Plan cap for the EU ETS sectors. Therefore projections for non-ETS sectors have a key role as regards tracking the progress towards Kyoto commitment.

In 2008, the UK's greenhouse gas emissions were 19.1% lower than the base year level, which is better than its Kyoto target of -12.5% for the period 2008-2012. Part of the Kyoto compliance will be achieved through operators in the EU emission trading scheme. According to the latest data, UK is projected to reach or even surpass its non-ETS part of the target using existing measures, and carbon sinks.

Following adoption of the climate and energy package in April 2009, the UK agreed to reduce its greenhouse gas emissions by 16 % by 2020 compared to 2005 levels in non-ETS sectors (e.g. buildings, road transport and farming). Furthermore, the UK has committed to achieving a share of energy from renewable sources in gross final energy consumption of 15% by 2020.

In November of 2008 the United Kingdom formally adopted its Climate Change Act which sets a legally binding framework to tackle climate change. This requires that greenhouse gas emissions are reduced by at least 34 per cent by 2020 and by at least 80 per cent by 2050. The Act also introduces legally binding carbon budgets, which will set a ceiling on the levels of greenhouse gases that can be emitted into the atmosphere for five year periods (2008-12, 2013-17 and 2018-22). In order to achieve these targets and budgets, in July 2009 the United Kingdom government published a White Paper 'The Low Carbon Transition Plan' and a Renewable Energy Strategy, where a large number of policy initiatives and intentions were set out. For example, the government aims to produce 30 % of United Kingdom electricity from renewable sources by 2020. New Feed-In Tariffs are to be introduced in 2010 to support micro- and small-scale renewable projects.

Alongside the 'Low Carbon Transition Plan', in July 2009, the United Kingdom government launched a Carbon Reduction Strategy for Transport. This strategy sets out how transport will make a major contribution to United Kingdom efforts to reduce CO<sub>2</sub> emissions by 2022 and 2050 in line with the Climate Change Act 2008. In general, measures in the transport sector will focus on decarbonising road and rail and improving efficiency in aviation and shipping. The government proposals included that the average new car will emit 40 per cent less CO<sub>2</sub> by 2022 than in 2009 and new legislation is expected in the second half of 2010 to amend the existing Renewable Transport Fuel Obligation.

The government recognised that there were constraints on the availability and deployment of the cheaper forms of renewables in the United Kingdom, despite the introduction of the Renewables Obligation. This meant that in order to move towards the implementation of the new EU Renewables Directive, as well as the United Kingdom's commitment to reduce greenhouse gases emission by 80 per cent by 2050, greater efforts would be required. This has led to a recent strengthening of the Renewables Obligation which should act as an added incentive for renewable electricity technologies and higher build rates. In addition, the introduction of banding for the Renewables Obligation target, whereby emerging and higher cost technologies will be awarded, more Renewable Obligation Certificates per MWh of electricity generated compared to other established technologies is thought to create a much more tailored instrument.

## Nature and biodiversity

	United Kingdom					EU-27 average	rank in EU-27
	2000	2007	2008	2009	target		
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area *		6.9%	7.1%	7.1%		17.6%	
Sufficiency of site designation under the Habitats Directive	92.5% (2004)	92.5%	95.2%	n.a	100%		
Area occupied by organic farming (% of Utilised Agricultural Area)	3.7%	4.1%	4.5%			4.5%	16
Freight transport (billion tkm)	184.0	198.0	192.0			EU total 2469.6	
– % road**	90.0%	86.6%	88.5%			76.7%	19 of 26
– % rail**	9.8%	13.3%	11.4%			17.4%	18 of 26

\* United Kingdom has also an important Natura 2000 marine area, consisting of around 16.4 thousands Km<sup>2</sup> in 2009.

\*\* 2008 data are estimates.

The Marine and Coastal Access Bill was adopted by the UK parliament in November 2009. The Bill aims to ensure clean healthy, safe, productive and biologically diverse oceans and seas by putting better systems in place for delivering sustainable development of marine and coastal environment. The Bill comprises of a number of elements. For example, it creates the Marine Management Organisation to deliver marine functions in the waters around England, Wales, Northern Ireland and in the United Kingdom offshore area. It also introduces a new United Kingdom-wide system of marine planning, to enable more strategic and effective management of our seas. Thirdly, it introduces a flexible mechanism for marine nature conservation, including marine conservation zones with clear objectives. These Marine Conservation Zones will protect nationally important marine wildlife, habitats, geology and geomorphology. Sites will be selected off the shores of England, Wales and Northern Ireland to protect not just the rare and threatened, but a range of

marine wildlife. The management measures required will be decided on a site-by-site basis.

