

SPANISH SUSTAINABLE DEVELOPMENT STRATEGY

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1. INTRODUCTION AND CONCLUSIONS

The modernization of our country demands that we collectively assume the challenges and opportunities arising from a sustainable development model which combines the dynamics of economic prosperity together with the increase in social well-being and improvement of the environment. Our country is living a long favourable economic cycle, with a growth rate above the European average and this social dynamics fosters collective progress and the creation of excellent conditions to make a qualitative jump towards a higher degree of sustainability in our development model.

In this sense, the Spanish economy registered an annual growth of 3.9% during 2006, three tenths more than during the preceding year. This greater dynamism of the activity was compatible with a more balanced and sustainable growth, with the increased investment in equipment, a 10.4% increase, as opposed to a slight deceleration of investment in construction (6%) and a sharper decrease of private consumption (3.8%), and the significant reduction in the negative contribution of the foreign net demand (1.2 percentage points). From the offer point of view, industrial sectors, with a 2.9% growth during that same year, were responsible for the aggregated rise of the activity, and work productivity in the private sector experienced a 1.3% increase, something that did not occur since the beginning of the Nineties. In addition, these productivity increases were compatible with a high rate of employment creation.

The two first quarters of 2007 confirmed the good results of 2006, with a GDP growth exceeding 4%. Similarly, investments in equipment accentuated its already high dynamism (13.1%), while other sectors such as private consumption (3.3%), construction (4.9%) and the foreign sector was less negative to economic growth. The added value of the industry grew by 5.1% in the six first months of 2007, the greatest growth since 2000, and work productivity in the private sector registered again growth rhythms higher than 1% without altering employment creation.

In the specific case of construction, one of the main sectors of the Spanish economy, the activity has slowed down mainly on the residential component, with a process of gradual return to normality, passing from a 7.8% growth at the beginning of 2006 to 3.7% in the second quarter of 2007. This dynamism loss of the construction sector was also reflected in housing prices, which experienced a 5.8% growth in the second quarter of 2007, more than 6 percentage points below the index at the beginning of 2006. In 2007, the advanced indicators of house building are beginning to show signs of decrease, so the process of slow deceleration is expected to continue during the following quarters.

In this background, one of the risk factors for the good perspective of Spanish growth in 2007 and 2008 is that turbulences in international financial markets continue as a result of the crisis of “subprime” bonds in the U.S.A., and world-wide growth suffering from it. Nevertheless, the economy is in good shape to face this eventuality given its strength, its low exposure to the “subprime” American market, the great efficiency and solvency of its financial system and the solidity of its public accounts.

This favourable situation allows us to draft the Spanish Strategy of Sustainable Development with a long-term perspective to aim towards a more coherent society in terms of the rational use of its resources, and more equitable and cohesive approach and more balanced in terms of land use.

This strategy is framed under the EU Sustainable Development Strategy (SDS), which was renewed in the Council of Brussels of 2006 with the general principle of “determining and elaborating measures that allow the continuous improvement of the quality of life for the present and future generations by means of the creation of sustainable communities having full capacity to efficiently manage and use resources, to take advantage of the potential for ecological and social innovation offered by the economy, and at the same time, ensuring prosperity, environment protection and social cohesion”.

This objective includes seven high-priority areas: climate change and clean energies; sustainable transport; sustainable production and consumption; public health challenges; management of natural resources; social inclusion, demography

and migration; and the fight against world-wide poverty. In this context, each Member State was asked to assume their own commitments to sustainable development included in their National Sustainable Development Strategies (SDS) to be reviewed by the Commission and by the other Member States.

The SDS recognizes that economic development eases the transition towards a more sustainable society and therefore, it complements the Lisbon Strategy, which establishes actions and measures destined to improve competitiveness and economic growth and to increase employment creation.

The approach of the Spanish Sustainable Development Strategy (SSDS) is in keeping with the strategic vision of the EU, since it strives to integrate the economic, social, environmental and global dimension of sustainable development for purposes of guaranteeing economic prosperity, ensuring protection of the environment, avoiding the degradation of the natural capital, promoting a greater social cohesion considering the present demographic trends, and joining efforts to contribute to the development of the least favoured countries for the sake of global sustainability.

In the framework of the Lisbon Strategy, the economic dimension of sustainable development is included in the National Reform Programme (NRP), whose diagnosis indicated the good evolution of employment and the high differential of growth with respect to the EU-25, although certain difficulties to achieve total convergence in per capita income were observed, these difficulties being derived from the evolution of productivity. Thus, the divergence between Spain and the EU-25 in terms of productivity in the last few years had a negative impact on competitiveness, which together with other contextual and structural factors, such as oil prices increases or significant immigrant remittances, resulted in the negative balance of our current account balance. Notwithstanding, it is important to point out that in the last few years work-related productivity has reached the highest growth rates of the last decade.

In this context, NRP establishes full convergence with the European Union by 2010, both in terms of per capita income and to reach that same year an employment rate of 66% as its major priorities, and, in addition, it includes as a

cross-sectional objective to increase energy efficiency and reduce CO₂ emissions by 2010. For this, it proposes the carrying out of actions around seven strategic axes: the reinforcement of Macroeconomic and Budgetary Stability; the Strategic Infrastructure and Transportation Plan (PEIT) and the A.G.U.A. Program; the increase and improvement of human capital; the Research, Development and Innovation Strategy (INGENIO 2010); the measures to improve competence, regulations, the efficiency of the public administration and competitiveness; the labour market and Social Dialogue; and the Entrepreneurship Plan.

As far as assessment and follow-up are concerned, the European Commission has valued very positively the Spanish NRP. In addition, the last progress report (2006) of the Lisbon Strategy, shows the actions undertaken by the Government in sectors such as energy and commercial distribution, where the main regulatory problems were identified, while defining the strategic priority of increasing Research, Technological Development and Innovation activities (R&D&I), as laid down in the 2006 Spring Council. Investment in R&D&I is fundamental to obtain long-term sustainable economic growth and to allow the introduction of new productive processes and ensure that this growth is compatible with the sustainability objectives.

Recently, the second progress report of 2007 of the Lisbon Strategy sent on October 15th to the European Commission for its consideration and evaluation was approved. This report shows the balance of the two years of economic policy concentrating specially on the measures that respond to the specific recommendations that the European Council of March 2007 made to Spain, and the great priorities of the European agenda.

On the other hand, this SSDS focuses on the environmental, social and global dimension of sustainability, and approaches the high-priority areas defined in the European Strategy according to the three dimensions mentioned.

In the context of Environmental sustainability, in order to design the action lines aimed towards the protection of the atmosphere, air quality, water, land, nature and health, the Spanish strategy develops from three interrelated Sections: Production and consumption, Climate change and Conservation and Management

of natural resources and land occupation. First, it analyzes resource-use efficiency, responsible production and consumption and sustainable mobility and tourism. Second, it studies the initiatives to mitigate the impact of climate change in terms of clean energy, sectors concerned with diffuse pollution and sinks, as well as market instruments and the adaptation to climate change. Finally, it focuses on hydric resources, biodiversity, land uses and occupation.

With respect to Social sustainability, the SSDS develops other two fundamental aspects: on the one hand, employment, social cohesion and poverty, and, on the other hand, public health and dependence. Finally, the important role of Spain in terms of International cooperation for sustainable development is analyzed in the light of global sustainability.

The analysis of these six main issues is framed in the context of an initial diagnosis that includes the main challenges that endanger the sustainability of the Spanish growth model, particularly, those related to climate change, to which our country is specially vulnerable, with the need to ensure an efficient and responsible use of available resources, and with the imbalances that could stem from new social phenomena like immigration, ageing of the population or persistence of poverty and inequality situations world-wide. The SSDS ends with guidelines for the follow-up and revision of the strategy.

In line with the European Sustainable Development Strategy, the governing principles of the SSDS include the promotion and protection of the fundamental rights and intra and inter-generational solidarity, as well as precautionary principles and to make the polluter pay for any action affecting public health and the environment. In addition, the participation of citizens, companies and social interlocutors will be promoted in the processes of decision making, for which some of the action lines proposed are: to increase the education and public awareness in matters of sustainable development, to improve the social dialogue, to increase the social responsibility of companies and to foster associations between the public and the private sector to obtain a more sustainable consumption and production.

The main conclusions derived from the SSDS in these areas are the following:

In matters of environmental sustainability, it is necessary to have an efficient and rational use of natural resources, particularly those related to energy, water, biodiversity and land; as well as to develop active policies to mitigate the determinants of climate change in all productive sectors, and specially in the energy and mobility sectors, as well as the adaptation to the same. All these policies, together with the ones designed specifically to improve air quality, will permit to gradually reduce the levels of atmospheric pollution of Spanish cities. To ensure the availability and quality of these resources, so that they are compatible with economic growth and in view of the possible threats of climate change, is one of the main challenges faced by developed countries. A non-efficient consumption of the available natural resources supposes an increase in greenhouse gas emissions (GHG) and other atmospheric polluting agents (nitrogen oxides, particles, sulphur dioxide, volatile organic compounds and ammonia, among others), that aggravate the problem of energy dependence, it has consequences on the population's health and it endangers the survival of major activities of the country, such as agriculture, and in general, territorial sustainability. This requires to improve the management of productive sectors, to promote the adoption of technological improvements, to optimize transportation networks, both for energy and hydraulic, to facilitate the modal change in transport use, to control GHG emissions and other atmospheric polluting agents, and to increase the economic value of waste, as well as to train, inform and make people and companies aware of the benefits of these measures.

In matters of social sustainability, Spain must make an additional effort to enable the present social model to bring together the economic growth and social welfare, by promoting employment creation, ensuring the reduction of poverty and inequalities, and avoiding social exclusion situations. The idea is to establish action lines to guarantee a progressive increase in employment quality, a good life standard for the population living below poverty line, the integration of the immigrant population and the care for dependent people.

Overall, Spain, like most European countries, must devote a greater volume of resources to developing countries so as to contribute to their sustainable development and to fulfil the commitments acquired at international level in

matters of the fight against poverty world-wide. This increase in the volume of resources must go hand in hand with the improvement of aid's effectiveness, coherence and quality. For this purpose, the Spanish policy of international cooperation must be framed within the main agreements and consensuses that constitute the international development agenda, as well as actively cooperate with international financial institutions and multilateral bodies.

All the actions and measures developed in the SSDS for the fulfilment of the objectives in matters of environmental, social and global sustainability shall be developed in collaboration with AACC and municipalities, and they shall be compatible with the objective of budgetary stability defined by the Government. In view of this, all economic growth and employment policies must be developed coherently with the SSDS, and the decisions made in the SSDS shall be adopted in a way that is compatible with economic and employment objectives.

Likewise, as contemplated by the Treaty of Amsterdam, the gender issue which has a cross-Sectional character in the SSDS must be taken into account by all European public policies, in addition to carrying out other actions to tackle specific situations.

2. DIAGNOSIS, CHALLENGES AND MAIN OBJECTIVES OF SUSTAINABILITY IN SPAIN

2.1. Environmental sustainability

To achieve sustainable growth, we must be able to meet our economic, social and environmental needs without jeopardizing the capacity of future generations in meeting theirs. From an environmental perspective, this premise has a greater relevance given that natural resources provide the place and the necessary raw materials for the development of all economic and social activities.

The major environmental concerns at present include the high GHG emissions, that is giving rise to climate change, air quality, hydric stress and water quality,

non-sustainable consumption patterns, waste treatment, biodiversity loss, land degradation, and, in general, the unsustainable use of natural resources. All these elements have been described in the reports about sustainability in Spain prepared by the Spanish Observatory for Sustainability on an annual basis.

Strong economic growth in Spain has meant an increase in the per capita income coming to near European average, which entails a greater pressure on the environment. Other factors that have increased this pressure are: demographic and sector evolution, and changes in sociocultural values¹.

One of the most important objectives of the SSDS is to promote sustainable consumption and production while taking care of the social and economic development, the carrying capacity of ecosystems and dissociating economic growth from environmental degradation. The diagnosis in matters of sustainability for production and consumption is made from the perspective of resource-use efficiency and sustainable production and consumption.

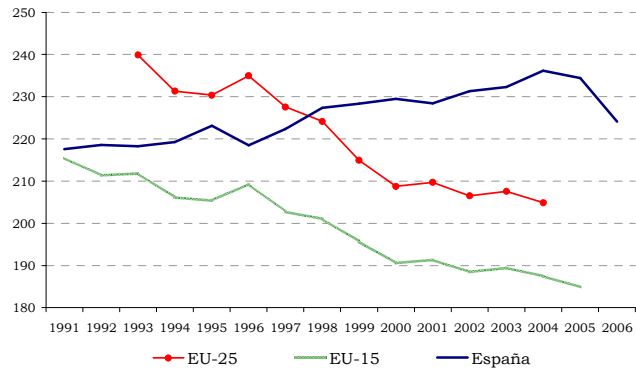
Raising the efficiency of natural resources consumption of the economy as a whole and of each productive branch in particular, has positive effects on environmental sustainability, on the reduction of polluting agents with local and global effects, and on waste decrease, but it also improves the economy's competitiveness, since it reduces costs and risks associated to energy dependence or climate variability in the case of water.

In terms of energy efficiency, the main indicator, energy intensity, has maintained a growing trend between 1990 and 2004, as opposed to the strong reduction registered in the EU, as shown in Graph 2.1.1. Nevertheless, since 2005 this trend has been reverted to a new decreasing trend in 2006. The favourable evolution of this indicator is joined by GHG emission reduction during this last year. According to the provisional data of 2006 with an economic growth of 3.9% emissions were reduced by 4%, and even though there are conjunctural factors that have affected the indicator's evolution, data show that the mechanisms and measures adopted to reduce the emissions during the last three years are working,

¹ The "Spanish Environmental Profile" published by the Ministry of the Environment, presents a periodic diagnosis of the environment in our country so as to assess certain policies developed in the last few years.

to return to levels close to those in 1997. Efficient energy consumption allows decoupling pollution from economic growth, which means to produce “more with less”.

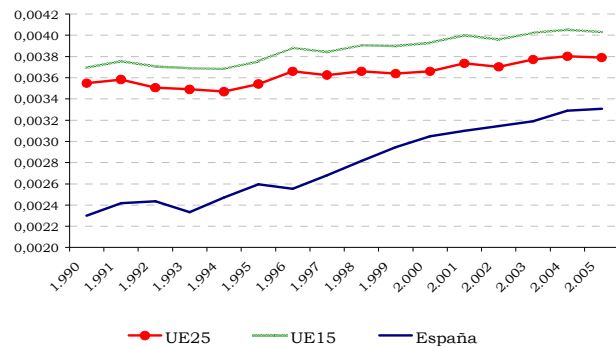
Graph 2.1.1. Primary Energy Intensity (tep/million € 1995 constant)



Source: Ministry of Industry, Tourism and Trade, and EUROSTAT.

With respect to the per capita energy consumption, Spain remains below the levels of major European countries, and 18% below the average for the EU-15, as shown in Graph 2.1.2.

Graph 2.1.2. Per capita primary energy consumption (ktep/population)



Source:EUROSTAT.

With respect to the availability of hydric resources, climatology, space and time irregularity of rain patterns and high evapotranspiration are the cause of water shortages in some Spanish regions, a situation that worsens due to the consumption heterogeneity between the different geographical zones. In this context, Spanish strategy focuses on the promotion of an integrated water management, mainly based on the sustainable response to hydric demands, guaranteeing their availability and quality, the protection and regeneration of the hydric environment and the use of instruments to stimulate efficient use of water.

These objectives can only be defined and clearly focused and adjusted by means of a reflected, common and participative environmental water management plan. Thus, the traditional approaches of “supply”, sustained on the basis of great hydraulic infrastructure, are being replaced by strategies focused on “demand management”, “conservation” and “restoration” of hydric resources and their ecosystems located in the estuaries, continental shelves and coasts, aiming towards greater sustainability, higher economic rationality and public participation with respect to water management, with the appropriate information and consultation mechanisms.

As for the analysis of production and consumption sustainability in our country, the main indicators show a degradation of air quality in our cities and waste generation strongly correlated with economic growth.

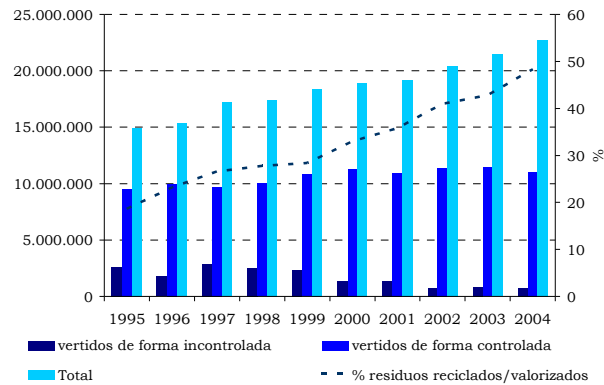
Thus, although significant progress in air quality has been made, some industrial areas and numerous locations, both urban and industrial, are not respecting the levels for sulphur dioxide and particles concentration. Big cities surpass the levels of nitrogen dioxide established as the objective for 2010 by the community legislation and, in numerous areas, ozone levels exceed those established for the protection of health and nature, as described in the last air quality report prepared by the Spanish Observatory for Sustainability in 2007. As far as the control of other regulated emissions is concerned, although the adopted measures have allowed to correct the trend, they have not been able to avoid that the emission levels of sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia continue to be very far from meeting the objectives established, preventing Spain from complying with the commitments on volatile organic

compounds and nitrogen oxides Protocols established in the Convention on Transboundary Air Pollution and the Directive on National Emission Ceilings.

Another challenge is the growing generation of waste, which has become one of the most urgent problems of modern societies, both due to their management needs, and their impact on land and water pollution, public health, GHG emissions, etc. In Spain, urban waste has increased by 52% between 1995 and 2004, which means that in 2004, each Spaniard generated 1.4 kilograms of waste per day, an amount somewhat below the European average, located around 1,6 kg. Throughout this period, waste treatment has improved considerably:

If in 1995, 81% of urban waste was sent to the landfill without previous treatment, in 2004 that percentage decreased to 52%, as shown in Graph 2.1.3. In addition, during the last decade the percentage of waste going to triage and composting facilities has jumped from 12% to 32%. These results, in spite of representing a remarkable progress, cannot be considered satisfactory yet. For this reason, one of the priorities of this strategy is to reduce waste generation and to increase the rate of recovery. Likewise, an efficient waste management plan and the opportunity it represents as an energy source will permit to refrain the growth of GHG emissions in this sector.

Graph 2.1.3. Urban waste generated in Spain (Tn/year)



Source: National Integrated Waste Plan 2007-2015 (Ministry of the Environment).

In addition, in matters of sustainable production and consumption, this SSDS gives special emphasis to two sectors: transportation and tourism, given their strong impact on pollution and conservation of important natural resources.

On the one hand, sustainable mobility implies guaranteeing that our transportation systems respond to the economic, social and environmental needs of society and, at the same time, reduce to minimum levels their negative impact. This is a challenge affecting all modern economies with consequences in GHG emissions, public health and life quality of the citizens.

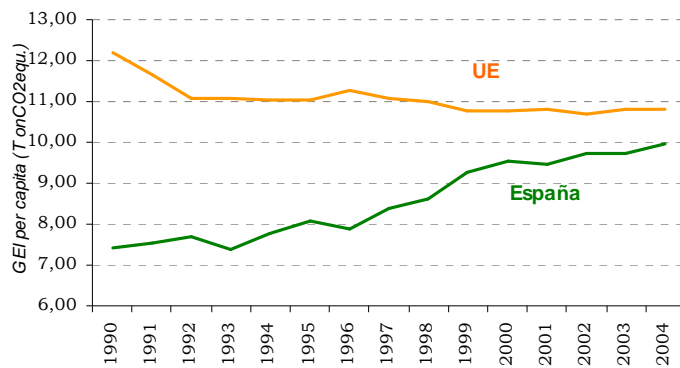
On the other hand, the strong geographic and seasonal concentration of our tourism activity in coastal areas forces the over dimensioning of infrastructures and generates strong pressures on the territory. This explains that the greatest challenge faced by the sector is to reach a growth level that respects the carrying capacity of destinations and reduces the negative impacts derived from its seasonal character.

The second great environmental challenge of this SSDS, of particular concern for society, is climate change. In the last few years, the natural increase in temperatures and natural disasters have shown the negative effects of climate change, to which Spain is specially vulnerable due to its geographic situation and its socio-economic characteristics.

In the framework of international objectives and, particularly, European ones, the Spanish Government has established the objective of limiting the growth of GHG net emissions to 15% for the period 2008-2012 as compared to the levels of the base year. However, the emissions between the base year and 2005 grew 52.2%, as a result of the fast and continuous economic growth and a strong and unexpected population increase. The government has repeatedly manifested its determination to meet international commitments, while at the same time, preserving the competitiveness of Spanish economy and employment, to compatibilize economic and budgetary stability and to guarantee the security of energy supply. In any case, it is important to remember that per capita GHG emissions in Spain are around 8%, below the European average, as shown in graph 2.1.4., which demonstrates that the objective assigned to Spain under the Kyoto

Protocol was very demanding, since it was equivalent to average emissions of 7.8 tonnes of CO₂- equivalent for the period 2008-2012 as compared to 10.8 tonnes, the average in the European Union.

Graph 2.1.4. Comparison of per capita GHG emissions.

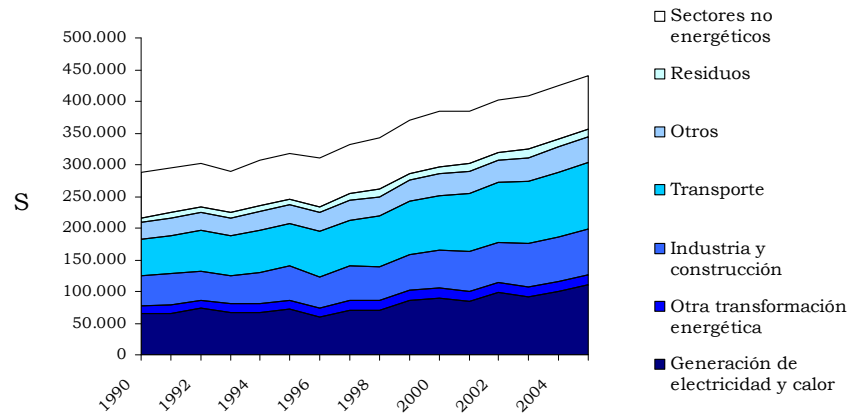


Source: Own sources.

Energy consumption is responsible for 80% of GHG emissions. Energy-related GHG emissions have grown by 63% between 1990 and 2005, as a result of the intensive use of fossil fuels, used as primary energy sources in electric power generation and as final energy in the remaining sectors, especially in road transport. In 2006, for the first time in many years, emissions provisional data showed a reduction of 4.1%, thanks to the joint impact of a variety of factors. Among these, the environmental policies adopted to reduce consumption, favourable climate conditions, the increase in hydroelectric production and the increase in international oil and gas prices that have contributed to reduce the demand for fossil fuels.

Although, as shown in Graph 2.1.5, all sectors of the economy have been responsible for the increase in energy-related emissions, the construction, transport and the electric power generation sectors have had significant importance. Particularly, the construction sector has been very important given the strong weight it has had in the Spanish economy during the last few years.

Graph 2.1.5. Evolution of GHG emissions in Spain (thousands of tonnes CO2- equivalent)



Source: National Inventory (2007).

Transport in Spain is affected by the same problems than in other European countries, consuming an increasing percentage of the final energy and being one of the major responsible agents in the growth of GHG emissions and pollution of cities. The factors that propel the increase in mobility are among others, the low internalization by users of emissions associated costs, the increase in domestic and foreign trade, increase in citizen's mobility and intensive use of private vehicles. As a result, the mobility increase has surpassed the efficiency improvements achieved for vehicles.

As for electric power generation, emissions growth is mainly derived from a strong increase in demand that has been supplied in part with thermal power stations. Notwithstanding, renewable energy sources have burgeoned strongly in our country, contributing with 14% of electric power generation (21% if we include hydroelectric production), being aeolian energy the one displaying a higher growth rate.

With respect to the expectations for the future, the most recent projections show, in the trends scenario, an increase in average emissions close to 70% in the period 2008-2012, as compared to 1990, whereas in the scenario that takes into account the measures adopted at present, growth amounts to 50%². All sectors do not contribute in the same way: the sectors concerned with diffuse pollution will increase their average emissions by 65%, mainly, transport and residential, whereas in the industry and power sectors there will be a 37% increase. Considering these projections, the commitment assumed by the Government in the National Allocation Plan 2008-2012³, is that emissions for the five-year period will not surpass 37% of the base year, 22 percentual points (p.p.) over the initial objective of 15%, 20 p.p. will be covered with flexibility mechanisms and the 2 remaining p.p. by absorptions on sinks.

The third great challenge of this SSDS is to ensure natural resources conservation and management. Land and the natural and cultural heritage constitute the basic support on which life is developed, and its sustainability is clearly conditioned by the way in which the economic and social activity are carried out.

As for hydric resources, the paradigm shift towards strategies of demand management and conservation and restoration of hydric resources has already been mentioned. On the one hand, our country is subject to extremely variable hydrological patterns and precipitation regimes, with recurrent episodes of droughts that will be aggravated by the effects of climate change. On the other hand, the diagnosis of water masses quality shows the need to carry out specific actions in the medium term to fulfil the greater community needs. In addition, the situation of Spanish rivers, affected by the invasion of their channels, hydrological modifications and spills, has reduced their water-drainage capacity and increased the vulnerability of some areas to flooding episodes.

In terms of biodiversity, the habitat richness and singularity gives Spain a distinct place in the European and world context. There is, in addition, a high

² Applying the methodology developed by the Universidad Politécnica of Madrid.

³ RD 1370/2006 of 24 November.

specific diversity as a result of the great climate, litologic and topographic heterogeneity of Spain, as well as of its geographic position between two continents and of his comparatively low population density. Nevertheless, this wealth is accompanied of net losses with serious consequences, both at the genetic level, and at that of species, ecosystems and landscapes, partly due to the more and more frequent droughts, floods, fires and increase of average temperatures, as well as to the pressures of economic development themselves.

On the other hand, Spanish forests can have important environmental benefits by regulating water cycles, in terms of the amount and quality, by avoiding erosion and desertification processes and by constituting GHG sinks, energy sources, and the support for biological diversity, recreation, landscape, tourism, etc. For this reason, achieving sustainable forest management is one of the challenges of this strategy, which must consider not only ecological and social factors, but also economic ones, since reaching a suitable profitability constitutes a guarantee for conservation.

