

2.13 URBAN ENVIRONMENT



In 2007, Spanish population reached 45.2 million inhabitants, of which 78.2% lived in 711 municipalities of more than 10,000 inhabitants, a figure that describes the urban environment mentioned in this report. Rural population amounted to 21.8% in said year, distributed in 7,390 municipalities.

These two environments, urban and rural, interact all the time and their relationships must be developed in a collaborative and supplementary framework, in line with the guidelines included in the Spanish Urban and Local Sustainability Strategy (EESUL - Estrategia Española de Sostenibilidad Urbana y Local) - currently in development- and in accordance with EU's proposals, among which it is worth noting the ones included in the Commission Green Paper: "Towards a New Culture for Urban Mobility", of 25 September, COM (2007) 551, which continues the debate on the most adequate policies that must be implemented in order to obtain a better quality of life in the cities, from the perspective of one of its most important items: public transport enhancement. More recently, the final declaration of the Ministers in charge of urban development (Marseille, 25 November 2008) highlighted the need to move towards an integrated, sustainable and unified urban development.



INDICATOR	GOAL	TREND
Urban pressure on land	Achieve a sustainable balance in land use	Urban pressure continues to increase, more significantly in eight Autonomous Regions that exceed the national average growth rate
Air quality in the urban environment	Not to exceed established limits	Confirmation of the increase in the number of hours when NO ₂ exceeds 200 µg/m ³
Environmental noise	Not to exceed established limits	Noise maps of the major road infrastructures have been completed. The implementation of action plans will help to alleviate noise effects on the population
Monumental heritage of Spain's cities	Ensure maximum protection to monumental heritage property	The number of protected Sites of Cultural Interest (immovable property) continues to increase
Local mobility and passenger transport: public transport metropolitan areas	Promote less polluting modes of transport	Increase in the number of journeys by public transport (net figure) in all public transport metropolitan areas. There is also a growing dependence on private transport
Public participation in environmental policies	Undertake local sustainability commitments	Increase in sustainability commitments undertaken by local administrations through the Network of Networks for Sustainable Local Development (Red de Redes de Desarrollo Local Sostenible) and the Spanish Network of Cities for Climate (Red Española de Ciudades por el Clima)

SPANISH POPULATION DEMOGRAPHIC DISTRIBUTION BY SIZE OF MUNICIPALITY OF RESIDENCE - 2007

	<10,000	10,001-20,000	20,001-50,000	50,001-100,000	100,001-500,000	>500,000
Total municipalities	7,390	348	228	76	53	6
Total population	9,859,224	4,963,221	7,005,876	5,444,955	10,487,449	7,440,012

Source: INE. Municipal Register as of 1 January 2007

On the Green Paper the role of cities as drivers of economy, employment generation and service development is highlighted. However, it is also acknowledged that in the last decades, urban quality of life has deteriorated as a consequence of, among other things, a significant increase in traffic that leads to an increase in emissions, noise, energy consumption, space utilization, road accidents and less safety for pedestrians. This document states that European cities are faced with *five great challenges* that need to be answered through an integrated approach by all Public Administrations. Objectives:

- *Cities with fluid traffic:* to achieve this, it is necessary to reduce the negative impact of traffic congestion, encourage journeys on foot and by bicycle, regulate goods distribution and encourage the economic use of private cars.
- *Greener cities:* it is necessary to apply new technologies in order to obtain less polluting and more efficient vehicles, to use alternative fuels, and to implement traffic restrictions and dissuasive urban tolls.
- *Smarter urban transport:* aimed at a more efficient application of Intelligent Transportation Systems (ITS) to better manage demands, user information, the existing infrastructure management and goods distribution.
- *Access to urban transport:* in order for bus transport to satisfy the population's needs for mobility and accessibility, it must be efficient, accessible and of good quality. For this reason, it is essential to have land use management and an integrated approach to urban mobility.
- *Safe and protected urban transport:* it is important to ensure the security of journeys - a goal which should be met by every mode of transport -; in order to achieve this, road safety policies must focus on road and vehicle safety and encourage public awareness.