The Marine (Scotland)<sup>14</sup> Bill was introduced to parliament in April 2009. The Bill introduces a framework for the sustainable management of the seas around Scotland, ensuring that the need to protect the seas is integrated with economic growth of marine industries. For example, it introduces a new statutory marine planning system to sustainably manage the increasing, and often conflicting, demands on seas. Furthermore, it foresees improved marine nature conservation with new powers to protect and manage areas of importance for marine wildlife (e.g. seals) and habitats. The Bill completed Stage 2 in December 2009.

<sup>14</sup> Certain aspects of UK environmental policy have been devolved to the Welsh, Scottish and Northern Ireland governments. England has no separate government or assembly.

## Environment and health

	United Kingdom				EU-27 average	rank in EU-27
	2000	2007	2008	target		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	23.4	23.3	20.4	30.0	26.8	6 out of 24
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	768	938	1 655	1 284	3 884	5 out of 25
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	1 226	595	512	585	5 867	
– nitrogen oxides ( $\text{NO}_x$ )	1 877	1 557	1 403	1167	10 397	
– non-methane volatile organic compounds (NMVOCs)	1 488	1 012	942	1200	8 296	
– ammonia ( $\text{NH}_3$ )	330	295	282	297	3 799	
	1990	2006	2007			
Water exploitation index *	20.4%	12.9%	n.a.			16**

\* Data refer to England/Wales.

\*\* The ranking is based on the data of the last available year.

In 2009 the government made progress on intentions set out in the 'Future Water' strategy for example by consulting on the possibilities for phasing out phosphates as an ingredient in domestic laundry cleaning products. Phosphate is a nutrient which, when present in excess in rivers and lakes, can cause nuisance growth of plants and algae. This harms the ecology and limits the uses to which the water can be put.

Progress has continued on the implementation of a number of EU Directives in the water area. In September 2009 the River Basin Management Plans (for England and Wales) were submitted to the Secretary of State for Environment, Food and Rural Affairs and Welsh Ministers for approval. Scotland is designated a single River Basin District and has a single draft plan, with an additional

cross border plan for the Solway-Tweed River Basin District. In Northern Ireland, there are three River Basin Districts, two of which are cross-border. government agencies (Environment Agency, Scottish Environmental Protection Agency and the Northern Ireland Environment Agency) are the 'competent authorities' for drawing up the River Basin Management Plans. Other consultations relating to the Water Framework Directive also took place in 2009: on water protection zones and the classification of water bodies. The UK, for the regions England, Scotland and Wales, established a new action programme under the Nitrates Directive. The new programme forms the basis for a derogation granted by the Commission which allows farmers, under strict conditions, to apply higher levels of livestock manure than the



threshold set in the Nitrates Directive. The new programme and derogations applies for the period 2009-2012.

In May 2009 the United Kingdom submitted a Notification to the European Commission to secure additional time to meet the limit values for particulate matter for certain zones/agglomerations in accordance with the Directive on Ambient Air Quality and Cleaner Air for Europe. The purpose of the notification was to secure, for eight zones/agglomerations in the United Kingdom, an exemption from the obligation to apply the limit values for PM10 until 2011, as

provided for under the Directive. However, in December 2009, the Commission decided that – as for most Member States – the conditions were not met to allow for the time extension. The Commission's assessment showed that exemptions for seven zones were not needed since compliance with the limit values had already been achieved. In the case for the zone where this was not the case (Greater London), the Commission found the air quality plan for this particular zone did not meet the minimum requirements of the Directive for a time extension.

## Natural resources and waste

	United-Kingdom			EU-27 average	rank in EU-27
	2004	2006	target		
Total waste generated (kg per capita)	5 989	5 728		5 987	15
– % hazardous	2.2%	2.4%		3%	
– % landfilled on total waste treated*	66.9%	61.3%		51.6%	20
– % incinerated on total waste treated*	2.1%	1.8%		4.9%	
– % recycled , on total waste treated*	31.1%	36.9%		43.5%	17
	2000	2007	2008		
Municipal waste generated (kg per capita)	578	572	565	524	18
– % landfilled	81.1%	56.6%	54.5%	39.5%	12
– % incinerated	7.3%	9.3%	9.7%	19.5%	
	2004	2006			
Households waste (kg per capita)	519	537		436	23
	2000	2006	2007		
Packaging waste recycled (as % total packaging waste)	40%	57.5%	59.3%	55%-80% (by 2008)	58.0 % 10 of 26

\* see Note to the reader

In July 2009 the government launched a consultation on its proposed Strategy for Hazardous Waste Management in England. This has been devised to underpin the practical application of the revised Waste Framework Directive and, in particular, the requirements that apply to hazardous waste. The principal aim of the proposed strategy is to deliver sound and, where necessary, improved hazardous waste treatment. It is expected that associated hazardous waste management practices and new infrastructure will meet existing regulatory requirements. A new National Waste Management Plan for Scotland was also being prepared in 2009.