In terms of the land occupation model, the Spanish territory is very polarized, with rural areas in the process of depopulation, as opposed to strong concentration trends in major cities and the coast. In addition to the serious environmental consequences of abandoning the countryside, the pressures on the environment in the areas with greater concentration are intensified and they generate important externalities like pollution, waste and the alteration of ecological cycles. As a result of these trends, the intensity of the erosion process exceeds tolerable limits in nearly 46% of the national territory, and 12% of the territory is subject to very severe erosion, specially affecting 31% of the territory of the Guadalquivir river basin and 22% of the Southern basin.

In the end, the interaction between the anthropic and natural occupations of the same territory may lead to the disappearance of landscapes, cultures, heritage and ecosystems of great value as a result of the destruction and pollution of natural resources and land erosion and desertification.

Investment in Research, Technological Development and Innovation (R&D&I) is one of the main strategic elements of sustainability in a competitive economic

context world-wide. One of the areas where this investment has a major relevance is environmental sustainability. Thus, The European Framework Program of R&D 2007-2013 has devoted 4,100 million Euros, which represents 13% of project financing, to boost R&D in Energy and Climate Change. The Spanish R&D&I policy is in keeping with this European commitment.

Until now, R&D&I activity in the areas of Energy and Climate change was characterized by a low participation of the private sector and a limited policy of innovation in energy efficiency. With respect to participation of the private sector, in spite of the existence of an important corporate network with international presence in this area and that sectors such as energy have enjoyed important investments as a result of the entrance of renewable energies, the renovation of generation facilities and the remodelling of the existing ones, R&D&I only amounts to 4% of total investments, a small effort if compared to other strategic industries. On the other hand, energy losses in the distribution network are higher than 9%, which explains why innovations that represent improvements of energy efficiency will be very important to reduce this percentage.

In order to face these issues and to reinforce R&D&I, the Government is making an important decision in the area of Energy and Climate Change, in line with the European strategy, reflected in the new R&D&I National Plan 2008-2011 which includes a specific strategic line in this field.

The importance for Spain of R&D&I activities in matters not directly related to Climate change must be emphasized, particularly, in the areas of eco-innovation, saving and reusability of hydric resources and raw materials, and waste treatment, represented in the new National Plan in a wide set of cross-sectional actions.

In relation to educational and awareness measures, those having more impact in the medium and long term are those that affect education from an early age. Education is a fundamental tool to transmit knowledge about the environment and its conservation according to the principles of sustainability and the preservation of natural resources. For this reason, it is essential to introduce the concepts of responsible consumption, sustainability and respect to the environment both at school and homes. In keeping with this, the recently approved Statutory Education

Law establishes among the minimum knowledge to be acquired in primary and secondary Education, the conservation of resources and natural diversity and global and intergenerational solidarity. Likewise, the new subject of Education for Citizenship includes the subject of responsible consumption. Similarly, the National Consumption Institute organizes an annual school contest – Consumópolis - on responsible consumption, which called the attention of the European Commission so that it could be developed at European level in the next editions.

2.2. Social sustainability

The social side of sustainable development not only responds to human justice, it is justified given the evident relationship between environmental deterioration and production and consumption styles of developed countries on the one hand, and the scarcity of resources and opportunities of developing countries, on the other hand.

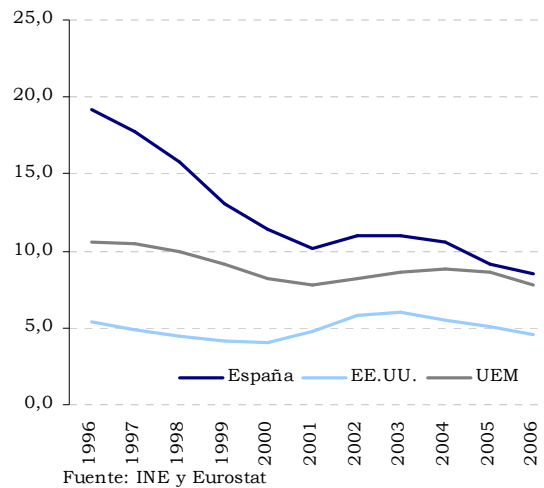
In terms of social sustainability, Spain defends the principles of the inclusive society, to take into account solidarity between generations, and to ensure and improve the citizens' well-being by creating more and better employment, reducing the risk of social exclusion or poverty and guaranteeing public health and protection against dependency situations.

The social scope of the SSDS is developed on the basis of the European Sustainable Development Strategy and it is articulated in a coordinated and coherent manner with the latter and with the National Strategies of the other EU States Members. Consequently, the SSDS takes into account the financial principles, programmes, actions and instruments that the EU has established to achieve the objectives of employment and social cohesion.

Since the mid-nineties, the job market in Spain has experienced a very favourable evolution, exceeding all forecasts both in terms of job creation, participation and unemployment decrease. Thanks to this, the aggregated

indicators of the labour market have become similar to those of the main European economies and to those of the rest of industrialized countries.

Graph 2.2.1. Unemployment rate



Thus, between 1996 and 2006, 3 million women and more than 2.5 Million immigrants were incorporated to the job market. Nevertheless, this high increase in job offers did not produce an increase in unemployment, since in that same period almost 6.8 million jobs were created, reaching 20 Million workers. Consequently, the number of unemployed people was reduced significantly, leaving the unemployment rate in 2006 in its lowest minimum of the democratic period: 8.5% (as opposed to 19.2% in 1996), a similar figure to the one of the main European economies. In addition, all studies suggest that this decrease in unemployment (almost 11 percentual points) has a strong structural component that also reflects on the important downward adjustment experienced by long-term unemployment.

The favourable evolution of the job market is the result, in the first place, of a series of positive changes that have affected the Spanish economy. In particular: the reduction of real interest rates and the expansion of the job offer to women and immigrants. Likewise, since the mid nineties, reforms were introduced in the job

market and they have contributed to create a more favourable institutional framework, promoting input and output flows and introducing reductions in work taxes.

The favourable evolution of the work market is expected to continue during the next few years. This, however, must not be an obstacle to continue working on the reforms to reach a balance between the capacity to adjust to a dynamic environment such as the present one and individual security, in a fairer context from the social point of view and more efficient in economic terms.

In this context, the contribution of the existing consensus (Social Dialogue) in which socio-laboural measures have been approved in the last few years demonstrates that the support and endorsement of social actors to reform measures guarantee the maximum effectiveness of the same.

In this sense, it is important to point out the consensus reached by social actors and the Spanish Public Administration in matters of public policies and the development of Corporate Social Responsibility (CSR) in Spain in keeping with the last communication from the European Commission of March 2006. In this communication, the Commission urges European companies to publicly demonstrate their commitment to sustainable development and to intensify their commitment to CSR. The Government has made an important effort to prepare a policy to promote CSR as a result of the dialogue with the social actors and the civil society so as to consider the aspects of social responsibility both of private and public interest, given that decisions on the use, consumption and deterioration of the natural, social and human capital, affect the present and future society as a whole.

With respect to the fight against poverty and social exclusion, according to the Survey about Life Conditions of 2005, 19.8% of the Spanish population lived below the relative poverty line, which supposes a moderate decrease with respect to the previous year. The most affected groups are women, the young and the older than 65. At international level, the rate of relative poverty in Spain is still relatively far from the European average.

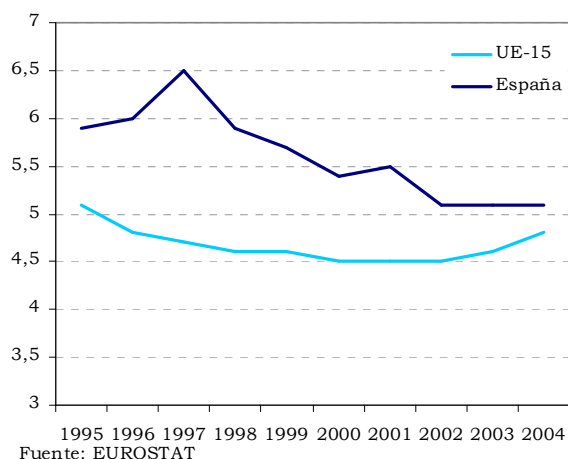
One of the most important elements in the fight against poverty and equal opportunities increase in Spain is the policy of social transfer. In fact, according to the Survey about Life Conditions 2005, 24% of the Spanish population lived below the relative poverty line before considering social transfer (except for retirement and survival pensions that are considered). This means that complementary social transfers reduce in more than 4 percentual points the rate of relative poverty in Spain.

But the fight against poverty and social exclusion does not only mean to increase the income of the poorest by means of social transfer for purposes of guaranteeing the minimum economic resources to all citizens, but it also implies the commitment to reach long-term objectives in matters of access to employment, housing, mobility, health care, communication and information services and, mainly, to education and professional training.

One of the groups that seems to be at greater risk of poverty and social exclusion is the immigrant population, who has multiplied by four in the last few years, moving from 0.9 million in 2000, to more than 4 Million in 2006; that is, 9% of the total population. As a consequence, in the 2001-2005 period the annual growth rate of the population has been far beyond the average of the EU-15.

In terms of reducing income distribution inequalities, the effort made since the end of the nineties deserves a special recognition, in line with other countries around us. Thus, whereas in 1997, the richest 20% of the Spanish population made 6.5 times more income than the 20% poorest, in 2004 this relationship was 5.1. As a result of this, although Spain has a more unequal income distribution than the average European countries, the differential with respect to the EU-15 has been reduced remarkably and continuously since the end of the nineties, as shown in Graph 2.2.2.

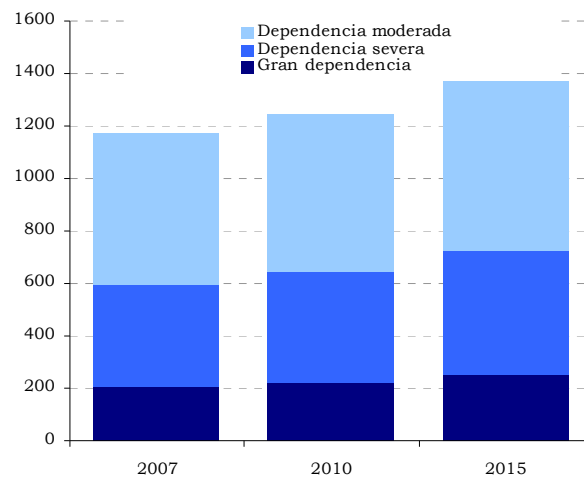
Graph 2.2.2. Income distribution S80/20



Along with the increase in migration flows, the greater challenge of social sustainability in the long term is the progressive ageing of the population that will dramatically increase the percentage of dependent population in the next decades. As shown in Graph 2.2.3, according to the figures supplied by the Ministry of Labour and Social Affairs, in 2007 the group of dependent population in Spain amounted to 1.2 million people (205,000 in great dependency situations, 389,000 severely dependent and 578,000 moderately dependent), of whom more than 80% are over 65 years old. ⁴

Care of dependent people is habitually carried out in the family and, mainly by women (83.6% of the family caretakers), given that only 10.7% of the older than 65 have the support of social services (home care, call centres, residential care centres and day-care centres).

Graph 2.2.3. Projection of dependent people in Spain (thousands of people)



Source: Ministry of Labour and Social Affairs.

⁴ In this group, we must include children younger than 3 years old in dependency situation, given that these projections refer to the older than 6 years old.

2.3. Global sustainability

With respect to global sustainability, Spain must contribute to the reduction of poverty and promote sustainable development world-wide. Both objectives require integrated and coordinated actions. In this way, to guarantee environmental sustainability, it is important to integrate the environment and management of natural resources to the set of measures intended to fight against poverty world-wide. For this, the Spanish international cooperation policy must be framed within the main agreements and consensuses that constitute the international development agenda, as well as to actively participate in international financial institutions and multilateral bodies.

The International Development Cooperation Act (IDCA), 1998) confirms the commitment of all democratic States with countries that have not reached the same level of development. To contribute to poverty reduction and the sustainable development of developing countries for the sake of global sustainability becomes a horizontal priority within the Master Plan for Spanish Cooperation 2005-2008, a basic instrument to plan Spanish cooperation actions abroad.

The Master Plan recognizes that poverty separates people from a suitable standard of life and has a multidimensional character that includes different aspects: economic (income, means of living, dignified work), social (health, literacy), policies (rights, power, freedom of speech), sociocultural (status, dignity) and protection (safety, risk, vulnerability). The integration of the gender perspective is essential to reduce poverty in all dimensions.

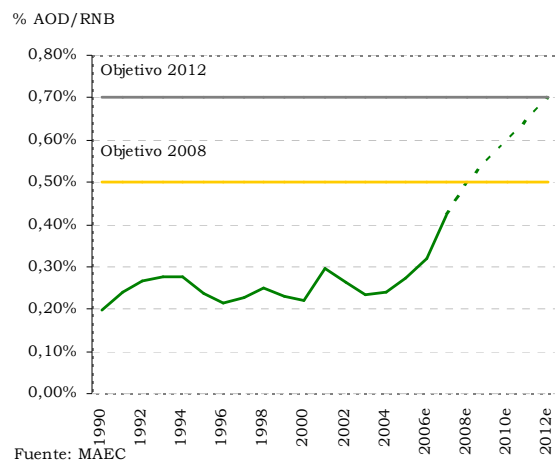
The fight against poverty must constitute a horizontal priority independently of the sector in which Spanish cooperation operates, being one of the most serious aggressions to the dignity of human beings. Poverty eradication, in its entire dimension, is a necessary condition to promote economic growth and social sustainable development which makes sustainable management of natural resources a key factor to reach the Millennium Development Goals decided by the international community after the ratification of the Millennium Declaration.

In this context, the Government committed to duplicate the budget for Official Development Assistance (ODA) to reach 0.5% of Gross National Income (GNI) at the

end of the term and 0.7% by 2012. Reaching these targets means carrying out efforts in other fields so as to achieve greater aid efficiency, coherence and quality. Spain is thus ahead of what was established in the Monterrey Consensus, subscribed by the Member States of the United Nations in March 2002, and reaffirmed in the last World Summit of 2005, in which the General Assembly of the United Nations confirmed the urge for developed countries to reach this objective by 2015, achieving at least the intermediate goal of 0.5% of the GNI by 2010.

With this purpose in mind, as shown in Graph 2.3.1, the Spanish ODA has increased since the beginning of this term. In 2006, the net total ODA surpassed 3,000 million Euros, the biggest net payment in the history of Spanish cooperation. In relative terms, Spain devoted 0.32% of its GNI to this concept.

Graph 2.3.1 ODA Evolution in Spain



2.4. Main objectives

Considering the diagnosis made and the challenges, this strategy contains a series of primary goals that guide the type of measures to be carried out in each Section. In some cases, these objectives are complemented by a set of specific

objectives for the short and medium term, and that are necessary to reach the main ones. The primary goals of the strategy by areas are as follows:

➤ **ENVIRONMENTAL SUSTAINABILITY**

▪ **Production and consumption:**

- To increase saving and resource-use efficiency in all sectors.
- To prevent pollution, reduce waste generation and promote waste reusability and recycling.
- To improve air quality, especially in urban areas.
- To optimize people's need for mobility and merchandise flow in terms of power and the environment.
- To revalue tourism system in terms of sustainability.

▪ **Climate change**

- To reduce emissions by means of: a) favouring renewable energies in the power generation mix, b) an improvement of energy efficiency in transport and construction, c) sector measures d) market instruments.
- To integrate the adaptation to climate change in the economic sector plan.

▪ **Conservation and management of natural resources and urban planning**

- To ensure environmental sustainability and the quality of hydric resources, guaranteeing the supply to the population and the sustainable and productive use of the same.
- To refrain biodiversity loss and natural heritage, through the conservation, restoration and adequate management, compatible with an environmentally sustainable production of natural resources.
- To promote a sustainable and balanced territorial and urban development to stimulate sustainable development in rural areas.

The importance of R&D&I in all environmental matters make the promotion of R&D&I and eco-innovation a cross-sectional objective of this strategy.

In addition, in terms of education, the goal is to train within the principles of environmental sustainability and to reinforce the preparation of teachers who teach the courses in this area. At the same time, all measures related to raising awareness, communication and improvement of education in terms of the strategic lines of environmental sustainability will contribute to increase the efficiency of the rest of the SSDS and to ease the transition towards a sustainable model.

➤ **SOCIAL SUSTAINABILITY**

▪ **Employment, social cohesion and poverty.**

- To promote the access to quality employment.
- To support social integration of the groups at risk of exclusion.
- To promote the allocation of minimum economic resources to the people living in conditions of poverty.

▪ **Public health and dependence**

- To promote a healthy society with a good quality of life.
- To support people in a dependency situation.

➤ **GLOBAL SUSTAINABILITY**

▪ **International cooperation for sustainable development:**

- To increase the Official Development Assistance (ODA) to reach the 0.7% target in 2012, with the intermediate objective of 0.5% in 2008.
- To increase the effectiveness, coherence and quality of Spanish cooperation policy.
- To integrate the multidimensional approach of the fight against poverty by incorporating environmental sustainability to the Spanish policy of international cooperation and transforming it into a multilateral and bilateral development cooperation objective.

3. ENVIRONMENTAL SUSTAINABILITY

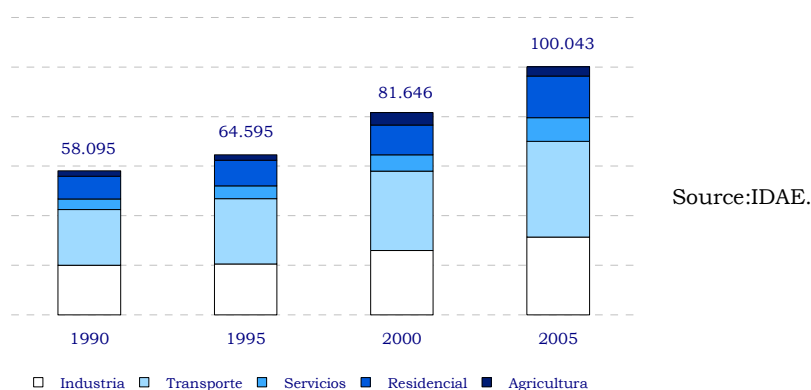
3.1. Production and consumption

In the last few years, the Spanish economy has experienced a strong economic growth which has in turn increased the per capita income levels close to the European average, as well as the consumption of natural resources and the generation of more pollution and waste.

The main objective of this Section is the decoupling of economic growth and pollution. The boosting factors of this decoupling are, on the one hand, the prevention of unnecessary consumption, and, on the other hand, the efficiency in resource consumption, which really means to produce more wealth with less. Both effects produce a reduction of pollution associated with production and consumption, being the greater challenge faced by developed countries to achieve absolute reduction or decoupling.

Special attention is given in this Section to efficiency in the energy consumption, hydric and forest resources, given its relative scarcity. In addition, in Section 3.2 on climate change, the energy sector is studied at length; in Section 3.3.A the essential aspects of the environmental sustainability of hydric resources are studied, and throughout Section 3, the influence of forest sustainability in the management of hydric resources, biodiversity and land conservation is described.

Graph 3.1.1 Evolution of Final Energy Consumption by sectors (ktep)

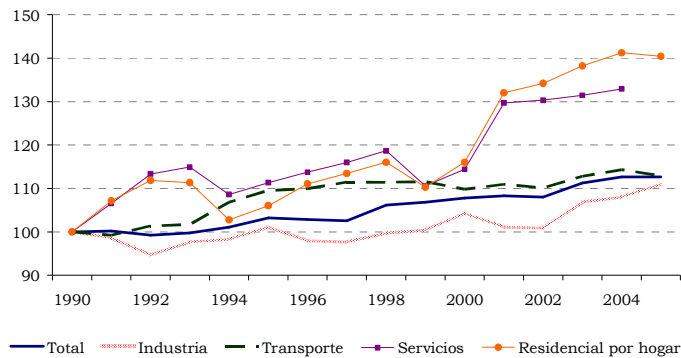


In the case of energy, inefficient consumption produces an increase in GHG emissions and local polluting agents, and it aggravates the already high energy dependence, which causes in turn an increase in economic vulnerability.

The consumption of final energy has increased in 72% between 1990 and 2005, being all sectors of the economy responsible for the increase in final energy demand, as reflected in Graph 3.1.1, with special importance given to the role played by construction and mainly, the transport sector. In fact, the greater participation of the construction sector has caused that, after a long period of stability, industrial energy intensity began to recover since 2004. In particular, the sector of Non-Metallic Minerals (Cement, Glass and Ceramics) absorbs more than 21% of the total energy consumption of the industrial sector, but it only represents 5% of the GAV.

As far as energy intensity is concerned, Graph 3.1.2 shows the evolution of energy intensity of each branch of activity during the period 1990-2005, emphasizing the strong increase in the service and residential sectors.

Graph 3.1.2. Final energy intensity growth by sectors (base year 1990)



Source: IDAE.

In the industry sector, co-generation, one of the most effective formulas to increase the efficiency of productive processes⁵, has reduced its participation in the period 2004-2006, as a result of the increase in gas prices, which worsened the economic yield of these facilities. In the service sector, energy intensity has experienced an annual average growth of 2% between 1990 and 2005. On the other hand, in the residential area the interannual growth rate of energy consumption in households was 5.2%, mainly as a result of the improvement of equipment, as a consequence, in turn, of the increase in the per capita income. In the public sector, the greatest consumptions come from the public lighting system and water treatment, areas in which the City councils are carrying out a number of actions aiming at reducing energy consumption.

On the other hand, the transport sector has the highest final energy consumption, reaching 38% of the national total and 15% in the case of private cars. The strong growth of the demand for mobility has caused a slight worsening of the energy intensity of the sector in spite of the engines efficiency improvements introduced mainly by the car and aeronautic industries. Thus, the energy intensity of professional transport of people and merchandises (energy consumption by GAV unit) has increased in 1.3% between 1990 and 2004. In the case of private transport, the worsening during the same period is still more significant: the per capita energy consumption has experienced an increase well above 40%.

In the case of merchandise mobility, the most remarkable characteristics are that 85% take place by road and that 70% of the trips made by road are within less than 150 km. The railway transport has a low presence of 4%, whereas in the EU it reaches around 8%. In the international transport of merchandises, the maritime mode is the most important transport, but this is due to the high imports of oil that enter by sea, being transport by road the main alternative used for exports to the

⁵ Cogeneration produces in one same process both electricity and heat and it is used by the industries that produce water steam and/ or hot water, such as chemical plants, paper mills and food manufacturers; by those that require drying processes such as mining, ceramics and similar industries; and in general, by any facility where heat or cold energy is required so that they can be installed for residential communitarian use and at greater consumption levels for the tertiary sector (commercial centres, buildings, etc.).

EU. In addition, one of the characteristics of the sector of professional transport by road is its strong atomization.

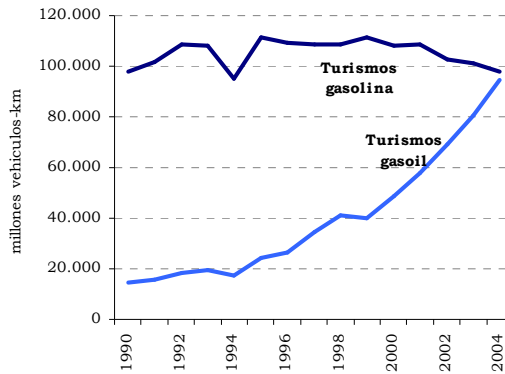
As far as the mobility of people is concerned, breaking off the dense city model, with strong urban dispersion and new low density developments in the peripheral metropolitan areas, has brought a remarkable increase in the demand for urban mobility. The intensive use of private cars, especially during rush hours, generates traffic problems in many medium-size and big cities. In terms of non-daily mobility, indicators also reflect a strong increase in the demand for transport, both for long distance trips and for average distance trips, a high number of which are trips to second homes.

One of the problems raised by the high mobility of people, in terms of environmental impact and infrastructure use is that the prevailing transport mode is the private vehicle. In the last fifteen years, Spain has seen the total number of cars increase, as well as the average use given to each vehicle. The trends shown in Graph 3.1.3 reflect the high increase in the number of diesel vehicles from the total number of cars in Spain (already reaching 40% of the total for 2005), as well as their more intensive use in comparison with gasoline vehicles: an average of 16,600 km per year for diesel vehicles, compared to an average of 11,000 km per year for gasoline vehicles.

The increase in diesel consumption has influenced the evolution of GHG emissions and domestically, NO_x emissions that are much higher with diesel engines⁶, and increase the concentration levels in cities and the risks of respiratory and cardiovascular diseases.

⁶ EURO 4 Standard establishes that the maximum level of NO_x is 250 mg/km for diesel and 80 mg/km for gasoline.

Graph 3.1.3. Total kms travelled (vehicles)



Source: IDAE

Spain presents mobility indicators that reveal that our country has an economic and social system with an intensive consumption of transport, with the important consumption of energy resources that this entails. Among other causes, this is because the externalities generated by each mobility decision are not internalized.

The evaluation of air quality demonstrates that the problems in Spain as far as local pollution is concerned are similar to those of other European countries. In big cities greater levels of pollution exist, mainly originated by the traffic of vehicles. Thus, in 2005, the maximum levels of nitrogen dioxide in some big cities and of particles in general, in all Spain, and especially, in some urban areas, have been surpassed several times. The limit values established by the regulations are reduced every year to reach the objective of 2010 and these are expected to strengthen with the approval of the new Directive on Air Quality.

The traffic accidents in highways and urban areas constitute another of the most important problems linked to transport, being the first cause of death in

people under 30 years of age. In the last five-year period, accidents with victims have decreased by 8% and mortality by 18%, thanks to the improvements in the passive security of vehicles and in infrastructures. In spite of these trends, the rate of mortal accidents in Spain is higher than the European average, so that it is necessary to continue to adopt new measures.

Spain presents a high proportion of population affected by noise, a problem generated by the increase of traffic and the pressure carried out by urban developments and transport infrastructure, which have put the citizen in contact with more intense sources of acoustic contamination.

Likewise, the protection of the sea requires reducing to a minimum all accidental, negligent or deliberate spills from oil ships and any other substance that can become a serious source of pollution, because they can be dangerous for health, they can damage marine biodiversity, and they can jeopardize its recreational characteristics.