Following these guidelines, the Spanish Ministry of the Environment and Rural and Marine Affairs (Ministerio de Medio Ambiente y Medio Rural y Marino) has drawn up the Spanish Sustainable Mobility Strategy draft, which includes action proposals to promote a change in the current mobility model, making it more efficient and

sustainable, reducing its impact on the environment, particularly on the atmosphere, and fighting against climate change.

The Strategy is based on a mobility diagnosis in Spain, where it is highlighted, among other general aspects, that there is a strong growth in the demand, an increase in the number and distance of journeys made, a very high rate of road accidents, an imbalance among modes of transport –including the significant decrease in rail transport–, deficiencies of intermodal connections and the excessive utilization of urban space by road infrastructures. It also shows a significant traffic concentration on the coast during the summer, the growth of the vehicle fleet and an increase in traffic (interurban, rural and urban), which in 2006 reached a total of 371,140 Mkm, almost doubling 1990's figure.

In order to achieve sustainable mobility, the problem must be tackled from three angles: economic, social and environmental. In terms of this sustainability approach, the Strategy objectives are developed in five areas: 1) land use, through planning of transport and its infrastructures; 2) fight against climate change and energy dependence; 3) improvement of air quality and noise mitigation; 4) enhancement of road safety and sanitary conditions and, lastly; 5) demand management. The Strategy defines general guidelines for these five objectives and details measures to be implemented in the most important areas.

To achieve the objectives associated with climate change, the initiatives focus on giving priority to the public transport of passengers, boosting the renewal of the vehicle fleet and supporting innovative technical solutions to have cleaner and energy-efficient vehicles. Moreover, it has been highlighted that greater energy efficiency is needed in the case of public transport fleets, directing said fleets towards the use of cleaner fuel and energy, as well as the encouragement of bio-fuels and other renewable fuels, the promotion of a more efficient driving, and the energy labelling of vehicles in order to inform buyers about their technical specifications.

Lastly, in the health and safety section, the initiatives proposed in the Strategy tend to increase road safety by improving road network standards and Accident Concentration Zones (TCA - Tramos de Concentración de Accidentes), increase rail safety through the implementation of the Highway-Railroad Crossing Safety Plan, and enhance the equipment for maritime rescue operations and for civil aviation at airports. All modes of transport must satisfy accessibility needs for people with limited mobility.

In this chapter, besides dealing with the situation on metropolitan areas from the Public Transport Authorities perspective, we introduce the demographic evolution of

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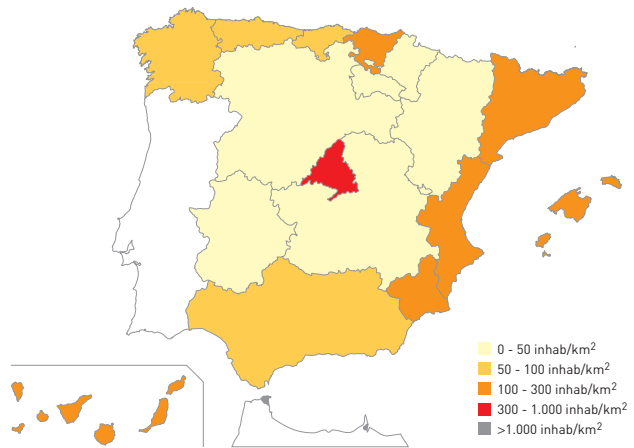
cities of more than 10,000 inhabitants, the air quality in the urban environment, the result of noise maps of the most important roads in connection with the population affected, and the initiatives to have a positive role in sustainable local development by promoting public participation.

Urban pressure on land

Pressure exerted by demographic growth in urban centres of more than 10,000 inhabitants on land increased 13.29% over the 2001-2007 period, with slight decreases in five Autonomous Regions

BAN DENSITY BY AUTONOMOUS REGION, 2007 (inhab/km²)

SPAIN/AC	Variation rate 2007/2001	Urban density 2007
SPAIN	69.85	13.29
Andalusia	72.89	12.92
Aragon	18.39	7.57
Asturias	87.40	1.84
Balearic Islands	172.83	29.80
Canary Islands	241.45	23.96
Cantabria	72.91	9.50
Castile-Leon	14.93	4.25
Castile-La Mancha	13.16	19.95
Catalonia	181.36	15.20
Valencia	172.53	20.76
Extremadura	12.45	10.84
Galicia	63.46	5.31
Madrid	712.01	11.73
Murcia	116.64	19.21
Navarre	31.41	13.72
Basque Country	237.16	1.97
La Rioja	38.69	16.89
Ceuta y Melilla	4,563.84	5.89