The UK government and the Welsh Assembly government launched a consultation in July 2009 on how to implement the revised Waste Framework Directive which will come into force in Member States in December 2010. The consultation document outlined the key requirements of the Directive as well as a set of questions on how specific articles of the Directive could be implemented. The consultation closed on in October 2009. Scotland published its consultation on how to implement the revised Waste Framework Directive in August 2009.

In October 2009 the Commission also took the decision to refer the UK to the European Court of Justice on the grounds that urban waste water collecting systems and treatment facilities in London and Whitburn in north east England do not comply with EU legislation.

During 2007, the UK government introduced new arrangements for preparing Impact Assessments, including a new template, guidance and training. The changes aimed to improve the quality and consistency of Impact Assessments. A report published by the UK National Audit Office evaluating Impact Assessments carried out by the UK government Departments in 2008 concluded that this new systems had led to an increase in the quality of the Impact Assessments produced.

In 2009 the European Court of Justice made a number of judgements against the United Kingdom government on the grounds of failure to transpose EU environmental legislation within the prescribed period. These judgements included for example a case on the failure to transpose the Environmental Liability Directive and on the failure to transpose the Directive on Ship-source pollution and introduction of penalties for infringements. In addition the court ruled that the United Kingdom government had failed to comply with aspects of the EIA Directive. In December 2009 the European Court of Justice ruled that the UK government had failed to comply with its obligations under the Directive concerning urban waste water treatment with regard to certain agglomerations in Northern Ireland. However, the Court dismissed the action in relation to the rest of the Commission's claims with regard to the need to designate coastal sensitive areas due to eutrophication risks thus requiring in particular the need to remove nitrogen at urban waste water treatment plants in England.

## Better regulation and implementation

	United Kingdom			EU-27 total
	31/12/2007	31/12/2008	31/12/2009	
Infringements of EU environmental legislation	33	31	26	451

## Use of market-based instruments

	United Kingdom			EU-27 average
	2000	2007	2008	
Share of environmental taxes in total tax revenue	8.1%	6.7%	6.5%	6.1%

The 'King Review of Low Carbon Cars', a report published in two parts in 2007 and 2008, examined vehicle and fuel technologies which could help to decarbonise road transport over the next 25 years. As recommended in the review, a reform to vehicle taxation was announced in Budget 2008 in order to better influence vehicle purchasing choices. The main changes in 2009-2010 are the addition of six more "bands" for the annual Vehicle Excise Duty: there will be 13 different classifications (Bands A to M) of cars with tax rates corresponding to their CO<sub>2</sub> emissions. For example, new cars that emit up to 130g CO<sub>2</sub> per km (the EU target for 2012) will have a zero tax rate in the first year of registration. On the other hand, the most polluting new cars will pay GBP 950 (approximately 1080 euro) in the first year.

## Environmental technologies

Following the adoption of the Energy white paper "Meeting the Energy Challenge", a United Kingdom Carbon Capture and Storage Demonstration Competition was launched in November 2007 to build the first full scale Carbon Capture and Storage power plant in the United Kingdom. Four consortia were pre-qualified and the selected project is expected to be operational by 2014.

## Green economy initiatives in the economic recovery plan

The United Kingdom government's stimulus package contributing 597 million euro to environmental measures announced in the pre-budget report in November 2008 was followed by further promises of financial spending in the 2009 Budget. According to the government, existing policies were already enabling 55 billion euro of low-carbon investment over the three years to 2011 but the Budget 2009 provides 1.6 billion euro of extra, targeted support in the low-carbon sector. This included support to improve energy and resource

efficiency in businesses, public buildings and households, and decentralised small-scale and community low-carbon energy. Also, a new funding mechanism was established to support at least two carbon capture and storage demonstration projects.

## Outlook for 2010

A proposal of new legislation is expected in the second half of 2010 to amend the existing Renewable Transport Fuel Obligation, bringing it into line with the EU renewable energy and fuel quality Directives. Further sectoral proposals to help to reach the departmental carbon budgets, such as feed in tariffs, will be subject to consultation process which may last until the summer 2010. The Carbon Reduction Commitment Energy Efficiency Scheme, a cap and trade scheme designed to improve energy efficiency in large organisations, will come into force in 2010. The new Energy Bill published in November 2009, which includes a financial incentive for carbon capture and storage, will be debated in parliament.

Furthermore, the new Floods Bill and Water Management Bill will be brought before parliament.



"The Union ...shall work for the sustainable development of Europe... aiming at ... a high level of protection and improvement of the quality of the environment."  
*(Art. 3 Treaty on European Union)*

"Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development."  
*(Art. 11 Treaty on the Functioning of the European Union)*

"Union policy on the environment shall contribute to pursuit of the following objectives:  
— preserving, protecting and improving the quality of the environment,  
— protecting human health,  
— prudent and rational utilisation of natural resources,  
— promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change."  
*(Art. 191 Treaty on the Functioning of the European Union)*