The transport sector is, therefore, a high-priority sector to undertake actions to improve the efficiency, not only due to its high energy consumption, but because it uses fossil fuels, and thus has a significant impact on the quality of the air we breath and on public health, as well as on GHG emissions, as explained in Section 3.2.B. In addition, the transport sector faces other important challenges, such as the reduction of accidents, noise levels and spills of polluting substances to the sea.

As for hydric resources, this Section describes the contribution of efficiency in water consumption to sustainable production and consumption, whereas Section 3.3.A, on hydric resources, discusses issues related to water quality, spills control, diffuse pollution, integrated management of underground resources, channel restoration and the management of droughts and floods.

Water saving and efficiency entail important environmental benefits. With respect to agriculture, the major consumer of water, the main challenges are to substitute traditional systems by more modern techniques that promote water savings and reduce the intensity of use, and the reduction of losses in the distribution process. Results for 2005 have been positive, with a 12.8% increase of

located irrigation with respect to the 2002-2004 period, the figures for gravity irrigation having been surpassed for the first time, although progress has to continue.

It is important to consider that irrigation plays a key role in environmental sustainability, but also in social, economic and territorial sustainability. For many farmers irrigation means survival in a more and more globalized economy, since one hectare of irrigated land has a an average production 6 times higher than one of dry land, the income produced, is 4 times greater and it allows for crops diversification and impact reduction as a result of climate variations. For this reason, irrigation is a key element to structure the territory and rural development, given that it allows for the creation of more qualified jobs, and fixing population.

As for domestic consumption, tourism strong pressure on seasonal demand, demographic pressures, and the growing number of second homes are aggravated by a consumption which is not always efficient, due to the low public awareness and water's low price. Thus, the average tariff of water in Spain is around 1.3 €/m³, whereas in humid countries of Europe it is between 2 and 3 €/m³.

The third type of resources on which this Strategy is based is forest resources, which has important environmental, economic and social benefits. The Spanish forest surface is over 26 million hectares, which is equivalent to 52% of the national territory, with a production stabilized in 15 annual million of m³, half of the domestic consumption of timber. Since the annual growth of Spanish forests exceeds 35 million of m³ of wood, its production and management are not unsustainable, mainly considering that these are specially productive areas (77% of private properties) located in the Cantabrian Cornice (75% of the national production) and from three species (two thirds come from *Pinus pinaster*, *Pinus radiata* y *Eucalyptus* sp.). Therefore, the main challenge in this area is that timber exploitation and the rural society have a good economic profit from the use of forest resources, which will result in the conservation of resources, and thus, in important environmental benefits as detailed in Section 3.3.

In the management of forest resources the main weaknesses of companies in this sector are their important fragmentation, their low effectiveness, low

mechanization, lack of qualified personnel and a very reduced area of exploitation, which barely has any benefit margin and, therefore, offers few possibilities for modernization and innovation.

In terms of sustainable consumption, developed economies, such as Spain, are based on production and consumption processes generating a high level of pollution and an increasing volume of waste as by-products. In this context, waste becomes one of the most urgent environmental problems of modern societies, not only due to their management and storage needs, but also due to their impact on land and water pollution, public health risks, and GHG emissions. As shown in Graph 2.1.3, the production of urban waste in Spain has grown 52% between 1995 and 2004, although in per capita terms we are still below the European average. On the other hand, waste treatment has improved in the last decade, although it still cannot be considered fully satisfactory.

As far as polluting agents are concerned, there are 5,142 facilities in Spain subject to the Directive on Integrated Pollution Prevention and Control (IPPC) aiming at avoiding, reducing and controlling atmospheric water and land pollution. As for chemical substances, it is estimated that around 30,000 chemical substances are produced or imported into the EU in amounts exceeding one tonne per year. Although there is no reliable data on the substances that affect Spain, some estimates indicate they are around 400. Up to now, there are no instruments to control, monitor, prevent and evaluate the risks associated to them.

In the framework of the instruments defined at the international level for purposes of facing long-distance or trans-frontier atmospheric pollution, we can find, among others, the Geneva Convention (pioneer in the fight against the emission of acidifying, eutroifying and ozone-depleting substances) and its Protocols and, at the community level, Directive 2001/81/ EC on National Emission Ceilings for certain atmospheric pollutants, which forces our country to limit SO₂ annual emissions to 746 kt, NO_x to 847 kt, COVNM to 662 kt and NH₃ to 353 kt, before 2010.

Results obtained by monitoring these polluting agents in the period 1990-2005 show a difference with respect to the objectives established for NO_x and NH₃

emissions, since they grew by 19.5% and 18.2% respectively, and a decrease in SO₂ emissions of 41.4% and 6.6% for COVNM. Forecasts for 2010 indicate that Spain could very comfortably respect the ceiling established for sulphur oxides and possibly for ammonia, but that it would exceed the ceilings established for nitrogen oxides and volatile organic compounds in spite of important improvements in this sense with respect to the trend scenario.

On the other hand, Persistent Organic Compounds (POC) are chemical substances with a high permanence in the environment since they are resistant to degradation, they are bioaccumulable, they incorporate into the tissue of live beings, they are highly toxic and they cause serious effects on human health and the environment as they have the potential to be transported to long distances, being able to reach regions where they would have never existed or been used. For this reason, Spain signed the Stockholm Convention⁷, the objective of which is to eliminate or reduce emissions and releases to protect human health and the environment.

On the other hand, with respect to acoustic pollution, Directive 2002/49/EC, on the assessment and management of environmental noise, establishes, among other commitments, the obligation to prepare strategic noise maps for great transport infrastructures.

Finally, with respect to production and consumption, this strategy dedicates a section to the tourist sector, one of the main driving forces of growth of the Spanish economy, highly dependent on the quality of the natural and cultural surroundings. The Spanish tourist sector is a success model recognized worldwide, a driving force of the economy and the promoter of social development, although the consequences of this model of growth on the natural heritage of the country are also recognized. Spain has a privileged position in tourism, being the second destiny of the world, both in terms of arrivals of international tourists, and in terms of tourism-generated income. In 2006, the sector represented 11.5% of the GDP and 12% of the employment generated in our country and the number of non-

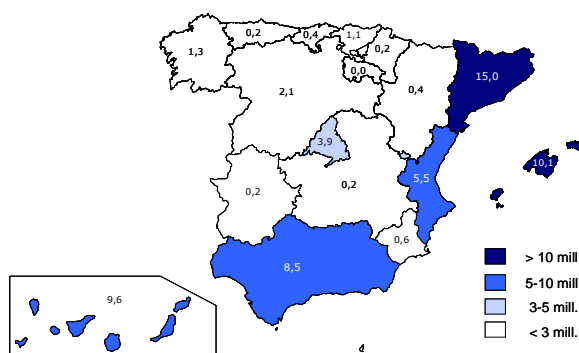
⁷ This Convention of the United Nations Environment Program (UNEP) was signed in 2001 and was enforced by Spain, on August 24th, 2004.

resident tourists reached 58.5 million people⁸. On the other hand, tourists residing in Spain made a total of 155.6 million displacements within the national territory⁹.

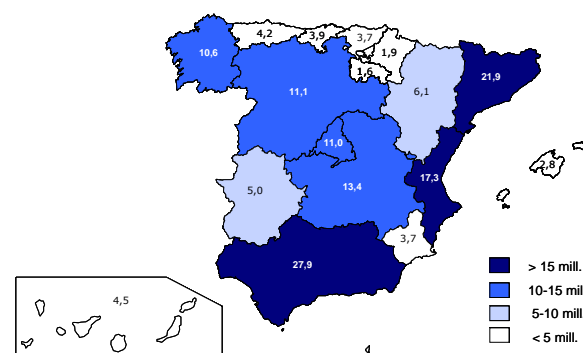
The main problem faced by the sector is the strong geographic and seasonal concentration on the coastal areas and the summer period, that creates an over dimensioning of the power and hydric infrastructure and generates strong pressures on the territory.

In fact, 90% of foreign tourists go to six Autonomous Communities which receive more than 50% of the local tourist movements of residents, distributed somehow in more areas along the territory. Graphs 3.1.4 and 3.1.5 illustrate the geographic distribution of national and international tourism that choose our country as their destination.

Graph 3.1.4 Geographic distribution of international tourism in 2006 (million)



3.1.5 Geographic distribution of national tourism in 2006 (million)



Source: Institute for Tourism Studies (Instituto de Estudios Turísticos IET)

⁸ Spanish Inbound Tourism Survey (Encuesta de Movimientos Turísticos en Fronteras Frontur).

⁹ Domestic Tourism Service (Encuesta of Movimientos Turísticos de los Españoles Familiar).

On the other hand, 56% of the arrivals of international tourists occur between May and September with special emphasis between July and August (26%), when there is also a greater number of a domestic movement (23%). This pattern is common to the main receptor AACC, except the Canary Islands and Madrid that maintain a constant flow throughout the year.

Data from the first quarter of 2007, as well as the forecast for the rest of the year indicate the tourist sector will continue to grow and will mean Spain will surpass the number of 60 million foreign tourists visiting Spain. But something even more important is that in 2007, the Spanish Tourism Plan Horizon 2020, the international commitment of Spain with the reformulation of the tourist system in terms of sustainability subscribed in the Sixth Environment Action Programme of the European Community, within the European Sustainable Development Strategy. This initiative is led by the Spanish Council of Tourism, resulting from the joint work of the three levels of the public administration, the private sector and the civil society aiming at ensuring sustainability both in present destinations and products, as well as in new tourist developments.

In the end, the most effective instruments to achieve sustainable production and consumption are the increase in efficiency, the adoption of technological improvements in all areas (power, hydric, waste), the improvement of transport networks both for energy and water, the modal change in transport use, the monitoring of emissions from polluting substances and the promotion of communication and public and corporate awareness about the benefits of these measures.

A) Resource-use efficiency

Objectives

The main goal of this part of the strategy is **to increase savings and resource-use efficiency in all sectors**. In the energy area, the goal is to reduce primary energy consumption by at least 2% annually with respect to the trend scenario of the forecoming years, with special emphasis on the transport, industry and construction sectors.

In the case of hydric resources, a key issue is to guarantee the sustainable use of resources and the fulfilment of the environmental objectives of Water Framework Directive (WFD), that will be described in Section 3.3.A on hydric resources. In order to obtain an efficient use of water, agriculture and urban supply management must be improved, as well as a price system must be established to promote savings and efficient use.

The indicators for energy efficiency will be primary energy consumption, total primary energy intensity and final energy intensity in the transport, industry and residential sectors. In order to measure hydric resources consumption efficiency the percentage of irrigated land using located irrigation will be used.

Actions

In the energy area, measures are intended to reduce primary energy consumption through the application of new technologies and to promote savings and avoid waste. At the moment, a varied number of measures are being applied in the framework of the Energy Efficiency Strategy for Spain 2004-2012 (E4). The E4 was elaborated by the Institute for Energy Diversification and Saving (IDAE), by means of a sector approach to detect the existing barriers in the different scopes of consumption so as to evaluate the type of measures and instruments capable of overcoming those barriers. The E4, directed fundamentally to the final consumer sectors, proposes among others, the technological improvement of equipment and industrial processes; in the transport sector, measures of modal change towards more efficient ways; measures to promote efficient use of energy consuming equipment, and minimum standards of energy efficiency in new constructions or in the thermal facilities of buildings.

Starting with the E4, the Ministry of Industry, Tourism and Trade implemented an Action Plan 2005-2007 and has just approved the Action Plan 2008-2012, both destined to make specific actions to be undertaken in the short and medium term in each sector, detailing the objectives, the terms, resources and responsibilities, and evaluating the global impacts derived from these actions. The Action Plan 2005-2007 has focused on the transport, industrial and residential sectors given

that they have the greatest saving potential. The Plan anticipates savings of 12,005 ktep of primary energy, the equivalent to 8.5% of the total consumption of 2004 and 32.5 million tonnes of CO₂ that will improve Spanish economy's competitiveness, by incorporating technologically more advanced equipment to the productive processes.

The Action Plan 2008-2012 is necessary to meet the requirements of the National Allocation Plan 2008-2012 and its objectives are more ambitious than those of the previous Plan. Thus, the average interannual growth rate of primary energy consumption is expected to reach 1.07%, which represents a strong energy saving from the base scenario that considered the interannual growth for this same period at 3.10%. With both Action Plans, an energy saving of almost 100 million tep will be reached and 270.6 million tonnes of CO₂ will be avoided.

As for co-generation, the existing repayment mechanism remains, so that production in these extremely efficient facilities continues and extends to the tertiary sector. In addition, Royal Decree 616/2007, of 11 May, on the Promotion of Co-generation incorporates to the Spanish Legal System the content of Directive 2004/8/EC of the European Parliament and the Council, of 11 February 2004, related to the promotion of co-generation on the basis of the useful heat demand in the internal energy market. This Royal Decree provides a stable legal framework for the promotion and the public support to the high efficiency co-generation which includes that the evaluation of the existing national potential be carried out to implement this technology and the barriers that hinder the development of the same be analyzed. On a long term basis, new measures will be adopted to improve the efficiency, making more information campaigns in companies about the costs and the availability of new technologies for the improvement of energy efficiency. In addition, financial aids in the form of loans will be granted to integrate these new technologies to the industrial processes.

All this will be supplemented with regulatory mechanisms to boost the implementation of clean technologies for purposes of energy efficiency. Among the new regulations, Energy Services Directive (COM 2003/739) will be applied.

As far as the new measures aiming at managing the demand are concerned, the strategy is based on avoiding waste through price signals. Thus, modifications in the tariff structure of the electric power generation will be established to stimulate savings in energy consumption. With respect to the management of peak electricity demands, operation procedures will be established to formalize agreements of uninterruptedness of the service in case of system shortages.

In the case of smaller consumers, time measuring equipment or power limitators will be installed progressively. For purposes of this, distributors will be extending “smart” meters (instantaneous measures), that will help reduce consumption when the price of electricity increases. Likewise, training programmes on the green eco-label, together with awareness campaigns in schools, training centres, universities, companies, consumer associations, etc. will be developed.

All these measures to manage demand will be introduced in the new Action Plan 2008-2012, where concrete responsibilities, actions, budget, monitoring and calendar will be defined.

As for hydric resources, the measures proposed aim at guaranteeing the sustainable use of resources and the fulfillment of the environmental objectives of the Water Framework Directive. These are complemented with other measures described in Section 3.3.A.

Sustainable use of water in agriculture calls for greater efficiency of irrigation systems, as well as for the modernization of irrigation habits. Bearing this in mind, the Action Plan for the Modernisation of Irrigation approved by Royal Decree 287/2006 establishes high-priority modernization areas based on economic, social and environmental sustainability. This Plan allows a more than 1,100 hm³ annual saving and the improvement of the productive potential and, at the same time, all farmers who will benefit from this action are committed to adopt, through a rigorous program of environmental monitoring, all the necessary measures to reduce pollution. As a complement to the modernization of the irrigation systems, it promotes the incorporation of irrigation farmers to the information society, to reach a greater efficiency in the managing of the irrigation systems, as well as in the creation of quality employment and services that contribute to the development of

the agro-industrial sector for the benefit of the rural population and the improvement of their quality of life.

In order to guarantee the necessary hydric resources for socio-economic and environmental uses, actions focus on the infrastructures having a lower social and environmental impact, promoting greater production in those places where water shortages occur, tending, therefore, to the search for balance within the same river basin. With this objective, main works in the last few years aimed at modernizing the channels on irrigated lands, extending and building desalination plants on the Mediterranean coast, and at maintaining and improving the existing dams, for purposes of guaranteeing security and efficiency.

On the other hand, knowledge about water uses and rights is essential to the planning and management, for which the ALBERCA Program¹⁰ was developed with the objective of solving a set of technical and administrative problems related to water resources management, of restoring administrative effectiveness and ensuring it for the future. The implementation of the Program entails, on the one hand, incorporating to most Water Commissions the ALBERCA computer programmes as the main working tool and, on the other hand, hiring technical assistance to undertake the transaction of outstanding files and to review the rights registered in the former Water Use Register.

In terms of the effective management of urban services, actions focus on improving the hydraulic yield of systems, on making double water distribution networks, on limiting planting species with strong water demands and on promoting the use of recycled water, especially for sports, leisure or recreational uses. On the other hand, to ensure the supply for new city-planning developments, the New Land Law¹¹ forces them to have the necessary reports from the Hydrographic Confederations about the availability of resources to satisfy the new demands and the protection of the water public domain.

¹⁰ This software tool is an integral program to provide administrative support to the processing of files and the technical issues of water uses. The Program includes data on water uses, collections and their relationships, as well as on the cartography necessary for their correct location.

¹¹ Law 8/2007 of 28 May.

In order to promote efficient consumption in households, the Technical Construction Code has incorporated the obligation to install individual meters to measure consumption and other savings devices and technologies, such as efficient toilets. These measures will be accompanied by campaigns to make people aware of the value of water and the need of having a rational and responsible use of the same.

As for water prices, up to this date there were few instruments to stimulate the rational and sustainable use of water, as established by the new price policy. In this sense, it promotes cost recovery of hydraulic investments and the application of the “polluter pays principle”. Finally, the foundations are being set for the use and effective operation of “the public water banks”.

As for the actions related to the efficient management of forest resources, the Spanish Forest Plan¹², frames a series of measures aimed at ensuring the sustainable management of Spanish forests, with the objectives of protecting and conserving the biological and landscape diversity of forest ecosystems (which will be detailed in Sections 3.3.B on biodiversity, and 3.3.C. on land conservation) and to stimulate and improve the production of forests as an economic alternative and driving force for rural development. In order to reach this last objective, repopulation actions will be promoted to boost production, as well as socio-economic actions for the promotion of forest industries, the recreational use of forests and forest research.

B) Responsible production and consumption

Objectives

The main goal in sustainable production and consumption is **to prevent pollution, to reduce waste generation and to promote the reusability and the**

¹² The Plan was approved in July 2002 and it was transferred to the Spanish Legal System in the Forest Law 43/2003 of 21 November, later modified by Law 10/2006 of 28 April.

recycling of waste. As for pollution, the main goal is **to improve air quality, especially in urban areas.**

In order to evaluate the meeting of these objectives the follow-up of the indicators to calculate the absolute volume and per capita waste will be organized, as well as for the percentage in which they are reused or valorised.

Actions

To prevent pollution in productive processes, it is important to promote an efficient consumption of resources, with the measures described in Section 3.1.A. In the specific case of reducing energy consumption and the pollution associated to the same, a number of measures related to responsible production have been designed to be carried out before 2012, as detailed in Section 3.2 on climate change.

Additionally, as far as pollution is concerned, to face the varied sources of pollution, and to improve air, water and land quality, the different Community initiatives mentioned before must be transferred to the Spanish Legal System and launch the mechanisms to eliminate or, when this is not possible, to reduce the most dangerous polluting agents.

With respect to IPPC Directive, which was already transferred to the Spanish legislation in 2002 with Law 16/2002 and which has been duly developed in Royal Decrees 509/2007 and 508/2007, all facilities polluting the atmosphere, water or land will have to be registered in a special register created for this purpose and have an Integrated Environmental Authorization to establish emission limit values for each activity. On the other hand, active participation is important in the establishment of the best techniques available from the environmental point of view. The transposition of this Directive represents an environmental and technological challenge for the Spanish industry as it is an instrument that allows for the progressive adjustment to the best techniques available, and it demands its transformation into a more competitive and environmentally respectful industry.

In the case of chemical substances, the implementation of Regulation REACH (Registry, Evaluation and Authorization of Chemical Substances) is necessary, the main objective of which is to safeguard public health and the environment from the risks of these chemical substances, without going against the industry's competitiveness. To achieve this objective, the following actions are considered: the systematic registry of all chemical substances, the introduction of an authorization or restriction procedure in the case of highly dangerous substances, the mechanisms of responsibility allocation to producers and importers, the research lines for chemical agents substitution by other less polluting agents and the increase of transparency in all matters referring to the impact of this type of products on human health and the environment.

Policies and measures aimed at ensuring responsible production and consumption of resources bring improvements to air quality, particularly in crowded and industrial areas, necessary to ensure high protection of health and the environment.

In this sense, the Spanish Air Quality Strategy, approved in February 2007, aims at containing the emissions and at improving air quality in Spain, without hindering competitiveness, employment and social cohesion. Achieving this objective is only possible through the cumulative effect of the measures adopted by the different public administrations, together with those executed within the EU and different international treaties.

A fundamental component of this strategy is the Draft Law on Air Quality and Protection of the Atmosphere, that replaces a 1972 law and defines a framework in keeping with the present and future times and challenges. This draft, approved by the Congress in July 2007, is approached from an integral and participative perspective (administrations and citizens). On the one hand, it is an integrating project given that it does not limit its scope to some concrete causes of pollution, but it covers all sources, whether concrete or diffuse. On the other hand, the Government, with the participation of the Autonomous Communities, must establish, by means of Royal Decrees, emission limit values for polluting agents, which implies that specific obligations to the products that can generate atmospheric pollution during their life cycle could be imposed.

One of the new features of the Draft Law is the inclusion of transport activities in the catalogue of potentially polluting activities to the atmosphere, next to the traditional industrial activities. Thus, CO₂ is considered an atmospheric polluting agent for the first time in Spanish regulations, which will mean stricter monitoring and control systems.

As for the Directive on National Ceilings of Emission, in 2003 Spain prepared its first National Emission Reduction Program and a second proposal has been sent to the European Commission Program, pending final approval.

Another important initiative in matters of chemical substances is the implementation in Spain of the Stockholm Convention on Persistent Organic Pollutants (POPs) through its National Implementation Plan¹³. Among the measures of the Plan, the most important ones are those directed to determine the stocks, waste and locations containing POP to optimize their management, to eliminate to the extent possible the liberation of the same and, when this is not possible, to force the said stocks to reduce them progressively, to urge the substitution of dangerous chemical substances by others, and to promote information exchange and public awareness.

Parallel to the launching of these initiatives, it is fundamental to promote R&D and eco-innovation projects to reduce polluting agents, consumption of raw materials, waste generation and, at the same time, boost the valorisation of by-products in new industrial applications.

With respect to sustainable consumption, the National Integrated Waste Plan draft (PNIR) 2007-2015 constitutes the main initiative to boost the prevention, recycling and reusability of waste, by means of incentives for the use of this type of materials. Thus, for example, it forces their use in certain civil works or it favours the acquisition of certain objects manufactured with recycled materials by the Public Administration. In cases when recycling or reusability are not possible, the PNIR chooses the valorisation of waste, as detailed in Section 3.2.C.

¹³ The National Implementation Plan of the Stockholm Convention and Regulation 850/2004, on Persistent Organic Pollutants was approved by agreement reached by the Council of Ministers dated 2 February 2007.

The Public Administrations can have an effect on the citizens' responsible consumption by means of specific actions, education and training, informing about the consequences of certain individual as well as collective consumption habits. In addition, the Administration plays a very important role setting the example, as pointed out by the Spanish Strategy for Climate Change and Clean Energy (EECCCEL) which includes 198 measures and 75 indicators, showing the firm commitment of the Spanish Government to meet the environmental commitments. This was reinforced with the approval in the Council of Ministers of 20 July 2007 of an Agreement that requires that all State General Administration (SGA) buildings have energy audits and saving and efficiency plans and use renewable energies by 2008, including the immediate substitution in the year 2007 of incandescent light bulbs by low consumption bulbs, and the establishment of maximum and minimum temperatures, respectively, for heating and refrigeration systems. In addition, the criteria established in the Technical Code of Construction will be incorporated to the SGA buildings. All these measures will contribute to reduce energy consumption by 9% until 2012 in SGA buildings, with respect to the trend scenario 2000-2005, and by 20% in 2016.

With respect to the role of the Administration as the major end consumer, some initiatives are being developed to promote "green procurement", recycling and reusability of materials, and stimulate the acceleration of autonomic and local plans in matters of controlled landfills and the closing, sealing and restoration of not controlled landfills, at the same time.

Notwithstanding, in the framework of a global strategy of sustainable production and consumption, the implication not only of the Administrations but also of companies and consumers is vital.

In order to diminish the environmental impact of production activities, suitable regulations and incentives must be established to be able to achieve the reduction and valorisation of waste, the use of ecopackaging and the introduction of less polluting technologies. Companies, by way of responsible demand, can modify the consumption guidelines that endanger environmental sustainability. In this sense, one of the main objectives of the PNIR is to generalize the principle of responsibility of producers for all waste generated, which means that the obligation to finance

resources collection and management corresponds to those who put them in the market in the first place.

Likewise, specific waste plans and awareness measures must be adopted so that the consumer may identify his role and responsibility. Citizens are the first link to most of the recycling chain allowing taking advantage of the materials contained in waste for its later use in other products. In this sense, the possibilities of recycling are greater every time as a result of continuous progress in knowledge, thanks to technological and research centres and to innovative companies that have contributed to the availability of a wide variety of recycling technology revealing thus, a perspective of unsuspected possibilities.

Finally, citizens can promote sustainable production when purchasing goods and services. In this sense, Order ITC/1522/2007 establishes the regulation of the guarantee of origin of electricity from renewable energies and co-generation high efficiency power plants, so that the consumer has the guarantee that his purchase has an impact on emission reduction in our country.

C) Sustainable mobility

Objectives

In order to achieve more sustainable transport in Spain, the main goal is to **optimize people's mobility needs and merchandise flows in terms of energy and the environment**. For this reason, the objectives from the point of view of efficiency are: ¹⁴ to achieve a higher modal balance within the interurban transport of merchandise and passengers, to reduce traffic jams in urban areas, to reduce road accidents rate and to decrease the levels of noise generated by transport activities.

The follow-up indicators of these objectives are: accessibility provided by the road and rail transport networks, modal distribution of the inner transport of passengers (percentage of each mode over the total passenger.km) and

¹⁴ Environmental objectives pertaining to sustainable mobility are analyzed in Section 3.2.B.

merchandise (percentage over total tonne.km), road accidents rates in terms of mortal victims and injuries, and the emission of polluting agents different from GHG (acidifying, ozone-depleting substances and particles).

Actions

The impact generated by the transport activities of merchandise and passengers have both domestic and global repercussions, so that actions intended to optimize mobility needs in terms of energy and the environment must be oriented towards urban and interurban transport as well.