Source: INE. Municipal Register as of 1 January 2007

This indicator measures the pressure exerted by urban population centres with more than 10,000 inhabitants on the land. It is the ratio between the population in urban centres of more than 10,000 inhabitants and the area of their respective Autonomous Region. Based on recent data, the urban population growth observed in the last decades continues, but in some Autonomous Region this growth seems to be slowing down or even decreasing. At national level, the 2007 variation rate compared to 2001, when the last census was carried out, was 13.29%, a rate which can be considered high.

The highest urban density can be found in the following Autonomous Regions: Madrid (712.01), Basque Country (237.16), Canary Islands (241.45), Catalonia (181.36), Balearic Islands (172.83), Valencian Community (172.53) and Murcia (116.64). Also, Asturias, Andalusia and Cantabria are above the national average, while the others fall

below the national average. The case of Ceuta and Melilla is unique due to its limited territory.

In the 2001-2007 period, the highest increases occurred in the Autonomous Regions with more demographic variations, which are the island groups and those communities located on the Mediterranean coast, a main attraction for immigrants. Besides Madrid, which presents a 11.73% growth rate since 2001, the greatest increases within Spain took place in La Rioja and Castile-La Mancha, the latter reflecting the population growth of Guadalajara, as it has become one of the expansion areas of Madrid. Those with the lowest growth rates in the 2001-2007 period are: Asturias, the Basque Country, Castile and Leon, Galicia, and the cities of Ceuta and Melilla. In the latter case, the demographic saturation of these two cities explains the low rate of growth.

In terms of the variation experienced in 2007 compared to 2006, it is worth noting increases in five Autonomous Regions (Castile-La Mancha, the Balearic Islands, the Canary Islands, Navarre and Murcia). However, there were decreases in Galicia (0.04), Asturias (0.11), Castile and Leon (0.33), La Rioja (0.40) and Extremadura (1.08), which had undergone sustained increases of urban population since the 2001 census. Although insignificant, these decreases may indicate a change of cycle.

NOTES

- Currently, the Spanish urban system is unbalanced and scarcely hierarchical, and three areas can be distinguished according to the Statistical Atlas of Urban Areas in Spain 2006 (Ministry of Housing [Ministerio de Vivienda], 2007):
 - Large urban areas > 50,000 inhabitants.
 - Small urban areas: 50,000 - 5,000 inhabitants.
 - Non-urban areas < 5,000 inhabitants.
- Large Urban Areas occupy 9.4% of the national area, and encompass 67.8% of the total Spanish population. Small Urban Areas occupy 10.8% of the country's area and their population stands at 12.9% of the total figure. Lastly, Non-urban Areas host 19.3% of the population in an area that represents 79.8% of the total area. In any case, it is beyond any doubt that the city must be a space where citizens can satisfy their basic needs for activity and social life. This sets out many challenges; but in order to achieve them, sustainability must be taken into account, since it is in our cities where we have to fight for it, at a local and global level.
- In this chapter (from a demographic point of view) all urban centres of more than 10,000 inhabitants are considered cities, provided they are concentrated, with flat buildings predominance and devoted to activities related to secondary and tertiary sectors. Also, the population density of the city or country must be taken into account since this element could make smaller centres subject to the same classification. The European Conference on Statistics held in Prague considers that "a city" is a concentration of more than 2,000 inhabitants, provided that the population devoted to agriculture does not exceed 25% of the total.
- The population living in towns of less than 10,000 inhabitants (rural population) is not taken into consideration, although the boundaries between the urban and rural environments are increasingly blurred as a result of the new model of scattered residential development (urban sprawl) which is increasingly affecting the rural environment.
- This indicator was calculated using the Census of Population and Housing (Censo de población y vivienda) figures for 2001, together with those included in the Municipal Register as of 1 January 2006 (Royal Decree 1683/2007 of 14 December). The growing number of inhabitants in the period under analysis is of great significance; particularly in the case of communities that have seen an increase in construction and services due to the flux of immigrants to those sectors. Given the temporary coverage of this report, a decision was made to use 2007 figures instead of 2008, already available through the INE.