In the urban scope, one first step to improve travellers' mobility is to design Sustainable Mobility Plans in the urban and metropolitan areas, within which the mobility initiatives for big companies and other centres of activity will be strengthened, based on collective transport (public and private). In this sense, the Metropolitan Mobility Observatory, created in 2004, analyzes mobility in cities, informs about good practices and introduces innovative initiatives for sustainable and quality urban transport, which will allow acting directly on most complex mobility issues. The Sustainable Mobility Plans, in addition to improve transport use, become a key element for the regulations on Urban and Metropolitan Action mentioned in the PEIT being able to deepen the environmental objectives and to make progress in the recommendations established by the EU in their Environment Action Programme.

Other measures to reduce traffic jams in urban and metropolitan areas, as provided for in the PEIT include the establishment of an integrated intervention framework of the Administrations having competence in infrastructure planning, as well as the tariffs and functional integration of transport services. One of the essential aspects is the support to urban and metropolitan collective transport through the improvement of suburban railways, the construction of platforms specially reserved for collective transport to access big cities, the improvement of access by public transport to hospitals, universities, industrial and corporate areas, and leisure centres. Likewise, non-motorized based mobility in cities must be stimulated - pedestrians and bicycles- and integrate these to the transport

system of each city. Both the Directives on Actions to be taken in Metropolitan Areas, elaborated by the Ministry of Public Works and the Urban Mobility Plans and Transport to work centres, elaborated by IDAE, will facilitate the carrying out of this type of actions.

All these measures intended to improve sustainable transport in cities, and others, make up the proposals contained in the Spanish Urban and Local Sustainability Strategy (EESUL) on urban mobility. The EESUL also contains diagnoses and proposals in other scopes like city-planning or urban management, directly related to mobility.

Given the role of the public sector in setting the example, AGE actions to reduce emissions in their fleets of vehicles are remarkable. Thus, the State Vehicle Fleet (PME) has prepared an action program 2007-2012, that includes an increase in biofuel consumption to reach 38% of the total consumption by 2012, as well as criteria for the hiring of new cars.

Transport efficiency in private vehicles can be improved by incorporating environmental criteria to matriculation taxes, so that vehicles are taxed based on the pollution they produce. Likewise, urban mobility can be improved with measures to promote a better use of vehicles, as higher passenger rate by means of fast lanes for high occupancy vehicles or car-poolers, as well as with the development of policies to manage the demand, in keeping with the trend established by several big European cities.

In this sense the mentioned Draft Law on Air Quality and Protection of the Atmosphere, anticipates that emission limits will be imposed, as well as requisites and technical requirements, such as control measures for emissions and it even, establishes the possibility of traffic restrictions in the event of pollution risks. On the other hand, the Autonomous Communities will have to prepare their own Air Quality Plans that will integrate urban mobility plans and will condition future city-planning and land-uses.

In the interurban scope, the correct planning of infrastructure networks to incorporate environmental criteria is an essential condition to decrease the negative impacts of transport activities, as proposed by the PEIT. On the other

hand, investment decisions on infrastructure influence service costs, and as such they favour a greater modal balance.

With respect to merchandise flows, one of the first measures to improve the transport system is to increase capacity in the most important freight railroads, undertaking all necessary actions to improve their operativity. Likewise, good rail accessibility to the nodes and logistic platforms must be ensured, and intermodal connection infrastructure (terminal and access) must be developed.

The launching of “Sea Highways”, as a competitive and high quality alternative to road transport of merchandise can be a tool to relieve the strong pressures experienced by road transport, especially considering exports.

To promote a better management of road transport fleets, so as to reduce the number of empty trips, will help improve the energy and environmental results of freight transport.

Both in the urban and in interurban scope, security is an area to which efforts must be devoted. Some of the high-priority areas to be emphasized are: the carrying out of road safety audits; the improvement and homogenization of road network standards and the increase in resources for their conservation; the reinforcement of safety levels for circulation in tunnels; the progressive elimination of level crossings; the application of Safety Plans and Programmes in airports and airplane navigation; the increase in resources for marine rescue, as well as for the fight against pollution from spills in the sea. All this must be complemented with the reinforcement of road education programmes at all educational levels, public awareness and communication of standards and good practices in matters of transport safety for professional drivers, and the increase in inspections and controls to meet all transport standards and regulations for all modes.

In order to reduce emissions of other polluting agents different from CO₂ (analyzed later in the Section on climate change) with mostly local impact, the legal framework must be developed to accompany the New Air Quality Law and Protection of the Atmosphere, now in Parliament.

In terms of noise, the elaboration of noise maps to evaluate its impact on the population is a previous condition to design the actions to reduce the levels to a

minimum, and the application of correction measures (acoustic screens, insulation of houses, etc.) where necessary.

Finally, within R&D&I, projects of innovation in sustainable mobility will be promoted, in particular: research about clean technologies for vehicles, engines and fuels; the implementation of Intelligent Transport Systems for the management and control of transport systems, and the incorporation of new communication technologies in the transport sector.

D) Sustainable tourism

Objectives

The future of our tourism industry depends on the correct establishment of the following main objective: **to revalue the tourist system in terms of sustainability**. For purposes of this, sustainable growth must concentrate on respecting the carrying capacity of destinations, reducing the negative impacts derived from the seasonal character of tourism, preserving the social and cultural surroundings of the different tourist destinations and emphasizing sustainable tourism.

The indicators available to monitor the meeting of this general objective are: the percentage of tourists received by the six major receptor Autonomous Communities, the percentage of tourists received during the central months of the year, the companies subscribed to the Spanish System of Tourist Quality (SCTE) and other indicators to be incorporated to the Spanish Tourism Plan Horizon 2020, that will be available in December 2007.

Actions

The strategy of sustainable tourism is formulated from the shared leadership of the tourist sector as a whole and structured around several axes to meet the general objective established.

The sustainability of the Tourism Model is intimately related to the urgent need to reinforce the strategic processes of tourist destinations, that is to say, those that condition their development, competitiveness and sustainability in the long term. The planning and management processes must be characterized by the methodological and technical rigor, by a long-term strategic approach and by a wide and global consideration of the complexity of the destination and the interests of all agents involved.

With respect to mature tourist destinations, that is to say, those in which symptoms of exhaustion of the model and slowing down of both the demand and the tourist offer can be observed, the recovery of their positioning must be aimed at by means of the Reconversion and Integral Requalification Action Plans. From a sense of commitment and joint responsibility between the public and private sectors, these plans can be organized through initiatives such as the Tourist Infrastructure Modernization Fund (FOMIT), aimed at financing the infrastructure investments made by municipalities.

With respect to newly created tourist developments, these must be included in a global strategy of city-planning to design a tourism development model for destinations that considers the limits of environmental, global and local carrying capacity, and ensures their sustainability. Likewise, as for tourist destinations characterized by their high environmental value, such as natural parks or the network of biosphere reserves, the creation of tourist products must be carried out under sustainability criteria, preserving the ecosystems, and adapting to conservation and development plans established by environmental authorities for the park or reserve itself.

One of the main lines to revalue the tourist system in terms of sustainability, is to create new value added tourist products, based on their own cultural characteristics, directed to new segments of clients, who appreciate our heritage and environmental resources, and respond to tourist demands, so as to obtain a more balanced time distribution of the flows, the diversification of the destinations and the development of new territories. This context serves as the framework for the Premium Project, by which Turespaña intends to locate and attract clients in the main tourist markets and encourage a better seasonal distribution of their

trips, so as to improve the positioning in the international tourist market of new products or new areas. The public promotion of tourism at international level emphasizes the Special Winter Programmes, for purposes of improving the seasonal balance of tourism.

On the other hand, the Spanish System of Tourist Quality (SCTE), with the methodology of the State Tourism Administration, has been implemented, until now, in more than twelve thousand companies and ninety destinations, and it is a key strategic factor to increase competitiveness and sustainability in the Spanish tourism industry.

In this same scope, it is necessary to use quality certification systems that incorporate sustainability criteria, turning them into environmental criteria equivalent to the ones existing in international markets (ISO, EMAS, etc.) as well as to stimulate “Products/ Excellence Clubs” to serve as quality references with high levels of environmental efficiency, to make the sector assume the value of sustainability as one of their business strategy.

It is also necessary to prepare awareness and training campaigns on sustainable tourism for tourism actors and tourists themselves. Tourism concerns all and, therefore, we all depend on the behaviour of the rest of agents involved in the value chain. Initiatives on accessibility, training and the corporate social responsibility of Tourism will generate greater public awareness. The idea is to contribute to the orientation and creation of references, tools, good practices and incentives for the institutional, corporate and social actors. The increasing social awareness about environmental changes today should facilitate the creation of a model of sustainable tourism.

Finally, the tourism culture based on sustainability parameters requires talent based on experience and knowledge, to develop reliable processes of responsible innovation, to add value to the different links in the value chain: transport, destinations, services and products, from lodging to complementary offers. The development of a R&D&I initiative in terms of sustainability will contribute to the preservation and balance of the most important socio-territorial systems of the country and to the assimilation of a possible climate change. Likewise, innovation

brings technical solutions to make the most effective use of natural resources such as water and energy by operating companies and in tourist destinations, as well as for a better management of waste.

3.2. Climate change

In the last few years the general increase in temperatures, natural disasters and the environmental deterioration of the planet have shown the negative effects of climate change on health, natural systems, social wellbeing and the global economy. The Fourth Assessment Report prepared in the framework of the United Nations by the Intergovernmental Panel on Climate change (IPCC) gathers and compiles available knowledge on scientific, technical and socio-economic aspects of climate change, and provides solid bases on which to define the measures, policies and Adaptation and Mitigation Strategies of Climate Change.

Spain, as a result of its geographic situation and its socio-economic characteristics, is very vulnerable to climate change, as evidenced from most recent analyses and research. The serious environmental problems that are worsened by climate change are: the decrease of hydric resources and coastline regression, biodiversity losses and the increase in erosion processes. In addition, other effects of climate change also have strong impacts on numerous economic sectors.

All this has turned climate change into one of the main challenges faced by the international community who has responded with the Kyoto Protocol, the commitment of which is to reduce in 5.2% GHG emissions in developed countries between 2008 and 2012 with respect to base year values (1990). In addition, in Spring Council of 2007, the European Union assumed the commitment to reduce emissions in 20% by 2020.

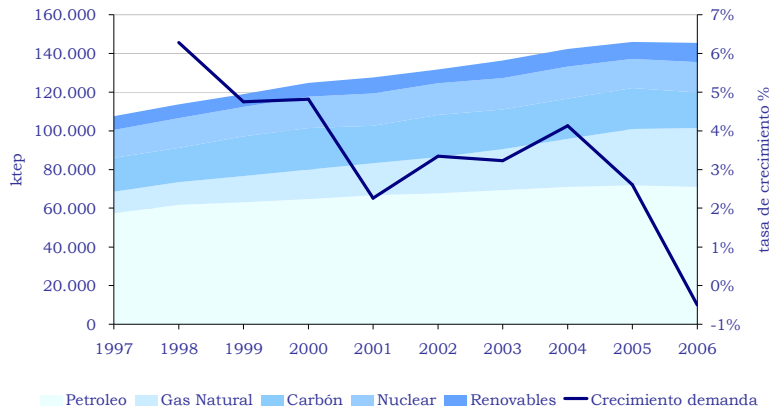
The Spanish Government subscribed this commitment for 2020 and must face this objective to limit emissions growth in 15% for the period of the Kyoto Protocol with respect to the base year. The efforts to reach this objective are important given that the emissions between the base year and 2005 grew by 52.2% as shown in Graph 2.1.5. In addition, as detailed in Section 3.1, the effort made in that period in matters of saving and energy efficiency has proved insufficient. Thus, the

evolution of emissions shows the difficulties of combining economic convergence with the EU and limiting the increase of GHG emissions.

As described in the initial diagnosis of the foregoing Strategy, energy-related activities are responsible for approximately 80% of GHG emissions and they constitute an essential component in the fight against climate change. Energy-related GHG emissions have grown 63% between the base year and 2005, but in 2006, for the first time in many years, provisional data on emissions showed a 4.1% decrease, thanks to the impact of the policies adopted in environmental matters to reduce consumption, to favourable climate conditions, to the increase in hydraulic production and the increase in international oil and gas prices that have contributed to reduce the demand for fossil fuels.

The increase in GHG emissions is linked to the demand for primary energy that grew 35% between 1997 and 2006, the first time a moderation in consumption in 2005 and 2006 was seen, as shown in Graph 3.2.1. This important increase in energy demand has been covered fundamentally by gas, oil and renewable energies.

Graph 3.2.1. Evolution of the demand for primary energy in Spain and demand coverage



Source: National Commission on Energy Policy

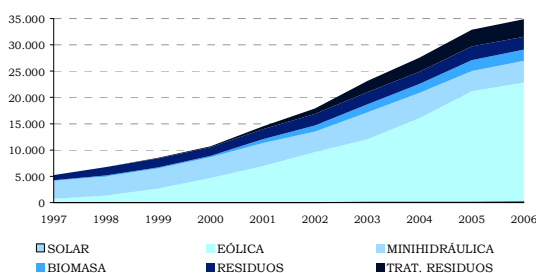
Natural gas has increased significantly its participation in the energy balance in the last few years, to reach 21%, mainly as a result of consumption from the electrical sector, the construction of new natural gas-fired combined-cycle power stations and by shutting down several coal-fired power stations. The new gas-fired power stations have a greater degree of energy efficiency and lower GHG emissions per kWh, which reduces emission levels in electricity production.

The demand for oil has registered a 24% increase between 1997 and 2006 and it maintains a participation of 45% in the energy balance, a value higher than the average for EU countries, located around 38%. The main factor that stimulates this growth is fuel consumption used in road transport that has experienced a significant increase in the last few years.

The electric power generated by renewable energies is increasing to an annual average rate of 4%, along with the growth in primary energy demand, and thus its participation in the energy balance has remained practically stable around 6%. As shown in Graph 3.2.2, aeolian energy is the renewable energies sector that has experienced a higher growth rate. The participation of other types of energies, such as solar energy and biomass, continue to be low, in spite of Spain's great opportunities in this field.

In terms of biofuels, their production only represents 0.53% of total fuel consumption. Bioethanol is only used as an additive in gasoline (ETBE) and biodiesel, more successful, is commercialized in different points of the country.

Graph 3.2.2. Evolution of electricity production based on renewable energy sources under the special regime (ktep)

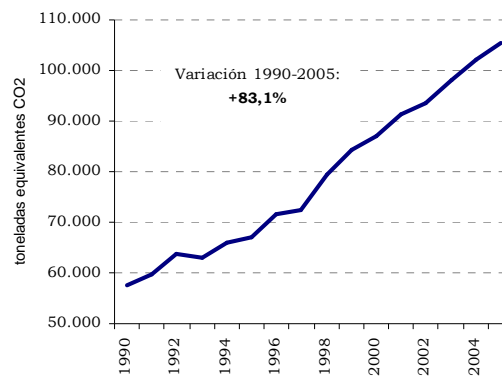


Source: IDAE.

Within energy consumption, electricity production and transport have a special mention. GHG emissions of the electrical sector have grown 72% between the base year and 2005, reaching 25% of total emissions. As shown in Graph 3.2.3, transport has experienced an emissions growth rate of 83%, reaching 24% of total emissions.

This emissions increase is a consequence of the strong demand for transport, especially in the modes with higher specific emissions.

Graph 3.2.3. Transport-associated GHG emissions



Source: National Inventory (2007).

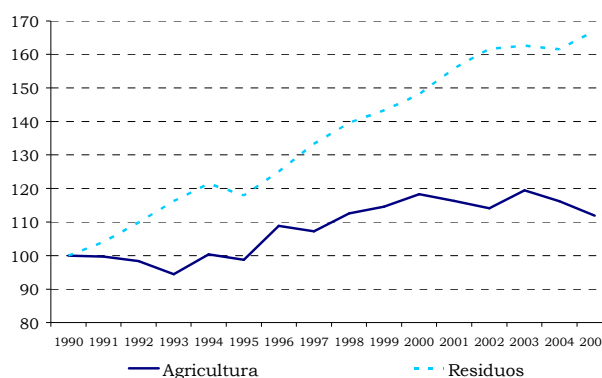
Among the different transport means, road transport is the major energy consumer, with 80% of the sector, and the one that contributes the most to emissions growth. The introduction of catalysts and unleaded gas, as well as the application of fuel quality standards, has been successful in reducing or limiting certain polluting agents, whose concentrations have decreased in the last few years. International air and maritime transport, although at a great distance from road transport, also contribute with an important percentage to the consumption of final energy and they are modes that have grown at a greater rate during the past

few years, whereas railway transport and coastal shipping remain relatively stable. In the transport sector as a whole, the effects of the strong growth of mobility have not been seen sufficiently compensated by the technological improvements recently introduced.

As for the residential, commercial and institutional sectors, the trend indicates that their emissions will continue to grow, and thus measures must be established to decrease their impact. In Spain the initial levels of energy consumption in these sectors are below the European average given the lower heating needs. Notwithstanding, the strong penetration of air conditioning units is changing this climate effect.

The emissions of non-energy sectors concerned with diffuse pollution, such as agriculture and waste, have also registered a growing evolution, as shown in Graph 3.2.4., during the period 1990-2005. The increase in GHG emissions, mainly methane, has been 12% in agriculture, as a result of the great increase in production, mainly cattle and intensive agriculture, and 67% in waste. The great increase in the volume of urban waste which has increased by 39% during the period 1990-2004 is the main cause of the increase in GHG emissions in the latter, although the Spanish average (1.4Kg/ inhabitant per day) in 2004 is still under the European average (1.6Kg/ inhabitant per day).

Graph 3.2.4. Evolution of GHG emissions in non-energy sectors concerned with diffuse pollution (1990=100).



Source: National Inventory (2007).

The Kyoto Protocol created three market instruments to achieve the emissions reductions efficiently: the European Emission Trading Scheme, the clean development mechanism (CDM) and Joint Implementation (JI). In this context, the European Union has implemented its own system to trade GHG emission rights, fully operational since 1 January 2005.

The National Allocation Plan (NAP) 2005-2007 is key in the launching of these mechanisms which consolidates the NAP 2008-2012, given that in keeping with the commitments to reduce emissions subscribed by Spain, each NAP determines the total volume of rights that are to be distributed, as well as the rules for distribution of the same by sectors and facilities. The NAP includes both the creation of a reserve for new entrants to ensure competition, as well as the use of flexibility mechanisms. The compliance scenario approved by the government for the period 2008-2012 implies the purchase, by way of flexibility mechanisms, of 289 million tonnes CO₂, of which 55% or 159 million tonnes CO₂ correspond to the sectors of diffuse pollution, so that it is the government's responsibility to establish the mechanisms for their purchase.

The emission trade system has made emission reduction possible in those sectors subject to the same where it has taken place, and in a phase of important economic growth. Thus, in 2006 we can observe a 4% reduction of the emissions in these sectors. By sectors, energy production facilities have shown a clear deficit situation, with a higher volume of emissions as compared to rights initially allocated and they have reduced their emissions by 7.1%, while the industrial sectors, that have had, in general, sufficient rights to face their obligations, have registered a moderate increase of 1%, something that speaks about containment in a context of industrial production growth.

As mentioned in the initial diagnosis, if the present measures are considered, the emissions growth will reach 50% in the period 2008-2012 with respect to the base year¹⁵. Taking into account these projections, the commitment assumed by the Government in the National Allocation Plan 2008-2012 ¹⁶ is that the emissions

¹⁵ Applying the methodology developed by the Universidad Politécnica of Madrid.

¹⁶ RD 1370/2006 of 24 November.

of these five years will not exceed more than 37% those of the base year, 22 percentual points (p.p.) over the initial objective to be covered with flexibility mechanisms and absorption by sinks.

In this context, the response from society as a whole is necessary, preserving the competences corresponding to the State General Administration, to the Autonomous Communities and the Municipalities and fostering the ambitious responsibilities and initiatives from managing public bodies, as described in the Spanish Strategy for Climate change and Clean Energy.

In the case of the energy and industrial sectors, included in the Directive establishing a scheme for GHG emission allowance trading, responsible for 45% of national emissions, the limits established by the National Allocation Plan 2008-2012 will stimulate the agents to internalize the environmental cost. For sectors concerned with diffuse pollution, there are no established limits the overcoming of which could suppose a penalty in economic terms, so that the government has identified and will soon launch additional measures to the existing ones for emissions reduction, in keeping with the Plan of Urgent Measures approved in July 2007. In this sense, the importance of the periodic monitoring of the effects of the application of the National Allocation Plans by the social dialogue tables has to be emphasized.

Finally, and not less important, the actions of climate change adaptation are essential in a country like Spain. From the Governmental point of view, adaptation is understood as the necessary answer for the short, medium and long term impact decrease of climate change and the exploitation of the opportunities offered to our country. For this reason, impact evaluation, vulnerability and adaptation to climate change by the different socio-economic sectors and ecological systems is a high priority in the battle against climate change. Unlike mitigation, that requires a joint and coordinated answer at international level, adaptation policies must be defined and implemented at national or regional level, because impacts and vulnerabilities are specific for each place.

Latest studies analyzing the impacts of climate change in Spain conclude that climate variability will be even more manifest, so that the already chronic problems

of high temperatures and periods of extreme droughts will worsen in most of the Spanish territory. In this sense, for 2030, simulations with temperature increases of 1°C and precipitation decreases of 5% result in a reduction of hydric contributions between 5% and 14% under a natural regime. For 2060, simulations with temperature increases of 2.5 °C and precipitation decreases of 8% produce an average decrease of 17% in hydric resources.

The sensitivity of hydric resources to increases in temperature and decreases in precipitations is very high: the most critical zones are arid and semi-arid (approximately 30% of the Spanish territory), in which the contributions can be reduced to 50% of their present potential. Thus, the impact will be more severe in the river basins of the Guadiana, Segura, Júcar and Guadalquivir, as well as in the Canary Islands and Baleares. On the contrary, precipitations are expected to increase in the northeast, with a generalized decrease during the summer in all the territory, except in the Canary Islands.

The increase in air temperature, CO₂ concentrations in the atmosphere and changes in seasonal precipitations will imply an unequal impact on different agrosystems. In this way clear differences are expected between the Atlantic region and the Mediterranean region, given that in the first, temperature increase and slight increase in winter precipitations can be accompanied by an increase in agricultural productivity whereas in the second, water decrease will result in a reduction of the same.

The main problems of climate change in the coastal areas are related to the potential changes in frequency and intensity of storms and sea level rise. Assuming a maximum scenario rise of 0.5 meters at sea level in the Eastern Cantabrian area, 40% of beaches could disappear as long as there is no increase in sand feed, and, in the case of the Mediterranean, the most endangered areas would be the deltas of the Ebro river, the Llobregat, the Manga of the Mar Menor and the lagoons of Cabo de Gata. This sea level rise, together with temperature increase could have very negative consequences on the Spanish coast, with repercussions on the tourism sector.

Biodiversity will be affected both in terms of fauna and flora. With respect to the first, phenological changes are expected in populations, with advances or delays in the beginning of the activity, migration or reproduction phases, expansion of invading species and plagues. In terms of flora biodiversity, the most significant trend is an increase of dryness in the southern and the “mediterraneization” of the north.

Interactions between climate change and human health are multiple and complex. In Spain, morbimortality could increase as a consequence of heat waves that will increase in frequency and duration, and of subtropical diseases.

The costs of implementing adaptation measures are linked to the degree of change of climate conditions and to the type of adaptation carried out. It is necessary to distinguish between a reactive adaptation, made after the impacts, and a planned adaptation, whose costs is significantly smaller. For the countries of the Cooperation and Economic Development Organization (the OECD), the estimate additional costs for new infrastructures and more resistant constructions to new climatology are located between 15 and 150 trillion dollars annually, that is to say, between 0.05 and 0.5% of the GDP of the OECD¹⁷. In this context, some markets are expected to respond to the signals of the new climate scenario and develop improvements in their risk management systems.

A) Clean energy

Objectives

The strategy followed to achieve sustainable development in the energy sector is based on a primary goal, **to reduce emissions by favouring renewable energies in the power generation mix**. For this, two objectives must be taken together: to boost the efficient use of energy resources and to promote transformation processes of more efficient and cleaner energies based on low carbon dioxide emission technologies.

¹⁷ Estimates of the Stern report (2006)

With respect to the efficient use of energy resources, the corresponding objectives, indicators and measures are detailed in Section 3.1.A. With respect to clean energy, the European Union has established the following objectives: to increase the participation of renewable energies up to 20% in the power generation mix by 2020, as well as to reach a minimum 10% consumption of biofuels in road transport's fuel consumption by 2020. In addition, the European Union has accepted to implement the "Biomass Action Plan" and the "EU Strategy for Biofuels", aiming at the effective integration of renewable energy in the transport and construction sectors and to introduce new low CO2 emission technologies the content of which has been taken into account by the Government in the drafting of the Spanish Strategy of Climate Change and Clean Energy, as well as in the National Allocation Plan of Emission Rights 2008-2012.

The indicators used to monitor these objectives are: the annual primary energy consumption by source type, the amount of energy and electricity production of renewable origin, and the annual consumption of biofuels.

Actions

In order to reach the objectives mentioned before, the Administration has implemented a number of measures around three axes: the prevision on the evolution of energy demand, the increase in the participation of renewable energies and R&D&I programmes in clean energy technologies.

As far as the measures to obtain a better understanding of the evolution of energy demand are concerned, two prospective studies on energy in the medium and long term have been launched for the purpose of determining the needs in the energy sector and establishing the necessary directives to motivate the private sector to develop sustainable energy environments; in the medium term, the revision of the "Planning of the Electricity and Gas Sectors. The Development of the Energy Transport Network" is one of the tools through which the Administration can have an impact on electricity production by means of clean technologies. At this point, the 2005-2011 revision of the same is in force, and the Ministry of Industry, Tourism and Commerce has begun the process of drafting the new

Planning 2008-2017, which will be subject to the Strategic Environmental Evaluation according to Law 9/2006. In the long term, the Ministry of Industry, Tourism and Commerce has begun the process of drafting the “Energy Prospective Study 2030” report that will serve as a base for decision making in energy matters in the coming years. The present Strategy will have to be adapted to the conclusions arising from such report.

Among the measures to increase the participation of renewable energies, some of the most important ones are: the Renewable Energy Promotion Plan (PFER) 2000-2010 that, in agreement with Law 54/1997 of the Electrical Sector, establishes objectives that will allow reaching, in 2010, at least a 12% participation of renewable energies in the total demand for primary energy. This objective continues in the new Renewable Energy Plan (PER) 2005-2010 that proposes the following distribution according to the efforts by areas, so that this global objective is feasible: satisfying 30.3% of the gross electricity consumption with these sources, and a 5.83% consumption of biofuel over the expected gasoline and gasoil consumption by the transport sector.

For this reason, Royal Decree 463/2004 has been reviewed recently by means of RD 661/2007 and it establishes the repayment of renewable energies used in electrical energy production to boost the penetration of those technologies with greater development potential. In this sense, a Royal Decree has been approved establishing the regulations and application procedures for the projects of marine aeolian energy in Spanish territorial waters. With these standards the administrative authorization procedure will make progress towards eliminating the present barriers to the implementation of this technology, and rationalizing and introducing tender procedures to ensure competition among promoters.

Repayment mechanisms take into account all the objectives established by the said Plan and they can be adapted to achieve the same by reinforcing the incentives of those technologies that have reached a lower development level.

In terms of biofuels, the new Hydrocarbon Law¹⁸ introduced a biofuel trade objective related to the trade of gasoline and gasoil of 1.9% in 2008, of 3.5% by 2009, and 5.83% in 2010.

In addition to the measures implemented to reach the objectives established, the following actions are being developed in the medium term:

- To continue the aids to those renewable technologies that need them for their development.
- To promote small photovoltaic integrated facilities in buildings, through the access conditions to the network and the administrative proceedings to obtain subventions and request connection permissions.
- To increase good use of the hydraulic resources by means of the rehabilitation of closed mini-energy stations, the improvement of the existing ones and the installation of turbines in dams that do not have them.
- Provide a framework for greater economic security to investments on renewable energies and co-generation and thus, contribute to strengthening of the same.
- To develop the regulations so as to allow the accounting of the fulfillment of the Spanish objectives in terms of biofuels transposed in the Directive 2003/30/EC.
- To consider biogas, biomethanol, bioETBE, synthetic biofuels, biohydrogen and pure vegetable oil as biofuel (according to Directive 2003/30/ EC), studying the possible need of modifying the Royal Decree to establish an effective integration of renewable energies in the transport and construction sectors.
- To stimulate the creation of new biofuel plants to increase their capacity so as to be able to satisfy the demand in 2010 and its increase for the period 2011-2020.
- To stimulate hydrogen based technologies, taking into account environmental implications, particularly in terms of the use of renewable energies for hydrogen production.
- To promote the change of domestic boilers towards cleaner fuels, such as biomass (pellets), progressively replacing coal consumption with the objective of obtaining its complete substitution by 2012.

¹⁸ Law 12/2007 of 2 July modifies Law 34/1998.

- To help develop projects favouring renewable energies in the framework of clean development mechanism.
- To stimulate extensive and ecological agriculture, as cultivation models that contribute to the fight against Climate Change, given that they require less energy consumption and have higher potential of carbon absorption than other productive models.

Finally, as far as the R&D&I actions to promote the use of clean energies are concerned, the R&D&I National Plan will incorporate a new strategic axis exclusively on Energy and Climate Change, to prioritize and concentrate all actions in this area, stimulating the financial aids to R&D&I projects in clean energy technologies. Some of the measures to boost this new axis include reinforcing research on clean energies in the existing centres, particularly the CIEMAT, and special relevance will be given to research on clean coal by reinforcing the Bierzo Energy City, the Geologic and Mining Institute and the INCAR-CESIC.

B) Sectors concerned with energy-intensive diffuse pollution

Objectives

In order to restrain the strong increases in polluting emissions associated to the sectors concerned with diffuse pollution, the following primary goal is established: **to reduce emissions through the improvement of energy efficiency in the transport and construction sectors**. And for this, the objectives to be considered are: to make progress in line with the European standards on CO₂ emission limits for new vehicles, to diminish energy intensity of transport in the economy, and to reduce the specific emissions of polluting agents or absolute ones when necessary, to meet air quality objectives.

In order to contain emissions from the residential, commercial and institutional sector, the objective is to improve energy efficiency of buildings, both in the building itself and in the equipment of the same, to increase the use of renewable energies; as well as to ensure responsible behaviours from consumers.

These objectives are associated to the following indicators: average CO2 specific emission of new cars, energy intensity of private passenger (per capita) and merchandise (tep/VAB) transport, energy intensity of the interurban inner transport of passengers and merchandise (GJ/pas•km), GHG emissions generated by transport, and emissions coming from other energy sectors concerned with energy-intensive diffuse pollution.

Actions

In addition to the measures aimed at reducing the specific energy consumption of the transport sector discussed in Section 3.1.C, for purposes of reducing the emissions of the transport sector, several measures referring to vehicles and their use, as well as some actions on major transport infrastructures can be adopted.

These measures include, in the case of vehicles: the promotion by means of economic instruments of efficient and/or clean energy vehicles (technologies and fuels) for road transport (cars, buses, trucks, etc.); the development of training programmes on efficient driving; the increase in biofuel use; the use of clean buses in urban public transport, and the gradual introduction of energy efficiency criteria in the administrative hiring to increase the number of clean vehicles in the public motor fleet and in service fleets under concession.

Within the economic instruments for the promotion of efficient and clean energy vehicles, one of the most important ones is the approval to modify the registration tax, establishing the said tax on the basis of CO2 emissions per km travelled. In addition, the modification to the circulation tax is under study in the same line.

With respect to air transport, it is important to mention the draft Directive presented formally by the European Commission to the Council of the European Union at the end of 2006, to introduce air transport in the community GHG emission allowance trading regime, under discussion at the moment in the Council in the framework of co-decision procedure.

Other actions to be adopted within infrastructures and management of transport system are: voluntary agreements among the public Administrations and sector companies for the improvement of energy efficiency; implementation of Environmental Management Systems in sector companies; use of the most efficient technologies for electrical and thermal generation and renewable energies in new transport facilities; and installation of low consumption and high performance lighting fixtures in new infrastructures and external service equipment of the transport sector, as well as in the renovation of the existing ones.

As for emissions reduction of the rest of sectors concerned with diffuse pollution, an important measure is the recent approval of the Technical Code of Construction that transposes Directive 2002/91/ EC referring to the energy efficiency of buildings, the minimum efficiency requirements to be fulfilled by new buildings and remodelled ones, and which provides answers to the main deficiencies of the sector. These improvements aim at reducing the energy demand for air conditioning and at improving the yield of thermal and lighting facilities and, at the same time, at satisfying most of the needs with renewable energies. In order to promote efficient construction, a measure to be applied from the Administration is to develop programmes to be set as examples in public buildings.

Likewise, it is necessary to stimulate the use of more efficient equipment in the residential sector (IT, home appliances, etc.), by creating incentives and increasing the requirements of materials put in the market in terms of energy efficiency; to elaborate practical standards of energy efficiency in air conditioning units and to extend the use of the ecological label to all home equipments; to elaborate a practical standard on efficiency and energy saving in the public lighting system and to promote the use of low consumption light bulbs; to establish programming systems for the temperature inside commercial centres and public buildings, avoiding energy losses through doors; to explore the design of instruments to stimulate energy saving measures for commercial centres; to extend the use of thermal solar panels in new housing, independently of their size; and, finally, to develop and intensify awareness campaigns and citizen awareness on the need to save energy in daily activities.

Of all the options aimed at boosting savings and energy efficiency to obtain greater reductions in the emissions of sectors concerned with diffuse pollution, the measures to be adopted will be defined mainly in the new Action Plan 2008-2012 of the E4.

C) Sectors concerned with non-energy diffuse pollution and sinks

Objectives

The high-priority objective of this Section is **to reduce emissions in sectors concerned with non-energy diffuse pollution through sector measures**. In the case of the farming sector, it is important to improve management of the farming resources and its processes, to foster sustainable agriculture, to increase carbon absorptions as well as to improve the statistical information available.

Within the sector of waste, the objective is, in addition to the reduction of the same, its valorisation and the improvement of energy efficiency in the treatment and management processes for which it is necessary to reduce waste and to boost the use of those components having energy potential, as well as the biomethanization and biogas recovery from landfills. Likewise, the use of energy from forest, agricultural and agro-industrial waste must be encouraged.

In terms of fluorinated gases, the main objective is to keep the emissions downward trend by incorporating them to the internal legal system of the European regulations and by developing appropriate planning and control systems for the refrigeration fluids contained in cooling systems, both for their recovery and their management as waste.

Finally, NAP 2008-2012 included the objective of having national carbon sinks contribute by 2% of the base year emissions to the fulfilment of the commitments.

Success in the fulfilment of the objectives imposed in each of these sectors will materialize in the evolution of the indicators of their GHG emissions. In addition, in

the case of the agriculture sector, it will be advisable to analyze the evolution of crop lands and in the case of waste, the indicators detailed in Section 3.1.B.

Actions

Sector measures have started to be applied to those concerned with non-energy diffuse pollution aimed at reducing their emissions, being specially important the measures for the agriculture and waste sector, because efficiency gains can contribute to environmental improvement in other sectors.

In terms of agriculture, it is necessary to stimulate progress in the management and compost use of solid, cattle or urban agricultural waste and industrial muds from purifying residual water stations, as well as in the rationalization of manure management and the reduction of nitrogen fertilizers, all of which will produce a decrease of nitrous oxide emissions.

In addition, a Farm Land Registry and a registry related to cattle activity, with information on crops types, harvesting techniques, cattle species, pasture, etc will be created. Likewise, information to meet the regulations related to the reduction of mineral fertilizers and the application of codes of good farming practices will be made available.

Waste's continuous growth makes it necessary not only to apply awareness measures to reduce waste generation but also to increase the recycling and valuation rates, as described in Section 3.1.C. For purposes of this, awareness campaigns to decrease domestic, commercial and institutional waste will be boosted, promoting the reduction and reusability of waste at all levels.

In addition, the National Integrated Waste Plan 2007-2015 will contemplate, among others, those aspects related to the increase in the recycling and valuation rates, quality standards for compost in line with the European initiatives, incentives to the acceleration of autonomic and local plans in matters of controlled landfills that include biomethanization and biogas recovery in their procedures, supports to the selective collection of organic matter in origin and closing, and the sealing and restoration of uncontrolled landfills.

At the same time, the Renewable Energy Plan 2005-2010 establishes the increase in installed power coming from waste treatment in 94 MW between 2005 and 2010, with an additional 188 ktep. Most of this production (58%) will come from the organic fraction of urban solid waste and the rest, from industrial waste (21%) and industrial muds from purifying residual water stations (17%). For purposes of this, the new Royal Decree 661/2007 on renewable energies ensures an adequate profit through premiums to the electricity generated by these resources.

To continue the decreasing trend of fluorinated gas emissions, Community Regulation 842/2006 will be applied to certain GHG fluorinated gases, and Directive 2006/40/ EC related to the emissions coming from the air conditioning systems of motor vehicles will have to be included in the internal legal system.

In the area of sinks, actions are being developed to increase the absorption of emissions as to increase the wooded forest surface by means of reforestation actions in farm lands and unwooded forest areas whose ecological quality does not worsen with these actions, to increase the surface of agricultural sinks, to recover the plant surface and to establish preventive actions to avoid forest fires. On the other hand, the establishment of an institutional and legislative framework will stimulate the participation of the private sector in the carbon capacity increase of Spanish sinks. All these actions are included in the Spanish Forest Plan and quantified from the point of view of atmospheric carbon.

Finally, the promotion of R&D&I in the farming sector and waste collection and treatment will improve understanding in these areas and will facilitate the adoption of measures to perfect production processes, in the case of agriculture, and waste treatment management, thus enabling the reduction of GHG emissions in these sectors.

D) Market instruments

Objectives

The main goal of the Government in this area is **to reduce emissions through the effective use of market instruments of facilities and sectors with**

sufficient potential and capacity, and to guarantee the acquisition of the necessary emission reduction units to fulfil international commitments.

In the case of the sectors subject to the European Emission Trading Scheme, it is necessary to explore new and more coherent allocation formulas, such as auctions or references of sector efficiency, the exposure to other sectors and gases, the exclusion of smaller facilities, a greater homogeneity in the treatment to new entrants and closure policy and a better definition of some of the facilities included in its scope of application.

As for flexibility mechanisms, mechanisms should be extended on the basis of projects, especially CDM, to more ambitious approaches to favour the shift towards a low-carbon economy. Likewise, the participation of Spanish companies in this area should continue to be promoted giving special emphasis to those sectors that allow a better understanding of the operation of carbon markets, the transference of clean technology and sustainable development.

The indicators needed to measure the achievement of these objectives are: on the one hand, the reduction of GHG emissions in the sectors included in the emissions trading scheme, and, on the other hand, the purchase of certified emission reductions by the Government.

Actions

In view of reaching the necessary emissions reductions to fulfil our environmental commitments, it is important to emphasize the total application of the National Allocation Plan (NAP) 2008-2012, that represents a 19.8% decrease in emissions with respect to 2005, as shown in table 3.2.1. The requirement level is greater for the generation sector taking into account its capacity to internalize the costs and their lower exposure to international competition. In the same way that during the previous period, companies that are not able to reduce their emissions below their allocation shall go to the market to buy emission rights or obtain emission reductions by means of projects under the clean development mechanism or the joint implementation mechanism in other countries. The Spanish NAP 2008-

2012 was approved by the European Commission with slight modifications, and was considered “an ambitious” Plan.

Table 3.2.1. National Allocation Plan 2008-2012

	1990	2005	2008-2012	Reduction/ 2005
Electrical generation for the public service (1.a)	61.61	101.24	54.42	-46.2%
Cogeneration (1.b)	12.50	10.69	12.037	12.6%
Other combustion types (1.c)		9.74	5.630	-42.2%
Oil Refineries	12.64	15.46	16.133	4.4%
Steel industry	13.83	11.05	12.212	10.5%
Cement and lime	22.72	29.45	31.427	6.7%
Glass and frits	1.77	2.57	2.833	10.1%
Ceramic Sector	4.30	4.90	5.795	18.3%
Paper	2.29	4.75	5.483	15.4%
New entrants			6.277	
Total	131.66	189.85	152.250	-19.8%

Source: NAP 2008-2012

Within the community framework and in view of the subsequent periods of application of the scheme for GHG emission trade, progress must be made to improve the model, basically through the revision of the Directive regulating it. In this sense, the systems of allocation of the efforts to the different sectors should be harmonized for example, by means of allocation methodologies taking into account the sector and individualized allocation. As for the scope of application of the scheme, it should be extended to new sectors so as to study, if appropriate, the exclusion of small facilities under certain conditions.

With respect to the uses of flexibility mechanisms by the Government to purchase the 159 mTCO₂ of Certified Emission Reductions (CERs), it is important to point out the strong initial commitment made by Spain in favour of the project-based mechanisms, particularly CDM, Latin America being the geographic preference. The Government has carried out an important activity in this field, which has guaranteed its access to CERs through multilateral bodies at reduced prices and to projects that will start operations in the period 2008-2012.

Table 3.2.2. summarizes the participation in diverse carbon funds through these bodies so as to obtain a total of 60 mTCO₂. In the coming years, the Government will have to develop the corresponding actions to allow for the purchase of emission reductions for the remaining 99 mTCO₂.

Within the investment portfolio allocated by the Government, the projects that guarantee savings and energy efficiency, renewable energies and an environmentally correct waste management are favoured. The reasons that motivate these preferences take into account the orientations of Spain's foreign policy and cooperation for development. As a result of these considerations, Spain has not only favoured the purchase of CDM credits rather than other purchase options, but it has tried to make this commitment also a commitment with sustainability and the economic development of the local population that benefits from the projects.

Table 3.2.2. CER Purchase by the Spanish Government

Institución	Fondos de Carbono	RCE (Mton CO₂)	Regiones	Areas
Banco Mundial	F. Español de Carbono	34	América Latina, Europa del Este y Norte de Africa	Ahorro y eficiencia energética, energías renovables y gestión de residuos
	F. Biocarbono	2	Regiones marginales para inversores en proyectos	Secuestro y conservación de carbono en bosques y ecosistemas
	F. C. Desarrollo Comunitari	4	Países con nivel de desarrollo muy bajo	Proyectos de pequeña escala
Corporación Andina de Fomento	Iniciativa Iberoamericana de Carbono	9	Latinoamérica y caribe	Ahorro y eficiencia energética y energías renovables
Banco Europeo de Inversión y Banco Europeo Reconstrucción y Desarrollo	F. Multilateral Créditos de Carbono	5	Varios	Varios
Banco Asiático de Desarrollo	F. C. Asia Pacifico	6	Países miembros	Ahorro y eficiencia energética y energías renovables
TOTAL		60		

Source: Spanish Strategy for Climate change and Clean energy (EECCCL).

On the other hand, the Spanish Government is stimulating the use of cross-Sectional instruments to promote foreign investment of Spanish companies as an

instrument to support CDM. In this sense several funds are fully operational in matters of technical assistance and tools for additional financing such as foreign investment financing or credit lines.

In order to favour the participation of Spain and Spanish companies in the purchase of emission reductions, the Government has carried out a series of institutional actions. Thus, the Spanish National Appointed Authority (NAA) has been created, having the function among others of issuing the written approval of voluntary participation in CDM and joint implementation projects, which is necessary in Spain to account for the purchased reduction units.

On the other hand, the Government must continue to work with other countries facilitating the application of new formulas to make project-based mechanisms evolve towards sector and program approaches, considering a future horizon of more extended and ambitious carbon markets.

Likewise, progress must be made in the use of the instruments the Spanish Administration has to favour the internationalization, so that Spanish companies have access to the business opportunities offered by the international carbon markets.

In the end, the market instruments are working correctly and they are allowing the companies and the Government to perform efficiently. In the future, it is foreseeable that more sectors enter the system, which will foster more efficient behaviours and it will diminish the pressure on the emissions by those sectors concerned with diffuse pollution.

E) Adaptation

Objectives

The last objective of all actions in this field, in the framework of the National Adaptation Plan to Climate change (NAPCC), consists **of integrating adaptation and climate change to the economic sector plan.**

The specific objectives of the NAPCC are to promote participatory impact evaluation, the vulnerability and the options of adaptation in all socio-economic sectors and ecological systems included in the Plan, the progressive promotion of integrated trans-sectors evaluations in different areas of the Spanish geography and the communication and effective diffusion of the main results reached in the different impact evaluations. Success in the fulfilment of the objectives imposed in matters of adaptation will be greater the more sectors and systems carry out evaluations and the more regulatory, planning and execution measures take into consideration adaptation to climate change.

Actions

Adaptation measures aim at identifying vulnerabilities and opportunities in each sector and system affected by climate change. Most of the actions in this matter are framed within the NAPCC, and will be carried out by means of Work Programmes prepared by the Spanish Bureau of Climate Change and approved by the Climate Change Policies Coordination Commission (CCPCC). The first Work Program of the NAPCC focuses on the generation of regional climate scenarios, the impact evaluation of climate change in hydric resources, biodiversity and the coastal zones. By 2012 the remaining ecological systems and socio-economic sectors will have to be approached.

In addition, the Government will have to establish incentives to adaptation with special emphasis, among others, on the following:

- Availability of high quality information on climate and climate change, favouring the adaptation process of the markets and operation efficiency.
- Efficient planning of land uses and construction of infrastructures adapted to the new climate conditions.
- Development of short, medium and long term policies to protect public heritage particularly sensitive to climate change, such as natural parks or coasts, as well as development of performance protocols for emergency situations.

- Finally, it is necessary to incorporate in the Spanish strategy of R&D&I the most significant needs in matters of climate change impact evaluation and adaptation, as well as to promote the participation of the agents implied in the different sectors and systems, for purposes of integrating adaptation to climate change to sector policies.

3.3. Conservation and management of natural resources and land occupation

For purposes of ensuring sustainability, one of the priorities of the Government is to have an efficient management of the natural capital from the different sector policies, and to make the processes of territorial transformation increase the value of the natural and cultural heritage, avoiding that the pressure on the latter surpasses their regeneration capacity, by establishing minimum management requisites for operations and promoting environmentally respectful practices and sustainable urban planning.

Among the natural resources with overexploitation problems and potential exhaustion in Spain, we can find hydric resources, biodiversity and especially, forests and land.

With respect to hydric resources, Spain has a very varied precipitation regime, with an average over 2,000 mm in some points (Galicia, Cantabrian mountain range, Basque Navarre's Pyrenees, Central System and Ubrique Mountain range) and under 200 mm in other South-eastern areas (Almería mainly). Annual contribution to rivers, from three catchments (Atlantic, Mediterranean and Cantabrian), in 70% of the cases concentrated around a few months giving rise to episodes of floods. These sudden floods, so frequent in the Mediterranean areas, produce serious human and economic damages, and in addition they are hardly predictable and leave little margin for action.

All this produces a delicate and precarious hydric balance, in which the episodes of more severe droughts follow one another and affect areas that have already scarcity problems, such as the Mediterranean coast and some points of the sources of the Tajo, Guadiana and Júcar rivers. The serious impacts caused by

droughts in the last decades, and the insufficient extraordinary measures applied for each event, revealed the importance of having a planned management, instead of a mere crisis management strategy. Additionally, hydric stress will be aggravated by the effects of climate change, as mentioned in Section 3.2.E, and according to preliminary studies, it could reduce the average contributions of the Spanish River basins.

As far as water quality masses are concerned, much is still to be done to reach the requirements of the Water Framework Directive (WFD). Thus, in 2005 a diagnosis was made of the characteristics and environmental and socio-economic circumstances of water masses (as established in article 5 of the WFD), identifying as superficial water masses some 4,000 rivers and 300 lakes, 129 in transition, 224 in coasts and 700 masses of water. This typification was accompanied by an evaluation of their state, having studied the pressures that affect these masses and the impacts they suffer, to finally analyze the risk of not reaching the environmental objectives. This analysis concludes that there are a high number of masses at risk, as a result of the pressure of human activity, with the presence of urban nuclei, agricultural and industrial activities, production of hydroelectric power and hydro morphological alterations.

As for underground masses, the most important pressures come, on the one hand, from diffuse pollution (nitrates and biocides) fundamentally originated by non-sustainable fertilizer use in the agricultural sector, that has caused pollution by nitrates in many aquifers, as well as by excessive use of pesticides. On the other hand, a regime of non-sustainable extractions, a circumstance that is aggravated in the coastal areas by the phenomena of saline intrusion. Concretely, the most important cases of over-exploitation of aquifers occur in La Mancha aquifers, in aquifers of the Mediterranean coastal area, in the Vinalopó area, in the river basin of the Segura River, and the Adra aquifer.

As far as actions to improve water quality are concerned, although an important effort has been made in the Treatment and Depuration Plan 1995-2005, this has not been sufficient, since it still does not permit to reach the conformity percentages in the required carrying capacity, especially in urban areas. This is due to the fact that the depuration of effluents of small and medium-size

populations requires, given their dispersion, more specific and logistically more complex solutions. In addition, a great number of populations with more than 150,000 equivalent inhabitants¹⁹ continue to have problems with water depuration.

Another important question is the state of the water public domain, where the permanent and continued invasion of the river beds by the modifications, in many severe cases, of the natural hydrologic operation of currents, and spills of domestic, industrial or agricultural origin, suppose a continuous deterioration of the quality of rivers, a progressive loss of their environmental value and a considerable reduction of their water-drainage capacity, with added risk in case of flood.

As for the exploitation of hydric resources, a significant increase in conventional captations, in superficial resources which are regulated in Spain, or underground resources that are, in many cases over-exploited producing some serious situations of unsustainability in some river basins is not expected to occur. For this reason, in the territories with a more fragile balance other resources will be used.

As mentioned in Section 3.1.A, in spite of the efforts made and the resources employed, it is still necessary to improve the degree of real knowledge about water uses and demands. For purposes of this, it is essential to ensure a true integration of continental, transition and coastal waters, in hydrologic management, ensuring not only the protection of rivers and lakes, but also of coasts and beaches, allowing for the natural contribution of solid elements from rivers and avoiding coastal erosion

Finally, Spain has a great number of international river basins, shared mainly with Portugal and, in a more a reduced way, with France. Until very recently, in spite of old cooperation treaties and agreements for hydroelectric exploitation, these were not respected in numerous occasions and hydric resources were exploited and used without anticipating the possible impacts in the down water

¹⁹ The population equivalent includes the real population, the seasonal load and the industrial polluting load. It is calculated on the basis of the calculations of DBO5 flow and concentration in residual waters (1 inhabitant eq. – 60g DBO5/ day) or indirectly, based on the statistical information about the population, housing, industry, farming, etc.

neighbour. In addition, in spite of the small number of water masses shared with France, collaboration agreements did not exist to ensure compliance with the WFD.

With respect to biodiversity, it has intrinsic value given its mere existence and an important economic value is associated to it, although many of its benefits are not valued correctly by the markets and this originates excessive exploitation.

Spain's environmental wealth and singularity occupy a very important place in the European and international context. As a result of its national and international interest, part of the natural heritage and biodiversity concentrates in networks of natural spaces with different levels of protection. At national level, more than 1,100 natural spaces protected by the national and autonomic legislation occupy a surface of more than five million hectares, which represents 10% of the national territory. The Autonomous Community with a greater proportion of protected areas is the Canary Islands, with more than 45%, followed by the Rioja, with 37%, and Catalonia, with 22%. National and Natural Parks occupy two thirds of the total protected surface.

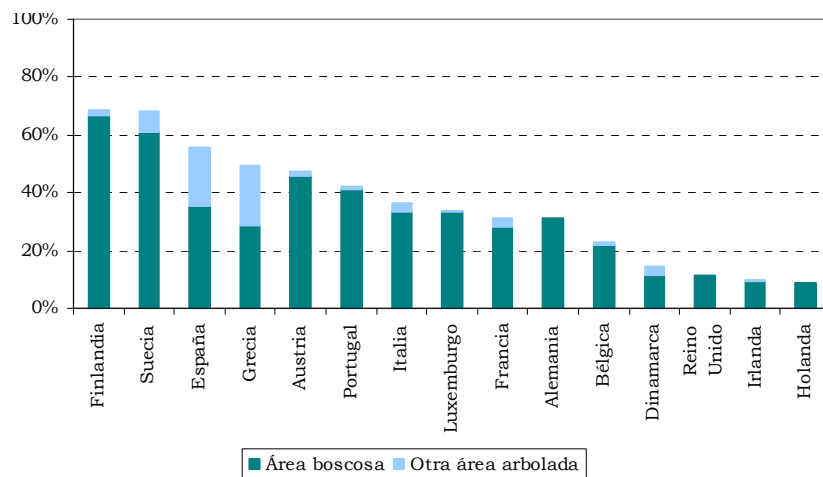
In addition, as mentioned previously, Spain's biodiversity is also important at international level. Spain ranks high in the top European positions in terms of surface protected by the European Natura 2000 Network. On the other hand, in number of Biosphere reserves that conciliate the conservation of the biological diversity, the search for an economic and social development and the maintenance of the associated cultural values, Spain occupies the third place world-wide, only surpassed by the United States and Russia.