SOURCES

- INE. Demographic and Housing Census. 2001.
- INE. Municipal Register as of 1 January 2007
- Geographical extension: INEbase data.

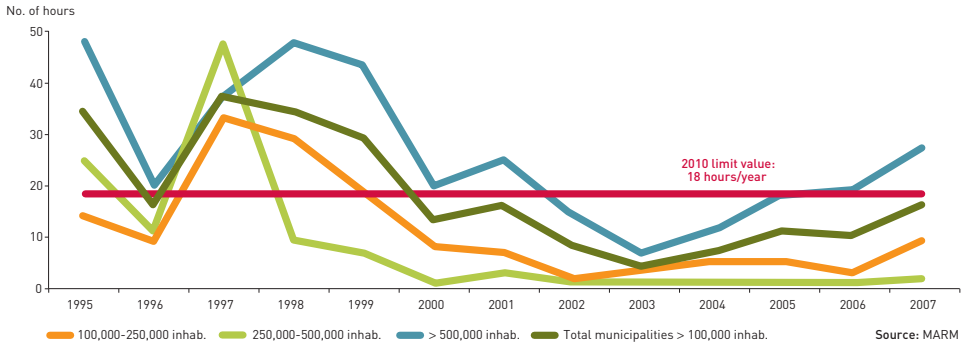
MORE INFORMATION

- <http://www.ine.es>

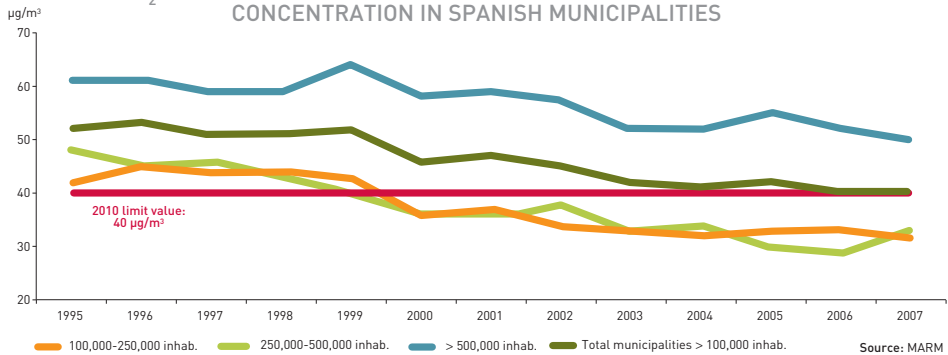
Air quality in the urban environment

NO₂ pollution is still of concern in the big cities

NO₂: POPULATION WEIGHTED AVERAGE VALUE OF THE NO. OF HOURS PER YEAR IN WHICH THE AVERAGE 200 µg/m³ HOURLY CONCENTRATION IS EXCEEDED IN SPANISH MUNICIPALITIES

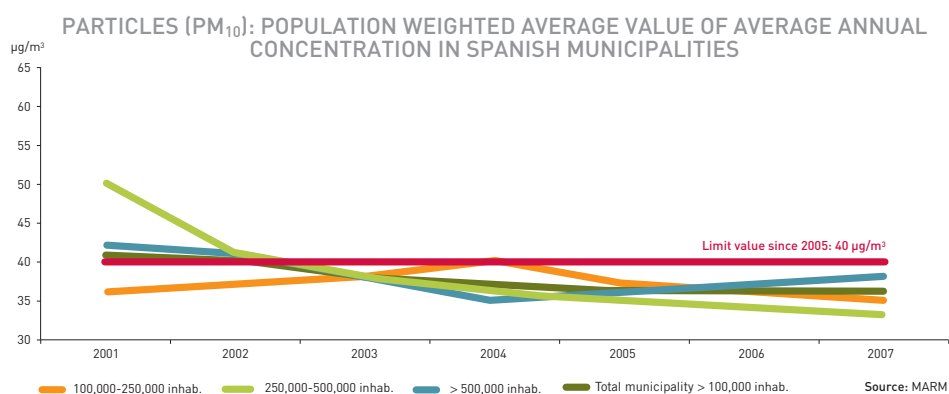
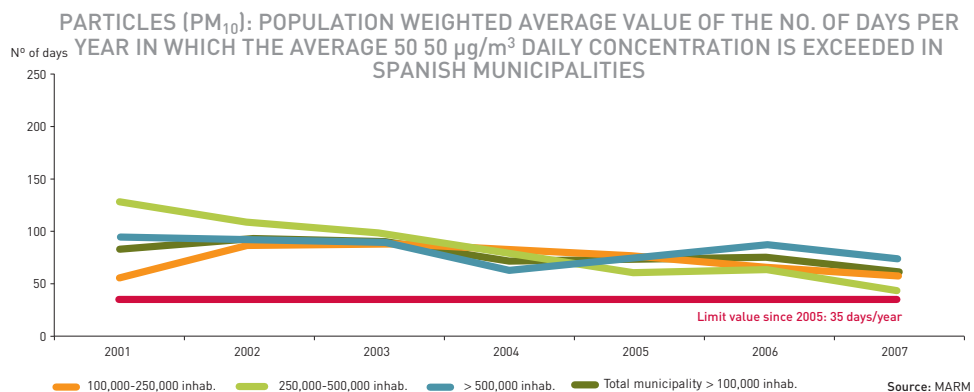


NO₂: POPULATION WEIGHTED AVERAGE VALUE OF AVERAGE ANNUAL CONCENTRATION IN SPANISH MUNICIPALITIES



In urban environments, the average situation of air quality in Spanish municipalities of more than 100,000 inhabitants shows differences for each pollutant and for each variable evaluated of that pollutant. In the case of NO₂, mainly caused by road traffic and, to a lesser extent, by industries and households, the average number of hours in which the average 200 µg/m³ hourly concentration is exceeded shows an increase after the fall experienced until 2003. In 2007, for all population bands, an increase in the number of excess levels can be observed, particularly in cities of more than 500,000 inhabitants, which are the ones with more excess levels and which have been exceeding since 2005 the legal limit for 2010.

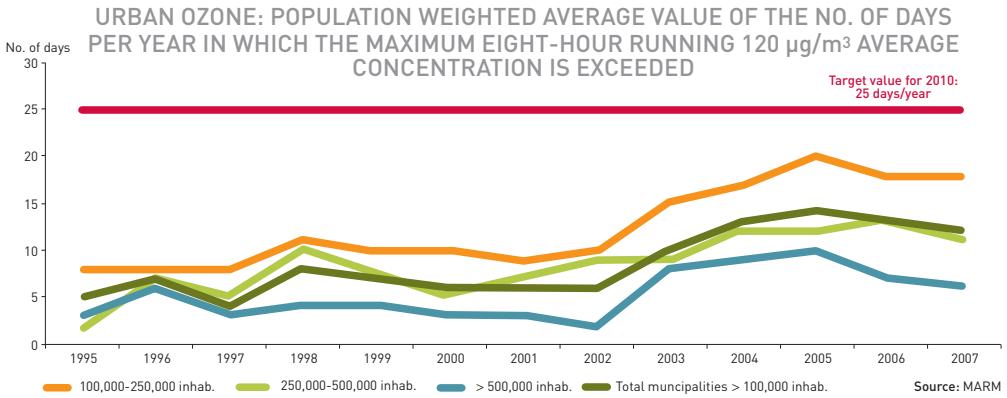
Instead, NO₂ annual mean concentration has fallen in every area, and since 2005, the 2010 limit has only been exceeded in cities of more than 500,000 inhabitants. For all cities with between 250,000 and 500,000 inhabitants, there was a 13.8% increase during last year.



Regarding particles with a diameter of less than $10\ \mu\text{m}$, for all population bands considered, in 2007 there was a decrease in the population weighted average value of the number of days per year in which the average $50\ \mu\text{g}/\text{m}^3$ daily concentration is exceeded, repeating the trend of previous years and getting us closer to achieve the 2005 limit. The population weighted average value of the average annual PM₁₀ concentration has remained below the limit since 2003. Nevertheless, in cities of more than 500,000 inhabitants, there was an increase in 2005 which remained unchanged until 2007.