Notwithstanding, a brief analysis of the Spanish network of protected natural spaces reveals a very significant interregional imbalance in terms of the amount of spaces declared and the relatively incomplete existing network. In addition, it emphasizes the importance of ensuring its connectivity and biological integrity, given that biodiversity is not confined to protected natural spaces, but it also includes all the forms of life in the planet, both at genetic level, as well as species and ecosystems. Among them, it is worth mentioning the genetic resources of native cattle races or agricultural species that are quickly becoming extinct or the

resources of the marine ecosystem, with very little protection in spite of being a fundamental source of biodiversity.

In terms of ecosystems types, the forest surface in Spain occupies 26 million hectares, around 52% of the national territory, which places us in the third place in Europe in terms of the percentage of tree-covered surface, and in the fifth place, in terms of forest area exclusively, as it can be observed in Graph 3.3.1. As mentioned in Section 3.1.A, the use of agroforest resources must be done by applying sustainable strategies.

Graph 3.3.1. Percentage of the national territory occupied by forests and other tree-covered areas.²⁰ EU-15, 2005.



Special mention must be made to wetlands and lakes that represent a great part of the Spanish biodiversity. 8% of them are degraded and 38% of them are altered, with the consequent repercussions in the associated flora and fauna, as

²⁰ The term 'Forest areas' identifies the areas of more than 0.5 hectares where at least 10% of the trees are 5 metres tall. The term 'other tree-covered areas' includes the areas where between 5% and 10% of the trees are 5 metres tall, or to the areas where at least 10% of the surface is covered by trees less than 5 metres tall. Source: Eurostat

well as in the ecosystemic services that they provide, and are irreplaceable and essential for human well-being.

The sea and coastal areas also undergo enormous pressures due to the high concentration of activities of a very intensive nature, such as fishing over-exploitation, maritime transport, exploitation of mining resources, urban planning development, infrastructure, tourism, industrial development and agriculture, that affect the delicate and valuable ecosystems, wetlands, aquifers and coastal humid areas. The over-exploitation of species with economic interest, land degradation, pollution and fires are other very significant factors that contribute to this biodiversity loss.

In Spain together with the great habitat diversity, there is a high specific diversity, of around 85,000 known species with more than 8,000 species of vascular plants and between 50,000 and 60,000 animal species, with a significant percentage of endemism. In the European context, our biological heritage has special relevance, since approximately 54% of the total number of species known in Europe is located in Spain, and nearly 50% of the unique species in Europe are present in our country.

In addition to being the country with the highest number of species of birds, mammals and reptiles, Spain has a great wealth of domesticated biodiversity, with at least 500 species of cultivated plants and 174 cattle species, being the local varieties and native cattle species one of the main components of biodiversity, and the foundation of farming systems with low environmental impact.

In spite of this wealth, the consequences of climate change and man's action are diminishing the biological diversity in Spain at a faster rate than during any other period in history. In this sense, it is important to point out the extinction of numerous native species of cattle and wild species of interest for agriculture and food. In the last one hundred years, at least 17 species of animals and 24 species of plants have become extinct, and the number of species declared in danger of extinction has increased from 75 in 1990, to 156 in 2004. Among the species of threatened emblematic vertebrates, we can mention the Iberian lynx, the imperial eagle, the brown bear of the Pyrenees and the Cantabrian Mountains, the

European mink, the Lammergeier and the Capercaillie of the Cantabrian mountains and the Pyrenees.

The ecosystems that are at their ecological or geographic limit are those that will be most affected by climate change. In addition, climate change can generate greater virulence of parasites and an increase in populations of invading species. The presence of invading species is the direct cause of the loss of 39% of known species, making it in the second threat for the conservation of our biological diversity, after the disappearance of endemisms.

Finally, the territory is a non-renewable, essential and limited resource that must be understood like a resource, but also like an example of culture, history, collective memory, identity reference, public good and a space for solidarity and legacy. Therefore, the territory is not only a natural media very close to biodiversity, but also a human habitat for residence and the place to carry out productive activities. The interaction among occupations in the same territory produces unsustainability and so, this Strategy focuses on the two problems: the uses of land by the population and land's erosion and degradation.

The Spanish territorial model presents strong contrasts: 40% of the population lives in 1% of the territory, and nearly 60% of the total population concentrates in coastal areas and the islands. This imbalance implies that problems associated to unsustainability can have an unequal importance in rural or urban areas, and require a different degree of priority.

In rural areas, the crisis of traditional production sectors and the weakness of the necessary resources for their regeneration or substitution represent the most serious threats to sustainability in a context of strong population ageing. Low population density must be considered something closely related to the reality of land and culture, so that one of the challenges for rural development in Spain is to find formulas to make this low density more sustainable.

On the other hand, cities, as economic centres for production and consumption and scenarios where the social and cultural relationships are created, constitute nowadays key pieces in the process of altering environmental balances. The movement of European cities towards a more sustainable development has

contributed to improve the conditions so as to increase the political action in this area. In this sense, the experiences of the last few years in many Spanish cities have been very positive.

However, pressures on the environment and resources intensify in the areas with greater population and activity concentration, specifically in the great urban areas and throughout a great part of the coast, where this is aggravated by the increase in the use of land for tourism facilities and second homes, a common phenomenon also in some of the mountain areas of the country. Thus, between 1987 and 2005, the land destined to urban, industrial and commercial uses increased by 40% in Spain, four times more than the population increase. Urban Planning has been massive in some areas, sometimes as a result of merely speculative interests.

The Spanish coast represents 7,880 km of land and it is put under the pressures of urbanization, coastal erosion and pollution. Thus, the urban areas located in the coast occupy great extensions, both in the Mediterranean, and most recently, in the Cantabrian coast. In addition, more than 65% of the Spanish industrial production is located on the coast, and very important volumes of imported and exported merchandise do so by maritime transport. As a result of these pressures, several natural coastal ecosystems survive with great difficulties, seeing their size diminish, among other reasons due to the loss of vegetation and gravel mining.

Strong urban growth generates important externalities. Thus, construction produces the most important ecological impact in terms of energy consumption and it is one of the greatest consumers of land, materials, water and energy, as well as one of the biggest generators of GHG emissions and a great amount of waste with demolitions. On the other hand, the location of cities make them increasingly dependent on transport, which as described in Section 3.1.C, is fundamentally done by private vehicle, with the consequent negative impact on the environment and the quality of life of citizens.

The polarization of land occupation concentrates the increasing erosion and land degradation particularly in some areas. Thus, the intensity of the erosion

process exceeds tolerable limits in 23 million hectares. In addition, 6 million hectares are under very severe erosion, exceeding 50 tonnes of soil losses per hectare and year, when the rate of land formation is considered to be between 2 and 12 tonnes per hectare and year. These six million hectares with serious erosion are mostly located within the hydrographic basins with Mediterranean-continental climate, particularly in the river basins of the Guadalquivir and the Sur, whose percentage of lands with losses exceeding 50 tonnes per hectare and year is higher than 31% and 22%, respectively²¹.

The factors that increase land degradation are: the construction of houses and infrastructures, climate change, deforestation, fires, the end of farming activities and the abandonment of extensive farming and the fields in general. These bad practices derive from an excessive use of fertilizers, mainly nitrogenated in some areas and crops, which generate serious pollution problems of land and aquifers, with no benefit for agriculture. Similar pollution problems are produced in pig slurries with purines.

In the end, natural resources are submitted to different pressures derived from man's activity and, more recently, from climate change. This Strategy seeks to minimize the damages and to harness the efficient and sustainable use of these resources, so essential for economic development and social wellbeing.

A) Hydric resources

Objectives

The objective of this strategy is **to ensure environmental sustainability and the quality of hydric resource by guaranteeing supply to the population and the sustainable productive use of the same** within the Water Framework Directive (WFD). This right to have access to water in sufficient amounts and of a

²¹ National Summary of Mapping and Erosion Hazards Maps (1987- 2002) published by the Ministry of the Environment.

suitable quality is not only a need recognized by the United Nations, but a right that public Administrations must guarantee.

In order to quantify the meeting of these objectives, the index of general quality of waters, the aquifers filling indices and drought risks per hydrographic river basins will be used as indicators to measure the degree of conformity with Directive 91/271/CEE.

Actions

As mentioned in the initial environmental diagnosis, to ensure environmental sustainability and the quality of hydric resources the traditional approaches of “supply” are being replaced by demand management strategies, described in Section 3.1.A and of conservation and restoration of hydric resources, whose main strategic actions fit within the Global Program of Actions for Water Management and Use (A.G.U.A. Programme.).

The A.G.U.A. Programme integrates the objectives mentioned within the hydrological planning by emphasizing the depuration actions of residual waters, the regeneration and reusability of waters, the improvement and modernization of supply and irrigation systems, as well as the construction of desalination plants. The programme prioritizes investments made in the most urgent actions in areas that undergo serious hydric imbalance, such as the Mediterranean river basins.

Actions destined to recovery and environmental management attempt to ensure, on the one hand, the quality of water, and on the other hand, the recovery and environmental management of rivers.

The improvement of the quality of our waters is still a pending issue. For this reason the Government, in collaboration with the Autonomous Communities, has approved in June 2007 the National Water Quality Plan: Treatment and Depuration 2007-2015, to fulfil the objectives not reached in the Treatment and Depuration Plan 1995-2005, to comply with the community requirements of Directive 91/271/CEE and with the environmental objectives for 2015 established in the WFD and, at the same time, to establish a new mechanism for the management, cooperation and institutional coordination and interregional solidarity between competent Administrations in the management of the resource. This Plan considers a total

investment of 19,000 million Euros, from which the State General Administration will finance the declared actions of general interest pending of execution, 25% of the cost of improving the quality of waters in rivers or coasts derived from the declaration of sensitive areas by Portugal or Spain, 50% of the actions to ensure maximum quality waters considered in the future Law on Sustainable Rural Development in National Parks and municipalities of the Natura 2000 Network and, 50% of the actions through the State Water Companies when proposed by the Autonomous Communities.

In addition, the Plan of Zero Tolerance to Spills aims at the strategic target that no effluent from municipalities having more than 2,000 inhabitants reaches the river bed or the sea without being depurated. In order to intensify this action, during the last semester of 2005 and the first one of 2006, a Shock Plan of Zero Tolerance to Spills, consisting in providing the Hydrographic Confederations with all human, material and technical resources to accelerate the revision of spill authorizations in an orderly manner, by assigning priorities based on the danger and volume of the spill, was carried out.

As for the recovery and environmental management of our rivers, the National Plan of Rivers Restoration and the Conservation and Improvement Plan of Hydraulic Public Domain are subject to revert, both from the ecological point of view and from the hydromorphological one, the environmental deterioration registered in some of our rivers. Among the measures used to protect, to recover and to improve our rivers we can mention: the preparation and environmental recovery of river beds and shores, the restitution of currents to their natural conditions of hydrological operation, the cleaning of shores, canalisation repair, as well as the improvement of the knowledge about rivers and their value as a natural and cultural heritage. As a complement to these actions, and to maintain minimum volumes to ensure the survival of fish life and banks' flora, the recently approved Regulation for Hydrological Planning establishes necessary actions to determine the regime of ecological volumes of rivers and transition waters, including lakes and wetlands' needs.

As mentioned in the diagnosis, important conventional water captations are not expected so that to improve the guarantee on water uses, in addition to the

measures described in Section 3.1.A, other actions such as reusability and desalination must be encouraged and, at the same time, ensure a sustainable use of underground waters.

Direct reuse of residual waters near the coast represents an increase of resources available, given the fact that it uses water that would not be taken advantage of otherwise, whereas waters depurated in the interior can spill to the banks, being taken advantage along the course with other natural contributions. For this reason, a strategic line of sustainable use of water is to promote the use of regenerated waters (in agriculture, irrigation of parks and gardens, golf courses, maintenance of environmental flows, etc.), so that it is important to have a legal framework that regulates the basic conditions for the direct reuse of depurated residual waters, the coordination between the different Administrations having competence in the matter and the establishment, as appropriate, of suitable economic and financial instruments to stimulate their use.

As for desalination, it guarantees additional hydric resources, releasing superficial and underground waters mainly in the Mediterranean coast, which are used at the moment for activities such as tourism or agriculture. The A.G.U.A. Program includes some 100 specific actions with an investment of 3,900 million Euros and some anticipated additional contributions of 1,100 hm³/year, concentrated in the river basins of the Sur, Segura, Júcar, Ebro and inner basins of Catalonia.

In matters of underground waters, the Action Plan for Underground Waters, which reveals the spirit of the Community standards, aims at maintaining its potential functions and sustainable management, with an equitable allocation, shared responsibility and an integrated and harmonized approach with other sector policies. The objectives of these programmes are to improve knowledge and resource control, the exploitation management by means of the legal regulation for extractions from masses at risk, the gradual reduction of pollution and its prevention, the construction of artificial aquifer recharge for emergency situations originated by droughts and the integration of their exploitation to superficial resources.

Next to these actions, the development of the Special Plan for the Upper Guadiana, with the purpose of ensuring a sustainable use of aquifers, consisting of their recovery, until they reach a good state, stop the deterioration of all rivers, wetlands and ecosystems bound to them and recover their ecological functionality. For purposes of this, some hydric measures and others aimed at reaching hydrological balance, environmental recovery and socio-economic development have been developed.

As previously mentioned, Spain is particularly vulnerable to droughts, floods and climate change, which explains why actions to manage these risks must be implemented. In order to manage droughts in a planned way, as opposed to the crisis management used to date, in March 2007, the Special Alert and Action Plans were approved in view of a Possible Drought framed in the hydrological planning of the demarcation and compulsory for the intercommunity river basins, the objective of which is to diminish the environmental, economic and social impacts of droughts and to establish an indicator system to anticipate drought situations and to assess their severity.

With respect to the management of floods risks, the future Directive of Floods establishes a calendar of policy development to reduce the negative consequences of floods on human health, the environment, the cultural heritage and the economic activity, that includes a preliminary evaluation of flood risks (2011), maps the danger and risk of floods (2013) and flood risks management plans (2015). In order to fulfil the community standards and the particular needs of flood management, the Spanish Government will modify the legal definition of water public domain, police flood area and flooding areas, including not only hydrological but also ecological criteria in the definition and protection. On the other hand, the measures of the National Plan of Rivers Restoration mentioned before will avoid the environmental deterioration of river beds and will recover the water-drainage capacity, which will result in the recovery of the natural function of rivers. These initiatives are going to be completed through the National Map System of Flooding Areas that will integrate the cartography of River Basins Bodies, Autonomous Communities, Civil defence and other organizations involved, so as to maximise public investments by facilitating the management and creating a

fundamental tool for the fulfilment of the requirements of the future Directive of Floods.

Likewise, it is important to consider that the serious deterioration of lands and plants in a great extent of the Spanish territory is another of the factors derived from the strong irregularity of the natural regime of surface waters. For this reason, the hydrological-forest restoration, by means of reforestation, hydro technology works and the conservation of forest masses, can play an important role in the improvement of the natural regulation, and additionally, maintain the capacity of dams in view of the sedimentation processes.

As described in Section 3.2.E about adaptation measures to climate change, the work programmes of the NAPCC include the impact evaluation of climate change on hydric resources, which will include the development of regional models connecting climate to hydrology so as to obtain reliable scenarios of all the terms and processes of the hydrological cycle, the development of ecological quality models of water masses and the application of hydrological scenarios generated to other sectors highly dependent on hydric resources, among others.

An important part of the detailed measures are included in the legislation on hydrological planning recently approved²². All the mentioned Plans and Programmes are encouraging a strong public participation of all the parties interested in the process of decision making in the field of water.

Finally, within the international actions in water management, the coordination with Portugal is top priority, given that the “Agreement on cooperation for the protection and sustainable use of waters of the Spanish-Portuguese Hydrographic river basins” was approved in 1998. This agreement applied to the river basins of the rivers Miño, Limia, Duero, Tajo and Guadiana, promotes and protects the good state of shared waters, and it aims at reinforcing coordination and cooperation

²² Royal Decree 125/2007, of 2 February, establishes the scope of all Hydrographic demarcations that include more than one Autonomous Community; Royal Decree 126/2007, of 2 February, regulates the composition, functions and responsibilities of the Committees of Competent Authorities of the Hydrographic demarcations with intercommunity basins and the Guidelines on Hydrological Planning 907/2007, of 6 July, establishes the guidelines to carry out the Hydrological Plans of the basin and the content.

even more. In addition, an “administrative Agreement between Spain and France on water management” was signed in February 2006 to ensure the cooperation between both countries.

B) Biodiversity

Objectives

The main objective in this area **is to stop biodiversity and natural heritage loss, by means of the conservation, restoration and suitable management of natural resources in a way which is compatible with environmentally sustainable exploitation.**

The indicators that can be used to measure the achievement of the objective are the number and surface of habitats of community interest, the number and surface of natural protected spaces, the forest surface covered by trees and not covered by trees, the percentage of trees over the total forest coverage, the percentage of burnt forest areas, the reforested forest surface, the number of wetlands, the evolution of common birds and the number of threatened species.

Actions

After the approval in 1998 of the Spanish Strategy for the Conservation and Sustainable Use of Biological Diversity, the Draft Law on Natural heritage and Biodiversity, represents a panorama change in the policy on biodiversity. One is a basic legislation that will replace Law 4/89 and that will incorporate new instruments to face biodiversity loss and work lines inspired by the United Nations´ Agreement on Biological Diversity, and other international commitments. One of the objectives of this Law is to limit territorial and urban uses that can seriously affect the environment, forcing to submit and to carry out plans for the arrangement of natural resources.

The actions suggested to face the challenges raised in matters of biodiversity include the protection of the most important habitats and species, and the

preservation and restoration of biodiversity and the services of ecosystems beyond protected areas and maritime areas.

In terms of the protection of the most important habitats and species, a National Strategic Plan for Natural heritage and Biodiversity will be prepared with the Autonomous Communities and parties in interest, and it will contain a diagnosis of the situation, the objectives to be reached and the actions to be executed during the term. This Plan must ensure the sufficiency, coherence, connectivity and efficient management of the network of Spanish protected areas, without forgetting the steppe areas, adopting common directives for the management of the Natura 2000 Network and integrating its planning and management to urban planning and to horizontal and sector policies. In addition, the Plan will incorporate the Spanish Strategy for the Conservation and Rational Use of Wetlands.

With respect to the conservation of the biological diversity of forests, the Spanish Forest Plan was the first Sector Plan approved of those included in the Spanish Strategy for the Conservation and Sustainable Use of Biological Diversity. Its objectives include, on the one hand, the integration of conservation criteria in the planning of sector policies and the practices of management, improvement, defence and restoration of forest spaces, and on the other hand, the conservation and recovery of specially vulnerable or threatened taxa of wild fauna and flora. For the protection of the most important habitat and species, the Plan includes socio-economic and cultural Actions, described in Section 3.1.A, and others related to land use, which include the restoration of the vegetation cover and the extension of the tree-covered surface, the defence of woods and the protection of the forest public heritage, the conservation of biological diversity and sustainable use of forest resources.

With respect to threatened fauna, in the last ten years twelve National Conservation Strategies have been approved, in addition to the National Strategy against the use of poisoned baits. Before 2010 National Conservation Strategies must be prepared for all endangered species by way of a National Catalogue and a National Strategy for Invading Exotic Species, promoting the establishment of a

regional system for early alert, developing plans to recover domestic varieties and native cattle species threatened and by creating genetic and seeds banks.

We cannot forget the important role played by hunting and continental fishing as a driving force for the economic development of some Spanish rural areas. In order to guarantee that hunting and fishing are carried out in a sustainable and fully respectful manner in agreement with the national and European legislation, they must consider the orientation principles of the European Charter on Hunting, being drafted by the Council of Europe, as well as the Program of Sustainable Hunting of the European Commission and the plans to handle huntable species.

With respect to the conservation ex- situ, a Guide for the application of Law 31/2003 on the Conservation of Wild Fauna in Zoological Parks has been elaborated recently with a description of the important functions these establishments can carry out as biodiversity reservoirs.

Finally and as a transversal measure, the effectiveness of basic tools of integration sectors such as the Evaluation of Environmental Impact and the Strategic Environmental Evaluation will continue to be reinforced.

With respect to the actions aimed at preserving and recovering biodiversity and ecosystems systems beyond protected areas, the opportunities offered by community policies of rural, agricultural and forest development must be optimized and the measures guaranteeing the genetic diversity of crops varieties, cattle species and varieties and commercial trees must be reinforced, and their conservation in situ must be promoted.

With respect to genetically modified organisms, it is necessary to guarantee that their use will not have a significant impact on biodiversity, making it important to ensure the coordination of the different institutions in the approval of new transgenic products, as well as in regulating the coexistence of crops.

In the marine scope, a specific standard will be developed for biodiversity conservation, the declaration of protected areas and the conservation of species. Before 2010, a Network of Protected Marine Areas in Spain will be established, to make an inventory and to cover planning and management, including verification and monitoring mechanisms. On the one hand, orientation criteria and strategies

for the conservation of coastal and marine species included in the National Catalogue of Endangered Species will be developed and will be prepared with the collaboration of the regional governments and the Autonomous Communities. Specific Conservation plans for those species whose life cycle occurs mostly at high sea will be developed. In addition, fish populations must be restored to levels that ensure their sustainability by adopting good fishing practices, by establishing quotas adapted to each species and by ensuring compliance with the same. All this will be complemented with actions dealing with information and public awareness on the importance of marine resources and the need for their conservation.

Finally, to conserve, restore and make sustainable use of biodiversity it is necessary to have a greater knowledge and understanding of biological diversity in our country. For purposes of this, a National Inventory of Natural Heritage and Biodiversity will be created and a system of indicators will be established so as to evaluate the effectiveness and impacts of biodiversity policies.

In addition to the development of specific policies aimed towards the objective established, the conservation of biodiversity must be treated as a horizontal policy imbedded in the development of other sector policies.

C) Land use and occupation

Objectives

The main objective is **to promote a sustainable and balanced land and urban development model, by stimulating sustainable development in rural areas, in particular.**

The indicators that can be used are the surface of polluted land, the percentage of total farming surface over the total geographic surface, the percentage of artificial land in the 10 km band of coast and the surface of coast purchased by the public sector for its protection.

Actions

To reach this objective a series of proposed actions aim towards achieving, on the one hand, land balance through the sustainable development of rural areas and cities and, on the other hand, towards facing the problems caused by land occupation.

To reach the objective of sustainable land development an intra and inter-regional balance must be achieved, with a suitable physical organization of space and rational use of natural resources, preserving life quality and environmental quality. The balance between the different land units is a guarantee for progress and stability, which is why land-use planning must stimulate the slowest or regressive and try to connect peripheral to more dynamic centres, by way of actions such as public investment and encouraging private ones, public infrastructures and collective equipment, the adjustment of transport systems and the promotion to technology transfer and innovation.

In order to define a suitable scheme for land use and land occupation, action lines focus on promoting, on the one hand, programmes to develop spaces of low population density based on taking advantage of their quality and environmental resources and the opportunities created by the new social demands and the information society and on the other hand, encouraging programmes in the cities, where the quality and specificity of urban areas and their position within the territorial system are the strategic reference.

Thus, in rural spaces, the stabilization of areas of low demographic density responds to the challenges of having to adapt land uses to their carrying capacity and to restrain the processes of urban congestion. For this, in addition to the balance measures mentioned before, new lifestyles must be encouraged to facilitate coexistence and avoid social exclusion, favouring well-being and ecological efficiency, and integrating environmental costs and benefits to the evaluation processes of socio-economic results.

In order to take advantage of the development opportunities of the new activities in rural areas the information society must be promoted, providing the necessary infrastructure and training in the adequate use of new technologies. The

new social demands for leisure, health and culture create opportunities for the re-assessment of rural areas, for which a key factor is to manage and preserve their landscape, biodiversity and culture. In order to capitalize on land heritage, and to ensure that it turns into higher incomes and employment rates, it is important to increase the level of knowledge, awareness and management capacity of the rural world.

In this sense, the draft Law for the Sustainable Development of Rural Areas and the National Strategic Plan for Rural Development 2007-2013 aim at preserving and recovering the natural and cultural heritage and resources of rural areas. In addition, the Integral Action Plan for Ecological Agriculture 2007-2013 has been implemented to promote ecological production, to stimulate the internal demand for these products and to improve the vertebration of the sector.

To promote the sustainable development of cities, it is necessary to reformulate the present diffuse residential models and to elaborate, by means of participative processes, an integral project of city and urban life based on new economic, social and environmentally more sustainable styles. For purposes of this, a greater coordination between the State General Administration, the AACC and the Municipalities is necessary, as well as the understanding of the present contradictions of institutions and citizens and a closer relationship between the city and its citizens is necessary to overcome the dynamics of limitless growth as the driving force of urban development. In this sense, the new Land Law confirms the need of urban planning to respond to the requirements of sustainable development, while diminishing the impact of urban planning growth and encouraging the regeneration of the existing city to avoid or to minimize the serious effects of an extended and disorganized urban development. Likewise, the Law establishes the principles for a sustainable land and urban development that is to inspire the public policies, both at autonomous and municipal level, related to the regulation, planning, occupation, transformation and use of land.

In order to face the externalities derived from the strong urban growth, some measures that have already been mentioned in numerous Sections of this SSDS must be encouraged, such as to promote sustainable consumption and production, (Section 3.1.B), to use renewable energy sources (Section 3.2.A and 3.2.B), to

improve the ecological metabolism of the city and to reduce its ecological footprint (Section 3.1.B), to promote a sustainable management of the whole water cycle (Section 3.3.A), urban energy consumption (Section 3.1.A and 3.2.A) waste and the main sources of urban pollution (Section 3.1.B).

Private consumption is a key factor through which it is possible to obtain important direct effects such as the reduction of materials consumptions and waste treatment, and indirect effects on producers and distributors of services and consumer goods, that will result in an improvement of sustainability in general and the quality of local life. For this reason, eco-efficient consumption practices of the same institutions must be encouraged as well as information provided about environmental prevention for health, responsible consumption and good practices.