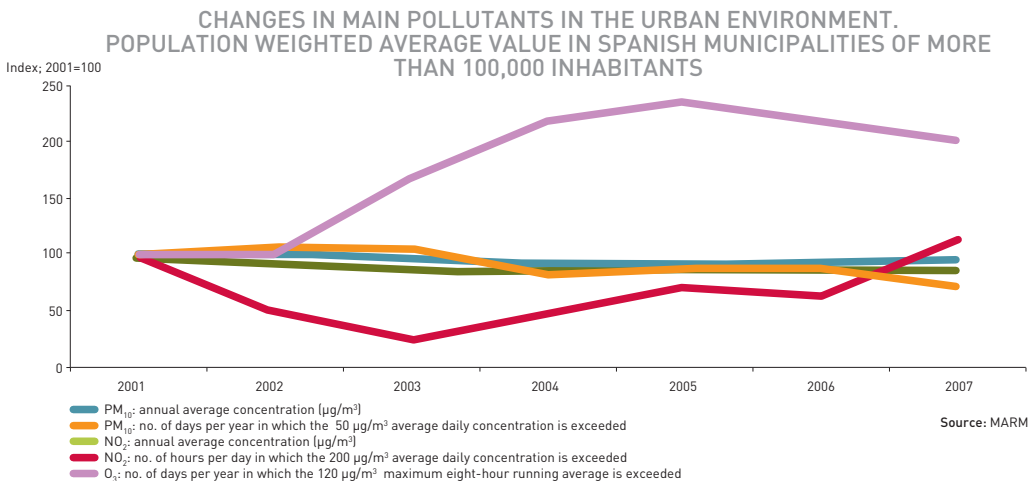
Ozone is a photochemical pollutant whose concentration in the lowest layer of the atmosphere can increase due to human activities. Combustion processes that occur in cities (industries, traffic, etc.) release NO_x and other ozone precursor gasses (such as non-methane volatile organic compounds or NMVOCs), which react by solar radiation and produce ozone formation (tropospheric ozone formation usually appears on hot and sunny days), almost always in locations far away from emission sources. Since 2005, there has been a decrease in the population weighted average value of the number of days in which the concentration exceeds $120\ \mu\text{g}/\text{m}^3$, measured as the maximum daily 8 hour running average, for all population bands. This drop changes the upward trend experienced since 2002, due to weather conditions experienced in

recent years (high temperatures and solar radiation). The improvement of these conditions in 2008 leads us to expect that this downward trend will continue in the next few years.



To summarise and in an attempt to provide an initial idea about the general situation of air quality in Spanish cities of more than 100,000 inhabitants, the analysis below includes the average trend of these variables as an index, as from 2001. It is worth noting that this does not represent the situation of specific areas which may have more critical values.

The significant increase in excess levels until 2005 and the downward trend that started that year, together with the slight reduction of particles (excess levels and average annual concentration) and the average annual NO₂ concentration, and also the decrease until 2003 and later increase in NO₂ are to be highlighted.



NOTES

- In order to describe air quality for all Spanish cities by means of a representative average value, it has been decided to apply the EU methodology. For each pollutant, the average value of all monitoring stations in a city is calculated and then, this value is multiplied by the number of inhabitants of that city. The sum of these values for every population that belongs to the same population range, divided by the total number of inhabitants of those cities, indicates the weighted average value we want. The weighted average value is used for three municipality sizes (of between 100,000 and 250,000 inhabitants, 250,000 and 500,000 inhabitants and >500,000 inhabitants) with a summary for all municipalities of more than 100,000 inhabitants. For ozone, the indicator is based on a three-year average, under current legislation.
- All stations with enough data, and not only monitoring stations, have been included. However, it is worth noting that the average value obtained represents the average situation of that pollutant, although there might be major differences between that value and the specific situations existing in the different cities.
- The location and type of monitoring station (urban, traffic or industrial), maintenance and calibration of the analysers, and the number of monitoring stations used to produce average values are just some of the aspects which affect calculation of the variables, and thus the final calculated indicator. It would be easy to follow up variables for specific stations, located in representative sites and with enough valid data. Doing so would offer a picture of air quality at that specific point; however, that information does not reflect a general air quality average for all the country, which is the idea behind this indicator.
- The indicator monitors the variables covered by the European Common Indicators (ECI) Project, and shows changes over time of excess values for NO₂, PM₁₀, and ozone, together with average annual concentration levels for the first two, making a comparison between them and the target and limit values set for 2005 and 2010 under current legislation: Royal Decree 1073/2002 on nitrogen dioxide [NO₂] and particulate matter smaller than 10 [PM₁₀], and Royal Decree 1796/2003 on ozone.
- It is important to highlight that modifying the location of measuring stations, in accordance with legislative recommendations, in order to make them increasingly representative, has a significant impact on the indicator and the trends shown by it. The total number of stations taken into account for the calculation of the indicators varies throughout the period, a very significant aspect that conditions the final result. Hereinbelow is the table summarizing the percentage of monitoring stations for the period considered.

BREAKDOWN OF AIR QUALITY MEASURING STATIONS USED TO OBTAIN INDICATORS

	1995	2000	2005	2006	2007
Industrial	16.7	18.4	20.2	19.9	19.9
Traffic	78.8	72.2	58.3	55.6	55.6
Background	4.5	9.5	21.4	24.6	24.6

- It should also be remembered that the analysis does not include changes in concentrations of SO₂ and CO (which were covered by previous editions), essentially as a result of the apparent absence of problems involving these substances. Use of low-sulphur fuels and the replacement of coal-burning boilers with natural gas units, among other measures, have led to an improvement in air quality in terms of SO₂ concentration and it has been some years since the limits set for 2005 have been exceeded. Moreover, since 1999 the number of excess levels has decreased (no. of days per year that exceeded the CO concentration of 10 mg/m³, measured as the maximum daily 8 hour running average) in Spanish municipalities. Since 2002, the 2005 limit set for CO has not been exceeded.
- With regard to the source of tropospheric ozone, it is known that urban areas generate the primary pollutants (mainly due to traffic) that are responsible, after a series of chemical processes (conditioned by high temperatures and solar radiation), for ozone production. These precursors or primary pollutants, after being transported out of the cities by the wind, produce an increase in ozone concentrations, with pollution becoming evident in suburban and rural areas, where the highest levels of said pollutant can actually be found.

SOURCES

- Air Quality Database (Base de datos de Calidad del Aire). Directorate General of Industrial Environmental and Air Quality [Dirección General de Calidad del Aire y Medio Ambiente Industrial]. Directorate General for Quality and Environmental Assessment [Dirección General de Calidad y Evaluación Ambiental]. MARM.

MORE INFORMATION

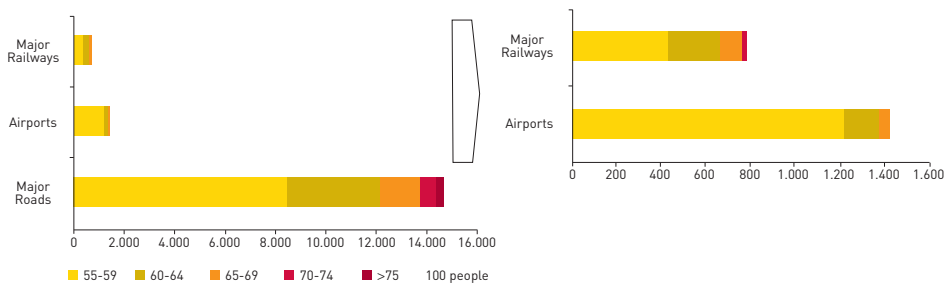
- www.marm.es
- www.eea.europa.eu

Environmental noise

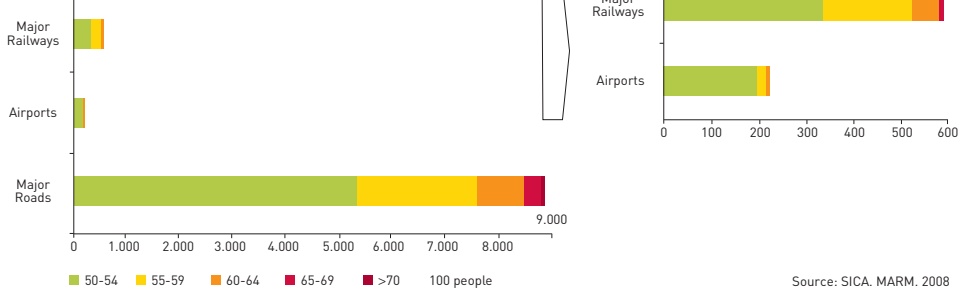
Strategic Noise Maps (MER - Mapas Estratégicos de Ruido) show a total of 1,463,000 people who are exposed to noise coming from major roads; 78,100 from major railways and 143,700 from large airports