In addition, to boost environmental efficiency in the local industry, a series of actions have been considered for the construction and maintenance of buildings and urban mobility. In the area of construction, measures must aim at the promotion of rehabilitation, at bioclimatic construction, at the adaptation and maintenance of existing constructions, and at considering the life cycles of materials, processes and products, for which it is necessary to develop city-planning legislation and sign agreements with companies and consumer organizations. In order to face the challenges in matters of mobility, Sections 3.1.C and 3.2.B have considered some measures that must be added to the establishment of proximity criteria of urban functions in land-use planning, which are competence of the Autonomous Communities.

In order to promote a sustainable city-planning development of the coastal regions, the Strategic Plan of Integrated Management of the Coastal Zone will be developed together with the local and regional administrations. Likewise, standards of ecological quality to guarantee the conservation of the marine areas affected by spills will be established and an inventory of irregular occupations in the marine-land public domain will be prepared for purposes of recovering these areas for general use. Other measures include the creation of marine-land reserves and the maintenance of natural paths all along the coast.

On the other hand, the city, from a social perspective, is the scenario for relationships, conflicts and coexistence between multiple actors, whose sustainability issues are considered in Section 4.1 which details the measures to reach the objective of greater social cohesion.

Finally, the definition of a new project for a sustainable city is a challenge that requires leadership and commitment from institutions, cultural and technical innovation, active social participation and a better knowledge of the present situation and the trends. In this sense, the possibilities offered by Local Agenda 21, the creation of Fora for Citizens or the implementation of Sustainability Observatories, constitute high-interest initiatives of political creativity and citizen co-responsibility to define a new project of urban life.

For landscape conservation, the Government can use the National Strategy of Conservation and Restoration of Cattle Routes and the Landscape Agreement which intends to promote conservation programmes of cultural heritage linked to the conservation of landscapes and eco-tourism, and the creation of a landscapes inventory in the framework of international agreements.

In order to face the problems caused by land uses, urban planning must be integrated to sector policies and a greater rationality and sustainability in city-planning developments must be incorporated. Additionally, some initiatives that will reinforce the transparency and the supervision of the urbanization process are to promote a municipal instrument for the integrated planning of land uses, to preserve the ecological road systems in the design and construction of infrastructures, favouring the permeability of the land, and the creation of the Prosecutor to fight against crimes related to land-use.

In the legal framework, the new Land Law tries to establish the policies of urban development on the basis of a sustainable land and urban development model, by demanding and giving a determining character in the Environmental Memory to the tools of land and urban development, to the map of natural risks of the area affected and to the protection, when necessary, of state-owned hydraulic, land, and sea locations. Similarly, one of the general objectives of the Strategic Infrastructure and Transport Plan are to contribute to the sustainability of the

system by means of, among other measures, the progressive integration of the objectives of land-use policies and biodiversity protection. Finally, it is necessary to establish a preventive system to monitor the state of the land and to promote farming practices aiming at the conservation of land and pollution reduction, as well as to boost the development of management plans and strategies for urban and industrial spills.

In order to fight against desertification, in addition to the measures described in Section 3.3.A on hydric resources, the Program of National Action to Fight against Desertification of the National Strategic Plan for Natural Heritage and Biodiversity, which includes some measures in the farming scope already described. This Plan will be complemented with the Forest Plan which proposes to establish a stable vegetation cover in the long term in the most eroded areas for the prevention of fires, as well as to carry out the necessary hydrotechnics to obtain compensation slopes, that will favour water infiltration and sweet water aquifers recharge, avoiding therefore the problem of their salinisation, which is the third cause of desertification in Mediterranean countries.

Finally, the Law on Environmental Liability establishes a new administrative regime which gives responsibility to the holders of activities that are potentially more polluting to prevent and repair the environmental damages generated. This law aims at conserving, recovering and making sustainable use of natural resources included throughout Section 3. Likewise, it is important to point out that Spain is a pioneer in the transposition of this community legislation by considering a compulsory scheme of financial guarantees to ensure the repair of the environmental impact is carried out by the people responsible for it.

4. SOCIAL SUSTAINABILITY

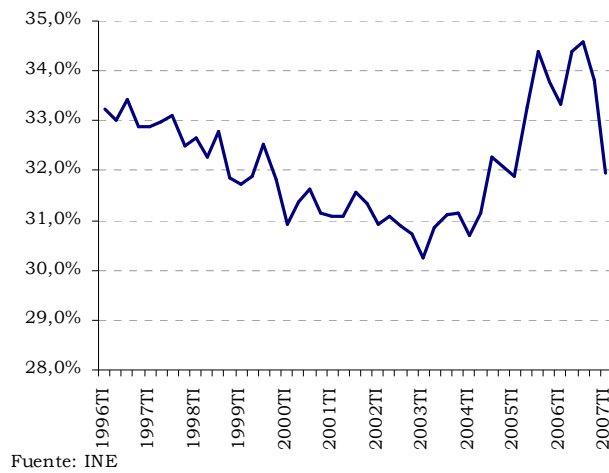
4.1. Employment, social cohesion and poverty.

As mentioned in the initial diagnosis, since the mid 1990's, the labour market in Spain has shown a very favourable evolution, not only in terms of jobs creation, but also in the participation and reduction of the unemployment rate to reach, in

2006, the minimum rate of the democratic period (8.5%, as opposed to 19.2% in 1996), a figure that can be compared to the one of the rest of European economies.

Although it is possible to anticipate that this situation will remain the same during the next few years, this should not be an obstacle to continue making progress in objectives such as temporality reduction, job offers increase to older age groups and the improvement of public services of employment and Training.

Graph 4.1.1. Temporality rate in Spain

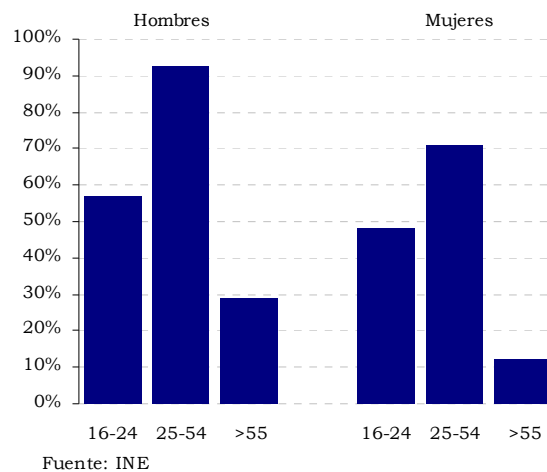


Thus, first of all, efforts must be ensured to reduce work market segmentation between workers with permanent contracts and workers with temporary contracts, given that a negative aspect of this intense process of job creation has been the temporality rates described in Graph 4.1.1 above, which in spite of the favourable evolution of the last few months as a result of the enforcement of the new Labour Law, was around 31.8% in the second quarter of 2007, the highest rate among neighbouring countries.

Secondly, it is necessary to stimulate job offers to older age groups which are still very limited, particularly in the case of women as observed in Graph 4.1.2, which limits the growth capacity of the Spanish economy. Thirdly, it is necessary to continue to improve employment public services, so that they act as real employment agencies and adjust the offer to the labour market. Its coordination

with the educational system is essential to make professional training more attractive, which is where greater restrictions of work offer are detected at present and to promote continuous learning and to improve the occupability of workers and the unemployed.

Graph 4.1.2. Activity rate in Spain, per age groups in 2006



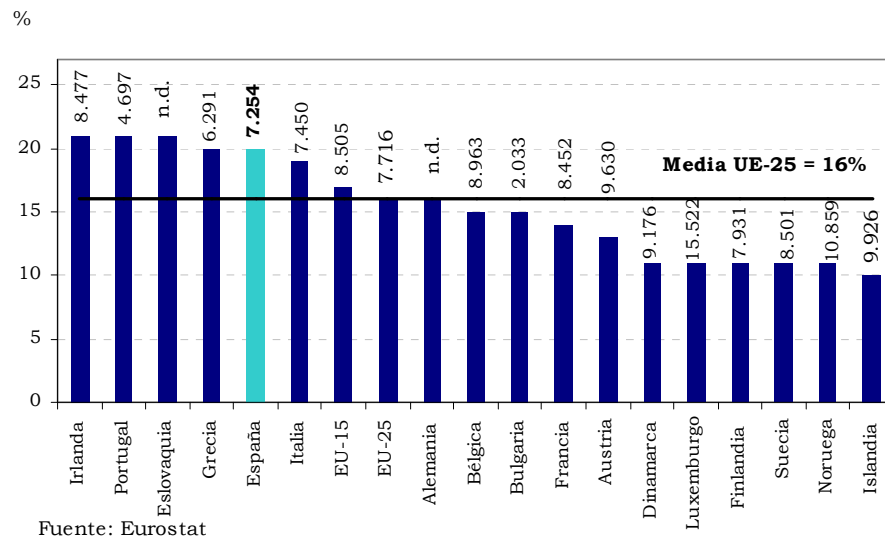
As mentioned in the initial diagnosis, in this scope, according to the Survey of about Life Conditions of 2005, 19.8% of the Spanish population lived below relative poverty line,²³ which represented a timid reduction with respect to the previous year.

From an international point of view, and as described in Graph 4.1.4, the percentage of population under the poverty line in Spain surpasses in 4 points the average for the EU-25, which was located in 16% in 2004. Nevertheless, since the poverty thresholds are specific for each country, relative poverty rates are insufficient to make international comparisons. In particular, individuals that

²³ Poverty line is around 60% of the median of the annual income per consumption unit taking into account the distribution of people. The threshold varies annually making annual comparisons difficult.

would classify as poor in Spain would not do so with the same income level in Bulgaria, Portugal or Greece.

Graph 4.1.3. Rates of poverty risk (%) and poverty threshold (Euros PPA) in the EU, 2004

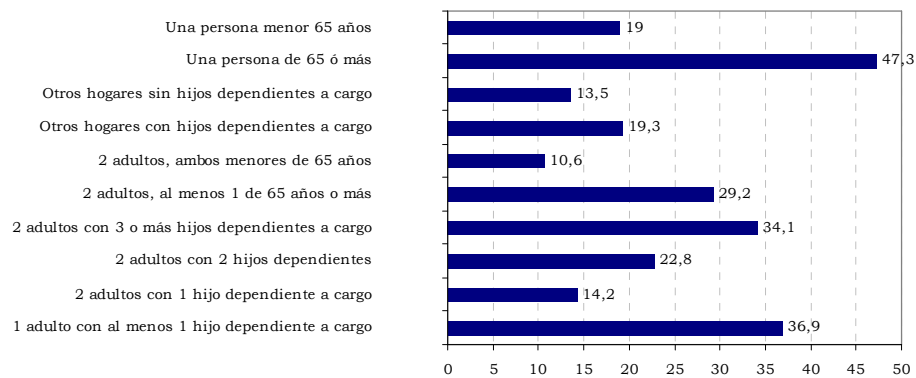


As explained in the initial diagnosis, one of the most important instruments in the fight against poverty and inequality in Spain is the policy of social transfer, which, according to the Survey about life conditions 2005, was able to reduce in more than 4 percentage points the percentage of people living below the relative poverty line.

At a more detailed level, the poverty rate of women was at 20.9%, as opposed to 18.6% for men. In absolute terms, this means that the total number of women in poverty situations reaches 4.67 million, as opposed to 4.05 million in men. By age groups, poverty concentrates mainly among the youngest and the oldest. Thus, in 2005, 24.2% of the population under 16 were below the relative poverty line, reaching 29.4% for the older than 65. As shown in Graph 4.1.3, households most

vulnerable to poverty situations continue to be those formed by one person, especially when this person is older than 65 (47.3%), single parents (36.9%) and big families (34.1%).

Graph 4.1.4. Poverty rate per household type, 2005



Fuente: INE.

Related to social inclusion, Spain must pay prior attention to the most vulnerable groups such as immigrants, the elder, the young people and women.

Finally, as indicated in the initial diagnosis, the fast increase in the flow of immigrants has raised new challenges in terms of reception and social inclusion. On the other hand, the ageing of the population as a result of an increase in life expectancy and a decrease of natality rates raises serious challenges, not only to the present growth rate and the financial viability of the pension schemes and public health, but also in terms of social cohesion. In this sense, welfare needs are expected to increase considerably for a population older than 65, since they will come to represent 20% of the population in 2020, and 35.5% in 2050.

Objectives

To promote employment, reduce poverty and fight against social exclusion and thus encourage a sustainable model of social development in Spain, the following

objectives are established: **to promote access to quality employment, support the social integration of groups facing exclusion risks and promote the allocation of minimum income to people under poverty conditions.**

The National Reform Programme has a very complete description of objectives and labour-related policies, which is why only those measures and indicators focused on the social scope will be described in the future. For purposes of making a suitable monitoring and evaluation of the objectives described before, the following set of indicators will be used. In order to quantify the degree of progress towards quality employment, the follow-up indicators established are the total temporality rate described by sectors (agriculture, construction, industry and services), by gender and age, and long-term unemployment rate (more than one year), total and by gender and age groups.

With respect to the objective of fighting against poverty and social exclusion, the follow-up indicators to be used are the rate of relative poverty risk after age and gender transferences, inequalities in income distribution s80/s20 (relation between 20% of the population with the highest income, and 20% of the population with the lowest income), and the number of school dropouts who do not follow any type of educational or training program.

Social integration of immigrants will be measured using the number of foreign workers affiliated to the Social Security Service and the cost of immigration programmes. Finally, the evolution of minimum pensions will be used as a follow-up indicator to promote the allocation of minimum economic resources to the most underprivileged groups.

Actions

The Agreement for the Improvement of Growth and Employment dated May 2006, a legal document, is having a positive effect in the creation of long lasting quality employment, as well as in increasing the participation of women, older workers and the young in the labour market. Its main goal is to reduce temporality in employment, thus, it incorporates measures to boost permanent hiring and to convert temporary employment into permanent, to improve temporary hiring, to

foster the efficiency of active employment policies and the capacity of the Public Employment Services and to improve workers' assistance in view of the lack of employment.

Likewise, the agreement in matters of Social Security, signed by the Government and the social interlocutors in 2006 July is an important measure which supports the extension of active life and the modernization of social protection systems, through measures aimed at stimulating the voluntary extension of work life, improving the pension of those who delay their retirement and rationalizing early retirement to 61. Likewise, the structure of the Social Security system is rationalized and simplified.

In addition, other measures are necessary to develop continuous training and learning. In February 2006, the Training for Employment Agreement was signed, giving rise to the regulation of the Subsystem of Professional Training for Employment in March of 2007, which integrates occupational training with continuous training.

Among the measures aimed at increasing employment among younger workers in response to the demands of the European Youth Pact, advantages for the indefinite hiring of young unemployed men under 30 years-old have been established, training, recycling or employment for each young unemployed individual in the term of six months (resulting from the Agreement for the Improvement of Growth and Employment mentioned before), and the increase in work periods and traineeships in companies and in part-time training in other Member States of the European Union.

Likewise, social protection for self-employed workers is extended by way of the recent approval of the Independent Workers Statute, which regulates self-employment for the first time.

Another set of actions aims at the conciliation of work and private life with the application of measures to improve the number of vacancies for children between 0-3 and the flexibility and security of labour permissions to take care of children, as well as extending their duration. Likewise, to recognize as an effective quotation

period the first two years of the leave to take care of a child, and the first year to take care of other relatives.

It is also necessary to make progress in health and safety systems at work. In this sense, the Council of Ministers approved on 29 June the Spanish Health and Safety at Work Strategy 2007-2012, as the fundamental instrument in the development of future policies to prevent labour risks. Proposed actions include: to reform the National Institute of Safety and Hygiene at Work, to increase the resources for the Foundation for the Prevention of Labour Risks and to increase the indemnizations for non-handicapping injuries.

To fight against poverty and social exclusion progress must be made in the effective equality of women and men, to increase the rate of women in the labour force and to eliminate labour discrimination. In this sense, the Government has recently approved the Statutory law for the Effective Equality of Women and Men, with a double objective: on the one hand, to enforce the principle of equal treatment and, on the other hand, to eliminate all forms of discrimination against women in any scope of public or private life.

On the other hand, a set of actions has been established to facilitate the integration of people with disabilities and other groups at risk of social exclusion. The 4th National Action Plan for Social Inclusion of the Kingdom of Spain 2006-2008 (NAPin 2006-2008) prepared in the framework of the European strategy for social inclusion, covers a set of measures aimed at improving the integral and coordinated care provided to vulnerable groups and individuals, under the cross-sectional principle and gender approach.

To achieve the integration of people with disabilities the proposal includes: the regulation of employment assistance; the creation of specialized multidisciplinary teams for the work integration of people with disabilities; the design of work insertion itineraries that consider the specific needs of women with disabilities; the follow-up and control from Work Inspectors of the fulfilment of the quota of employment reserve; the legal regulation of Insertion Companies; the creation of Integral Work Centres for people in situations or at risk of social exclusion; and the updating of the amount of aids for the creation of Special Work Centres.

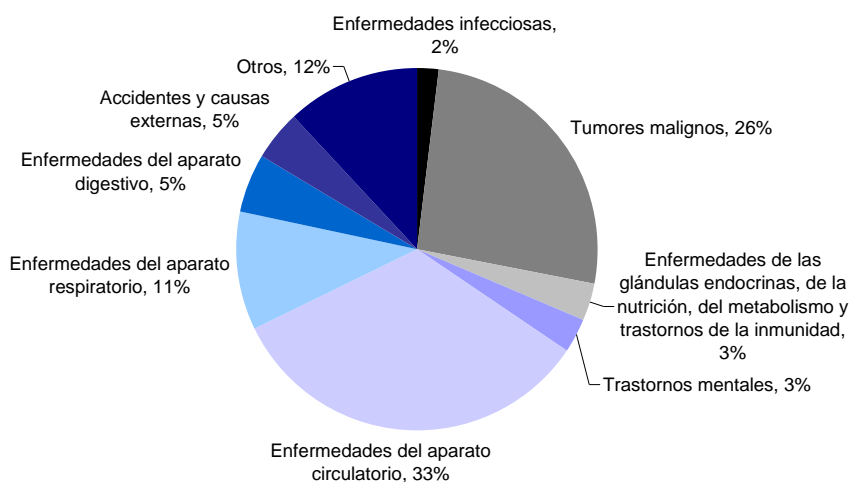
As for the objective of supporting social integration of immigrants, in February 2007, the Government approved the Strategic Plan for Citizenship and Integration 2007-2010 aimed at encouraging social cohesion by way of the promotion of public policies based on equal rights and obligations, equal opportunities, the development of a feeling of belongingness of the immigrant population towards the Spanish society and the respect for diversity. In addition, these measures aim towards improving the management of economic immigration and a better adjustment of manual work to the real needs of companies.

Finally, in terms of measures to promote the allocation of a minimum level of resources to the most underprivileged groups, it is important to mention the revaluation of minimum pensions above inflation, with the commitment of increasing them in 26% during the present term, and the policy to increase the Minimum Interprofessional Salary, so as to reach 600 Euros per month by the end of term.

4.2. Public health and dependence

In developed countries, as opposed to what happens in developing countries, highest health risk factors are not infectious diseases, like malaria or tuberculosis, but degenerative ones, like cancer or diseases of the circulatory system, and accidents, such as work-related and road accidents. Thus, Graph 4.2.1 shows that tumours and diseases of the circulatory system represent 60% of the causes of mortality in Spain. On the contrary, infectious diseases represent only 2%, and the trend is downward, given that the proportion of related deaths has decreased more than 25% in the last ten years.

Graph 4.2.1. Mortality causes. 2004.



Source: Ministry of Health and Consumption.

For this reason, the determinants of public health depend more and more on a series of external factors. Access to sufficient and healthy food, to drinkable water, to healthy housing, and pure air are very important conditions to have a healthy society. Likewise, to prevent diseases, it is necessary to modify lifestyles, which is responsible for most of diseases nowadays, by improving diet habits, promoting sports and avoiding risk behaviours, such as alcohol consumption, smoking, drug abuse, unsafe sexual practices, irresponsible driving and unsafe labour conditions.

With respect to sanitary activities, it is important to take into account the need to improve the capacity to respond in a coordinated way to new health threats, as it is being done with the possible pandemic of avian flu. With respect to other infectious diseases, such as HIV/AIDS, malaria and tuberculosis, they must continue to be controlled and reduced, both in Spain, where at the moment they do not represent a problem that jeopardizes sustainable development, and world-wide.

Likewise, in the long term, it is important to consider the effects of global warming on public health, as a result of the direct influence of the climate (floods, heat waves, etc.), or the spread of tropical diseases to other countries.

Finally, in a developed society, mortality is an excellent variable, but the quality of life of patients and dependent people and the limitations in their daily activities as a result of physical and mental problems is even more important. Particular significance must be given to dependent people²⁴, who are expected to increase in the next decades due to demographic ageing. As mentioned before, in 2007 dependent population in Spain reached 1.2 million people, more than 80% over 65 years old.

Objectives

The main targets in terms of public health and dependence are: **to encourage the existence of a healthy society, with a good quality of life and to provide support to the people in dependency situation.** For purposes of this, long-term indicators will include life expectancy, both at birth and at 65 years old. The short-term indicators shall be: child mortality, the percentage of smokers, the number of new cases of HIV/AIDS, and the indices of chemical agent production by toxicity level.

In terms of the protection of dependent people, similarly to most social protection policies, the indicators in this scope shall make reference to three aspects: ²⁵ sufficient benefits, (average economic benefit, or average cost of the service received), the extension of the same (proportion of dependents who benefit

²⁴ A dependent person is any person who as a result of age, disease or disability, needs the care or assistance of other people to carry out their basic daily activities.

²⁵ These three aspects are included in the Law of Personal Autonomy and Care for People in dependency situations developed in the next Section.

from the law) and the financial sufficiency of the system (public expenditure, both present and projected, as the proportion of the GDP)²⁶.

Actions

With respect to the external factors that influence public health, it is essential to coordinate research related to the relationships between the environmental polluting agents, the exposure to these and their repercussions on health, so as to understand what environmental factors cause health problems and to determine the best way to prevent them. In particular, high-priority will be given to the access to a greater knowledge on the effects of atmospheric pollution on children's health, the quality of water for human consumption and the impact of chemicals on health.

The latter appear to be the polluting agents of greater relevance, especially in the child population. To collect data about the presence of chemical substances in our surroundings prioritized in terms of risks and commercialized amounts, a system to monitor risk and the exposure and effects of the different environmental factors must be developed. In this sense, the implementation of Regulation REACH described in Section 3.2.C. must contribute with a fundamental base of knowledge about risks to be able to reduce their impact on health. Finally, the recent obligatory development of the Law of Noise will decrease the levels of acoustic pollution faced by citizens.

Likewise, food legislation must continue to improve, especially with respect to food security and including the production and use of genetically modified elements, on the basis of risk evaluation and management and considering the possible long-term effects for consumers' health.

Moreover, the new Technical Code of Construction includes construction problems affecting hygiene and people's health, so for purposes of having healthier

²⁶ Using the terms of the European Commission, this expense corresponds to "long-term care", included in the projections of the Economic Policy Committee for age-related Public Expenditure.

buildings, it is possible to regulate construction design to avoid humidity problems or ventilation facilities to ensure acceptable indoor air quality.

With respect to healthy life habits, the new statutory law of Education is an important tool which will value hygiene and health as important aspects both in Primary Education and at high-school level. In this same line, the Strategy for Nutrition, Physical Activity and the Prevention of Obesity (NAOS) developed by the Government seeks to improve food habits and to encourage regular practice of physical activities by all citizens, with a special emphasis on children, and the pilot program PECSRO, for students between six and ten years old and their families.

In addition, the PAOS code of self-regulation for the advertising of food products targeting minor children, aims at preventing obesity, improving overall health and improving eating habits in our society. Likewise, the Law for Smoking Prevention and the annual campaign of the Ministry of Health and Consumption about sexual health to avoid sexually-transmitted diseases and unwanted pregnancies contributes to the improvement of health levels for the future.

The measures taken with respect to health and safety at work and road accidents also focus on prevention. In this sense, last June the Spanish Health and Safety at Work Strategy 2007-2012 was approved, in keeping with the objectives of the New European Security and Health Strategy 2007-2012. One of the key points of the Spanish Strategy, as described in Section 4.2.1, is the reform of the National Institute of Safety, Hygiene and Health at Work (INSHT), to enable this body to meet the new challenges.

In terms of road accidents, it is important to emphasize the positive preliminary results of the points system for driver licences, of the increase in the number of radars to control speed and of public awareness campaigns, which have made 2006 one of the years with the best rates of the last 30 years, with a decrease of almost 10% in the number of mortal victims.

In terms of health activities, measures to control and reduce HIV/AIDS cases in Spain are reinforced by means of a new National Strategic Plan. Likewise, measures will be taken to strengthen the collaboration with third countries and international cooperation to fight contagious diseases, to develop a National Centre

for Sanitary Control, to speed up the implementation of International Sanitary Regulations and to develop National Plans to respond to health potential threats, such as the influenza pandemics.

Likewise, all measures undertaken to refrain climate change described in Section 3.2.2, will help prevent the long-term effects of climate change on public health.

Taking into account the social reality of dependent people as described in the initial diagnosis, at the end of 2006 the Law of Personal Autonomy and Care for People in Dependency Situations was approved, and it considers the System for the Autonomy and Care to Dependent People (SAAD) the fourth pillar of the welfare state, after health, education and pensions systems. The new law establishes a new universal and subjective right that guarantees assistance and care to the people who cannot take care of themselves²⁷, comparable to the most advanced states of the EU. Based on the degree and level of dependency, the dependent person will have the right to enjoy prevention services, tele-assistance, home care, day and night centres and home attention, as well as to receive economic benefits for the hiring of the service, for special care in the family and for specialized care.

The system is expected to develop gradually between 2007 and 2015, beginning in 2007 with situations of high dependency (approximately 205,000 people in Spain), for purposes of linking the development of benefits with the creation of the necessary infrastructure. As far as the development of the Law is concerned, Royal Decrees have been approved to regulate the minimum level of protection guaranteed by the State, the Social Security of the caretakers of the people in dependency situations and the criteria to determine the intensity of protection services and the amount of economic benefits. To implement the System, the Public Administrations will make a remarkable budgetary effort (around 1% of the GDP as of 2015, the first year in which the system will be installed in full) always in a

²⁷ Additionally, it is important to point out that this new Law can contribute to promote the conciliation of private and professional life, by speeding up the economic activity by way of a higher activity tax, especially for women and by generating new employment. The full implementation of SAAD could signify the creation of more than 200,000 full time direct jobs.

compatible manner with the objective of budgetary stability defined by the Government.

5. GLOBAL SUSTAINABILITY

5.1. International cooperation for sustainable development

As previously mentioned, poverty reduction and sustainable development are objectives that require integrated and coordinated actions. The poorest population is more dependent on the environment and the use of natural resources, since their surroundings provide them with food, shelter, medicines, means of living and opportunities for income generation. For this reason, the impact of natural resources degradation, and the limitation or exclusion of the access to these resources, have a direct and more severe effect on the poorest populations in three fundamental dimensions: means of living, health and vulnerability.

To integrate these two approaches implies meeting a set of challenges at national and international level. At international level, it is possible to recognize that environmental degradation is an obstacle to reach the Millennium Development Goals decided by the international community after the ratification of the Millennium Declaration. In this sense, international environmental governance must be encouraged to promote the participation of the different actors in development policies, particularly, those that are traditionally excluded from the participative processes such as women, indigenous groups, and the population living in conditions of extreme poverty, to formulate projects and evaluate progress.

At national level, cooperation policies must be applied and the contents defined in the Master Plan in matters of Environmental Sustainability must be reinforced, which is not only a sector priority, but also a horizontal one, having therefore a transversal character in all cooperation actions and instruments.

The Spanish policy of international cooperation is framed under the main agreements that constitute the international development agenda. With the ratification of the United Nations Millennium Declaration, Spain committed itself to

contribute to the fulfilment by 2015 of a set of objectives and goals to promote development and to fight against poverty world-wide. The objectives established approach the different dimensions of poverty, proposing measures so evident and decisive as: to reduce to a half the number of people living with less than one dollar per day and the people who suffer hunger, to reach universal primary education, to diminish gender inequalities in education, to reduce to two thirds maternal and infant mortality, to ensure environmental sustainability or to collaborate with developing countries in preparing and applying strategies that provide a worthy and productive job to the young.

The main international reference to integrate environment as a key aspect to achieve sustainable development arises from the Conference of the United Nations for the Environment and Development celebrated in Rio de Janeiro in 1992, from which three international agreements ratified by Spain emanate: the United Nations Convention to Combat Desertification, the Agreement on Biological Diversity and the United Nations Framework Convention on Climate Change. This comes to join the main concerns and priorities established in the World Summit on Sustainable Development (Johannesburg, 2002), also gathered in the Summit of Río in relation to water management, the promotion of renewable energy sources and the incorporation of the private sector to development processes.

It is important to point out the treaties, declarations and other regulations that legitimize concrete approaches, such as the Treaty on Phylogenetic Resources, 2004, for the conservation and sustainable use of phylogenetic resources in food and agriculture and the fair and equitable distribution of benefits derived from their use; the International Covenant on Economic, Social and Cultural Rights (PIDESC), on the General comment n° 15 of the PIDESC on the human right to have access to water, health and food; the Ramsar Agreement, 1971, on Wetlands of International Importance; the Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973; the Aarhus Agreement, 1998 on the access to information, the participation of the public in the decision making process and the access to justice in matters of the environment; the agreements adopted in the International Conference on Chemicals

Management, ICCM, 2006; the Stockholm Convention on Persistent Organic Pollutants (POPs) 2001, among others.

In this context and as described in the initial diagnosis, the Government committed to duplicate the budget for Official Development Assistance (ODA) to reach 0.5% of the Gross National Income (GNI) by the end of the term, and 0.7% by 2012. For purposes of this, the Spanish ODA has followed an upward trend since the beginning of this term, reaching 0.32% of the GNI in 2006.

Developing countries can benefit from other alternative mechanisms to the ODA to achieve sustainable development. A good example of these alternatives is Clean Development Mechanisms (CDM), described in Section 3.2.D. The CDM were conceived with a double function: to help developed countries to fulfil the Kyoto Protocol and to contribute to sustainable development of the less developed economies so as to allow governments and companies of European countries to obtain certificates of GHG emission reduction by financing projects aimed to that purpose in developing countries.

The increase in the amount of resources destined to developing countries in the form of official aids, must be accompanied by an increase in aid quality. The process to improve aid quality will demand important modifications in the objectives, in the geographic and sector priorities, the management of the different instruments and modalities and the interaction of the different agents and institutions in charge of managing the cooperation.

Objectives

The first high-priority goal in this area is **to increase ODA to 0.7% of the GNI by 2012, with an intermediate objective of 0.5% in 2008.**

The second high-priority objective is to **increase effectiveness, coherence and quality of Spanish cooperation policy.**

In the international scope, the high-priority objective is to integrate the multidimensional approach to fight against poverty by incorporating environmental sustainability in the Spanish policy of international

cooperation and transforming it into an objective of multilateral and bilateral development cooperation. For purposes of this, significant progress will be made towards the fulfilment of the international commitments assumed by Spain, such as: the Millennium Declaration, the United Nations Conference on Environment and Development, the World Summit on Sustainable Development, the Monterrey Consensus on Financing for Development, the Doha Program for Development and the Paris Declaration on aid effectiveness.

In the environmental area, the objectives are to improve the international management of environment, especially in the context of the follow-up of the results of the World Summit of 2005, and to consolidate the Multilateral Agreements on Environment.

For purposes of making a suitable follow-up and evaluation of the progress made in the objectives established in the previous Section, the following indicators are suggested: the total volume of net ODA in percentage of GNI and the volume of debt relief operations.

Actions

In order to increase the effectiveness, coherence and quality of Spanish cooperation, it is important to improve the planning, follow-up and evaluation of Spanish Cooperation actions, according to the principles of consolidation of the participation of all actors.

For purposes of improving the planning quality there are two action levels: the geographic level, to develop common application instruments for high-priority countries, for preferred countries and for countries requiring special attention, and in the sector level, developing a common tool for all sector strategies. In this way, strategic criteria is well defined with restrictive purposes in terms of geographic and sector concentration and the coherence of policies of the different administrations is reinforced in general among all the Spanish organizations who work in cooperation. On the other hand, it is an important communication mechanism within international organizations to which Spain belongs, by facilitating the harmonization between donors.

Evaluations must be programmed within a strategic approach, to analyze programmes, instruments and action countries. The participation of all actors must be ensured, results based on objectives must be analyzed such as the suitability of budgets assigned for the said objectives, the efficiency of management models and articulated coordination and other replicable models identified.

Secondly, the consolidation of the accounting system between the actors of Spanish cooperation must be promoted so as to increase transparency in the compilation of ODA statistical data and to facilitate registering the said expenditures by applying a series of criteria established by the Official Development Assistance (ODA).

Thirdly, it is important to establish the objective of ensuring coherence, harmonization and alignment in policies among donor communities and receptor countries, among public administrations and the other actors of Spanish Cooperation and within the State General Administration and within the Ministry of Foreign Affairs and Cooperation itself.

The public policy of international cooperation for development and cooperation towards an increase in the amount and quality of aids requires changes to be made in the organic and political structure of the personnel of the Secretariat of State of International Cooperation as a whole, and particularly, of the Spanish Agency for International Cooperation.

Finally, the use of IT and communication technologies must be encouraged when they can be useful to improve actions quality.

To integrate the fight against poverty in the Spanish policy of international cooperation represents progress in the development of the economic sector and support to private enterprises, which is essential to promote economic growth and to reduce poverty in aid receiving countries. Consequently, it is necessary to support the incorporation of poorer people and groups to the economic process. It is particularly important to consider that the market imposes remarkable restrictions to the poorer population to the access to certain resources required for their total incorporation to the productive world. The existence of open commercial standards to allow developing countries to take advantage of their competitive

capacities becomes one of the requirements to generate progress opportunities for the poorest countries. This would be one of the mechanisms that would help fight against poverty and make the Millennium Development Goals possible.

But frequently, commercial opening, when performed in a sharp manner and without any support policy, can generate a process of net destruction of national production capacities, at least in the short term, with undesirable consequences in economic, social and environmental terms. For this reason, it is important to help those countries to establish the technical institutions and necessary capacities for the total advantage of the possibilities offered by multilateral commerce, considering environmental issues at the time of establishing export commercial advantages, where climate change adaptation, the processes of desertification, biodiversity, water, etc, must be considered. It is necessary to implement actions through debt conversion and forgiveness, a modality that has proved to be successful and must be taken into account.

Likewise, it is important to promote a redistributive policy and action aimed at satisfying basic social needs (food security, education, health, basic housing, drinkable water and basic health), pursuing the objective of the 20% of ODA's total, Spain's commitment in the World Summit on Social Development held in Copenhagen (1995).

The promotion and defence of the right of all people to a decent job, as provided for in Article 23 of the Universal Declaration of Human rights and Agreements 87, 98, 105, 100, 111, 138 of the International Labour Organization, are key issues to integrate the approach of the fight against poverty to the policy of Spanish international cooperation.

Likewise, it is necessary to promote social dialogue, by supporting the strengthening of democratic institutions, business and union associations and, very specially, the active participation of women.

Similarly, to integrate environmental sustainability to the policy of international cooperation requires, in the first place, developing and implementing the Strategy of Spanish Cooperation in matters of the environment and sustainable development. For purposes of this, three strategic lines are established: to

encourage environmental governance to strengthen institutional capacities in environmental management and the processes of performance and social participation to reduce socio-environmental vulnerability and favour an efficient, effective and sustainable environmental management; to promote the sustainable use of basic natural resources for the improvement of living conditions of the population and the increase of human development capacities; and to promote environmentally friendly economic initiatives to favour integral sustainable development and the conservation of the ecological wealth of ecosystems, as well as to improve the living conditions of the population.

Likewise, it is important to promote training, awareness and information about subjects related to environment and sustainable development to all actors of Spanish Cooperation and to integrate the environmental component in all documents related to planning and mixed commissions, as well as, to the processes of diagnosis, identification, drafting, follow-up and evaluation of Spanish Cooperation projects and programmes. This can be achieved with instruments such as: impact evaluation, analysis of environmental risks, ex- post evolution, environmental audits and environmental management systems; the inter-institutional coordination and communication of the main environmental actors in Spain and aid receiving countries. Finally, it is necessary to link research centres, mainly in aid receiving countries, to cooperation projects, by stimulating the creation of research networks.

Finally, the Spanish Cooperation Master Plan 2005-2008 will permit to make progress in the fulfilment of international commitments assumed by Spain. In this sense, the Plan proposes to devote a greater amount of resources to subjects related to the United Nations conventions on climate change, desertification and biodiversity, and particularly, to the Global Environment Fund (GEF).

6. ACCOUNTING OF ACTIVITIES

This Strategy has been submitted to public discussion in numerous occasions, particularly during the Conference on Sustainable Development organized by the

Advisory Council on the Environment and during an extended period of public comment. Likewise, during the elaboration process, the Government has presented the same to the Autonomous Communities and to the Spanish Federation of Municipalities and Provinces in the context of the Environment Sector Conference, as well as before the social interlocutors within the Economic and Social Council. The objective is that all agents assume the objectives of the Strategy, conceived as State objectives, and that they act from their own scopes of competition to ensure the successful achievement of the same.

With respect to SSDS follow-up mechanisms, the Inter-ministerial Group that has prepared this SSDS will be in charge of preparing the corresponding SSDS follow-up reports that will account for the progress in the implementation of the different measures and the achievement of the primary and specific goals of each of the headings. Likewise, these reports will be able to incorporate new measures to update the ones raised initially to ensure the effective fulfilment of the objectives. As it has been done in the Strategy, the follow-up reports, that will become public, will try to gather the contributions of the different agents involved in the SSDS, in particular, from the timely holding of the Sustainable Development Conference, in agreement with the provisions about the functions of the Advisory Council on the Environment. It is a matter of transparency and accounting of activities before the society that elevates the quality of our democracy, following the environmental and social example initiated by the National Reform Programme of Spain in terms of economic policies.

In addition, to obtain an independent evaluation of the same the Representative Commission of the Government for Economic Matters will order the State Agency of Evaluation of Public Policies and Service Quality and to the Observatory of Sustainability to assess the degree of application and success of some concrete policies contained in the SSDS.

The indicators are the following:

3. Environmental Sustainability

3.1 Production and consumption

A) Resource-use efficiency

	Last data	Source
National primary energy consumption	144,881 Ktep (2006)	Ministry of Industry, Tourism and Trade
Primary energy intensity	183.39 tep / million € ctes 2000 (2006)	Ministry of Industry, Tourism and Trade
Final energy intensity in the sector:		
Transport	46.79 tep / million € ctes 2000 (2006)	Ministry of Industry, Tourism and Trade
Industry	0.18 ktep/million € VAB industry (2005)	IDAE
Residential	1.13 tep/# households (2005)	IDAE
Percentage of irrigated land that uses localized irrigation systems	37.2% (2005)	Ministry of Agriculture, Fisheries and Food

B) Responsible production and consumption

Absolute volume of waste	14,914,235 tn/year (2004)	Ministry of the Environment
Per capita volume of waste	1.437 kg/person/day (2006)	Ministry of the Environment
Percentage of waste reused or recovered	48.3% (2004)	Ministry of the Environment

C) Sustainable mobility

Road Transport Network Accessibility	1.29 (2003)	Ministry of Public Works
Railway accessibility	4.43 (2003)	Ministry of Public Works
Modal distribution of the interior transport of passengers (percentage of each mode over total passengers km)		
Private vehicles	78.56% (2005)	Ministry of Public Works
Bus	11.46% (2005)	Ministry of Public Works
Train	4.65% (2005)	Ministry of Public Works
Airplane	5.01% (2005)	Ministry of Public Works
Maritime	0.32% (2005)	Ministry of Public Works

Modal Distribution of freight transport (percentage over total tonnes km)			
	Road	85.03% (2005)	Ministry of Public Works
	Train	2.69% (2005)	Ministry of Public Works
	Airplane	0.02% (2005)	Ministry of Public Works
	Maritime	9.56% (2005)	Ministry of Public Works
	Pipe-line	2.70% (2005)	Ministry of Public Works
Transport accident rate			
	Road mortal victims	4,442 (2005)	Ministry of Domestic Affairs
	Road injuries	132,809 (2005)	Ministry of Domestic Affairs
Non GHG emissions			
	Acidifying substances (million acid eq)	15,032.74 (2005)	Ministry of the Environment
	Ozone-depleting substances (kt COVMN eq)	1,042.00 (2005)	Ministry of the Environment
	Total particles (kt)	51.63 (2005)	Ministry of the Environment

D) Sustainable tourism

Percentage of tourists arriving to the six main receptive AACC	90.1 (2006)	Ministry of Industry, Tourism and Trade
Percentage of tourists in the central months of the year (May-September)	56 (2006)	Ministry of Industry, Tourism and Trade
Companies subscribed to the Spanish Tourism Quality System	2000 (2006)	Ministry of Industry, Tourism and Trade

3.2 Climate change

A) Clean energy

Indicators of Section 3.1.A.

Participation of renewable energies in the power generation mix	0.068 (2006)	Ministry of Industry, Tourism and Trade	
Contribution of renewable energies to gross electricity consumption	0.201 (2006)	Ministry of Industry, Tourism and Trade	
Contribution of biofuels to fuel consumption (biofuel consumption/final energy consumed in the transport sector)	0.0053 (2006)	Ministry of Industry, Tourism and Trade	
Annual consumption of primary energy per source type(2006)			
	Gas	30,298 ktep (2006)	National Energy Commission
	Oil	70,864 (2006)	National Energy Commission
	Coal	18,480 (2006)	National Energy Commission
	Renewable energies	9,852 (2006)	National Energy Commission

Renewable electrical power	31,846 MW (2006)	Ministry of Industry, Tourism and Trade
Electricity from renewable energies	61,149 GWh (2006)	Ministry of Industry, Tourism and Trade
Annual consumption of biofuels	549 Ktep (2006)	Ministry of Industry, Tourism and Trade
B) Sectors concerned with energy-intensive diffuse pollution		
Average specific CO ₂ emissions in new vehicles	176 (2004)	European Commission
Energy intensity in private passenger transportation (per capita)	284 ktep (2004)	Ministry of Industry, Tourism and Trade (IDAE) and National Statistical Institute of Spain
Energy intensity in freight transportation (Ktep/million Euros constant 1995)	0.54 ktep (2004)	Ministry of Industry, Tourism and Trade (IDAE) e National Statistical Institute of Spain
Transport related GHG emissions (million T CO ₂ equivalent)	105,323 (2005)	Ministry of the Environment
GHG emissions from other Sectors concerned with energy-intensive diffuse pollution (million T CO ₂ equivalent)	40,132 (2005)	Ministry of the Environment
C) Sectors concerned with non-energy diffuse pollution and sinks		
Waste indicators in Section 3.1.B		
GHG emissions	57.73 Mt (2006)	Ministry of the Environment
Land for Ecological Agriculture	926,390 ha (2006)	Ministry of Agriculture, Fisheries and Food
Agriculture land used as a carbon sink	6,182,853 ha (2006)	Ministry of Agriculture, Fisheries and Food
D) Market instruments		
GHG emissions in the sectors included in the GHG emission trading scheme	179.68 Mt (2006)	Ministry of the Environment
Government's purchase of Certified Emission Reductions (CERs)	60 Mt (2006)	Ministry of the Environment

3.3. Conservation and management of natural resources and land use

A) Hydric resources

Conformity Degree with Directive 91/271/ EEC			
	Load percentage	77.3% (2006)	Ministry of the Environment
	Number of urban centres	54.2% (2006)	Ministry of the Environment
Index of the general quality of waters (% total plants)			Ministry of the Environment
	Excellent	27% (2006)	Ministry of the Environment
	Good	30% (2006)	Ministry of the Environment
	Intermediate	20% (2006)	Ministry of the Environment
	Acceptable	20% (2006)	Ministry of the Environment
	Unacceptable	3% (2006)	Ministry of the Environment
Index, aquifers recharge			Ministry of the Environment
	North	30% (2006)	Ministry of the Environment
	Duero	30% (2006)	Ministry of the Environment
	Tajo	45% (2006)	Ministry of the Environment
	Guadiana	40% (2006)	Ministry of the Environment
	Guadalquivir	60% (2006)	Ministry of the Environment
	Mediterranean, Andalucía	20% (2006)	Ministry of the Environment
	Segura	20% (2006)	Ministry of the Environment
	Jucar	50% (2006)	Ministry of the Environment
	Ebro	25% (2006)	Ministry of the Environment
	Catalonia	15% (2006)	Ministry of the Environment
	Balearic Islands	65% (2006)	Ministry of the Environment
Hydrological status: Drought index risk			
	North	pre-alert (June 2007)	Ministry of the Environment
	Duero	normality (June 2007)	Ministry of the Environment
	Tajo	normality (June 2007)	Ministry of the Environment
	Guadiana	normality (June 2007)	Ministry of the Environment
	Guadalquivir	alert (June 2007)	Ministry of the Environment

	Segura	alert (June 2007)	Ministry of the Environment
	Jucar	alert (June 2007)	Ministry of the Environment
	Ebro	normality (June 2007)	Ministry of the Environment
B) Biodiversity			
Number of habitats of community interest		3,881 (2006)	Ministry of the Environment
Surface of habitats of community interest		13,694,464 ha (2006)	Ministry of the Environment
Number of protected natural spaces			
	Site of community importance	1.381 (2005)	Ministry of the Environment
	Special protection area for birds	512 (2005)	Ministry of the Environment
	Protected natural space	1.224 (2005)	Ministry of the Environment
Area of protected natural spaces			
	Site of community importance	11.262.047 ha (2005)	Ministry of the Environment
	Special protection area for birds	9.104.799 ha (2005)	Ministry of the Environment
	Protected natural space	4,816,106 ha (2005)	Ministry of the Environment
Forest surface			
	Forest land tree-covered	17,715,988 ha (2006)	Ministry of the Environment
	Forest land Not tree-covered	9,743,490 ha (2006)	Ministry of the Environment
Percentage of trees over the total forest land tree-covered		26% (2006)	Ministry of the Environment
Percentage of forest land consumed by fire with respect to average of the previous decade		120% (2006)	Ministry of the Environment
Forest repopulation		49,516 ha (2006)	Ministry of the Environment
Number of wetlands		2,559 (2006)	Ministry of the Environment
Number of endangered species			
	in danger of extinction	166 (2005)	Ministry of the Environment
	sensitive to habitat alteration	21 (2005)	Ministry of the Environment
	vulnerable	61 (2005)	Ministry of the Environment
	of special interest	363 (2005)	Ministry of the Environment

Annual average variation of reproductive birds (1998-last available year)

Agriculture (Mediterranean Region)	-3.1% (2006)	Ministry of the Environment
Agriculture (Eurosiberian Region)	-2.6% (2006)	Ministry of the Environment
Forest (Mediterranean Region)	-0.8% (2006)	Ministry of the Environment
Forest (Eurosiberian Region)	3,1% (2006)	Ministry of the Environment
Wetlands	0,9% (2006)	Ministry of the Environment
Urban	-0,5% (2006)	Ministry of the Environment

C) Land use and occupation

Polluted land		Ministry of the Environment	
	Inventoried	7,600 ha (2005)	Ministry of the Environment
	Characterized	2,752 ha (2005)	Ministry of the Environment
	Recovered	28 ha (2005)	Ministry of the Environment
Percentage of total farming land over total geographic surface		49 % (2005)	Ministry of Agriculture, Fisheries and Food
Percentage of artificial land in the 10 km band of coast		8.9 % (2005)	Ministry of the Environment
Surface of coast land purchased by the public sector for its protection		441 ha (2006)	Ministry of the Environment

4. Social sustainability

4.1 Employment, poverty and social cohesion

Temporality rate (% over employed)

Total	34 (2006)	Survey of the working population, National Statistical Institute of Spain
Men	32 (2006)	Survey of the working population, National Statistical Institute of Spain

	Women	36.7 (2006)	Survey of the working population, National Statistical Institute of Spain
	Agriculture	59.3 (2006)	Survey of the working population, National Statistical Institute of Spain
	Construction	56.6 (2006)	Survey of the working population, National Statistical Institute of Spain
	Industry	24.3 (2006)	Survey of the working population, National Statistical Institute of Spain
	Services	31.3 (2006)	Survey of the working population, National Statistical Institute of Spain
Long-term unemployment rate (%)			
	Total	25.6 (2006)	Survey of the working population, National Statistical Institute of Spain
	Men	22 (2006)	Survey of the working population, National Statistical Institute of Spain
	Women	28.4 (2006)	Survey of the working population, National Statistical Institute of Spain
Relative poverty risk rate after age and gender transferences (%)			
	Total	19.8 (2004)	Survey about life conditions 2005, National Statistical Institute of Spain
	Younger than 16	24.2 (2004)	Survey about life conditions 2005, National Statistical Institute of Spain
	Between 16 and 24	18.4 (2004)	Survey about life conditions 2005, National Statistical Institute of Spain
	Between 25 and 49	15.7 (2004)	Survey about life conditions 2005, National Statistical Institute of Spain

Between 50 and 64	16.7 (2004)	Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain Survey about life conditions 2005, National Statistical Institute of Spain
65 years old and older	29.4 (2004)	
16 years old and older	19 (2004)	
From 16 to 64	16.4 (2004)	
Younger than 65	17.8 (2004)	
Men	18,6 (2004)	
Men younger than 16	24.5 (2004)	
Men between 16 and 24	17.5 (2004)	
Men between 25 and 49	14.8 (2004)	
Men between 50 and 64	16.2 (2004)	
Men 65 years old and older	26.4 (2004)	
Men 16 years old and older	17.4 (2004)	
Men aged 16 to 64	15.6 (2004)	

Men under 65 years old	17.2 (2004)	Survey about life conditions 2005, National Statistical Institute of Spain
Women	20.9 (2004)	
Women under 16	23.9 (2004)	
Women between 16 and 24	19.4 (2004)	
Women between 25 and 49	16.7 (2004)	
Women between 50 and 64	17.2 (2004)	
Women 65 years old and older	31.6 (2004)	
Women 16 years old and older	20.4 (2004)	
Women aged 16 to 64	17.3 (2004)	
Women under 65 years old	18.5 (2004)	
Income distribution s80/s20	5.4 (2004)	Survey about life conditions 2005, National Statistical Institute of Spain
Premature school drop-out (%)	29.9 (2006)	Survey of the working population, National Statistical Institute of Spain
Number of foreign active workers affiliated to the Social Security System	2,034,750 (June 2007)	Ministry of Labour and Social Affairs
Cost of immigration programmes	269 million € (2005)	Ministry of Labour and Social Affairs

Minimum pension without dependent spouse for older than 65 (Euros/year)	493.22	Ministry of Labour and Social Affairs
Minimum pension without dependent spouse for younger than 65 (Euros/year)	459.57	Ministry of Labour and Social Affairs

4.2 Public health and dependence

Life expectancy at birth (years)		
Total	80.2 (2005)	National Statistical Institute of Spain
Men	77.0 (2005)	National Statistical Institute of Spain
Women	83.5(2005)	National Statistical Institute of Spain
Life expectancy at 65 years of age (years)		
Total	19.7 (2004)	National Statistical Institute of Spain
Men	17.4 (2004)	National Statistical Institute of Spain
Women	21.6 (2004)	National Statistical Institute of Spain
Infant mortality rate per 1,000 live births	4.0 (2005)	National Statistical Institute of Spain
New HIV/AIDS cases		
Total	1,586 (2006)	Ministry of Health and Consumption
Men	1,215 (2006)	Ministry of Health and Consumption
Women	371(2006)	Ministry of Health and Consumption
Registered Biocides		
High toxicity	4,098 (2006)	Ministry of Health and Consumption
Medium toxicity	4,577 (2006)	Ministry of Health and Consumption
Low toxicity	601 (2006)	Ministry of Health and Consumption
Phytosanitary homologated products		
High toxicity	2,046 (2006)	Ministry of Health and Consumption
Medium toxicity	3,737 (2006)	Ministry of Health and Consumption
Low toxicity	1,190 (2006)	Ministry of Health and Consumption
Dependency average compensation	0 (2006)	Ministry of Labour and Social Affairs
Average cost of dependency service	0 (2006)	Ministry of Labour and Social Affairs
Proportion of dependent people benefiting from the Law	0 (2006)	Ministry of Labour and Social Affairs

Public expenditure for dependency in terms of GDP

0 (2006)

Ministry of Labour and
Social Affairs

5. Global sustainability

Volume of net total ODA in GNI Percentage

0.27% (2005)

Ministry of Foreign
Affairs and Cooperation

Debt relief operations (million Euros)

502 (2005)

Ministry of Foreign
Affairs and Cooperation