SOUND LEVELS FROM THE STATE TRANSPORT INFRASTRUCTURE NETWORK (major roads, major railways and airports): Lden and Ln indicators

Lden



Ln



Source: SICA. MARM. 2008

Following Act 37/2003, of 17 November, on Noise and its development standards, and on the assessment and management of environmental noise, which has transposed Directive 2002/49/EC of 25 June into our legal framework, the first stage in Strategic Noise Maps production has been completed. The State Highways Network's maps, together with major railway, port and airport infrastructure maps have been finished and approved by the Ministry of Public Works (Ministerio de Fomento).

Through the Directorate General for Highways (Dirección General de Carreteras), strategic noise maps for 213 UMEs, including a total of 4,779 km of highway, have been drawn up. Also, the maps for 685.1 km of rails have been drawn up by the

Railway Infrastructure Manager (ADIF - Administrador de Infraestructuras de Ferrocarril) and the Directorate General for Railways (Dirección General de Ferrocarriles), and maps have also been drawn up for the 10 airports included by AENA (Spanish Airports Authority) in this first stage.

Meanwhile, the Ministry of Public Works developed a Noise Action Plan (PAR - Plan de Acción contra el Ruido) (2008-2012) in order to comply with Directive 2002/49/EC and to incorporate other actions of the Directorate General of Roads. The Plan's basic objective is to adequately manage actions for the next few years, so that financing and implementation can be carried out in a coordinated manner. PAR focuses on two aspects: the mitigation of noise at the source and the reduction of sound transmission through noise barriers set in the 584 UMEs, upon the analysis of the MER results and in the 109 UMEs which require complex solutions.

Main results obtained from 1st stage Strategic Noise Maps are introduced here and incorporated at national level by means of the following indicators:

- Sound levels from major roads, major railways and large airports (L_{den} , L_n), stated with the number of people exposed
- Exposure of affected population, including agglomerations
- Area exposed, including agglomerations

Moreover, there are three indicators that show the following for each mode of transport:

- Range distribution for L_{den} and L_n in major roads
- Range distribution for L_{den} and L_n in major railways
- Range distribution for L_{den} and L_n in the 10 selected airports

Previous graphics represent the number of people (in hundreds) who are exposed outside agglomerations for each L_{den} and L_{night} (L_n) indicator in the ranges shown. Based on data obtained from the development of the first stage of the Strategic Noise Maps (MER) for major state transport infrastructures, it can be observed that a total of 1,463,000 people are exposed to noise coming from major roads, 78,100 from major railways and 143,700 from large airports.

POPULATION EXPOSED AND AREA EXPOSED IN THE STATE TRANSPORT INFRASTRUCTURE NETWORK

DATA ON EXPOSURE OF AFFECTED POPULATION, INCLUDING AGGLOMERATIONS								
	Length (km)	Affected population (inhabitants)			Area (km ²) exposed (including agglomerations)			No. of inhabitants exposed to L _{den} /km, including agglomerations
		Lden > 55	Lden >65	Lden >75	Lden > 55	Lden > 65	Lden > 75	
Major roads	5,917	18,709	3,073	294	6,527	1,674	399	373
Major railways	689	1,093	164	1	127	34	3	183
Airports	10	1,722	59	1	435	121	19	

Source: SICA. MARM. 2008

DATA OF AREA EXPOSED FOR AFFECTED POPULATION, INCLUDING AGGLOMERATIONS							
	Area (km ²) exposed to Lden > 55 (including agglomerations)	No. of housing units exposed (in hundreds) (including agglomerations)		No. of hospitals exposed		No. of educational centres	
		Lden > 55	Lden >65	Lden >55	Lden > 65	Lden > 55	Lden > 65
Major roads	8,600	8,625	17,720	129	53	1,491	436
Major railways	164	751	134	7	1	133	35
Airports	575	590	25	2	3	100	7

Source: SICA. MARM. 2008

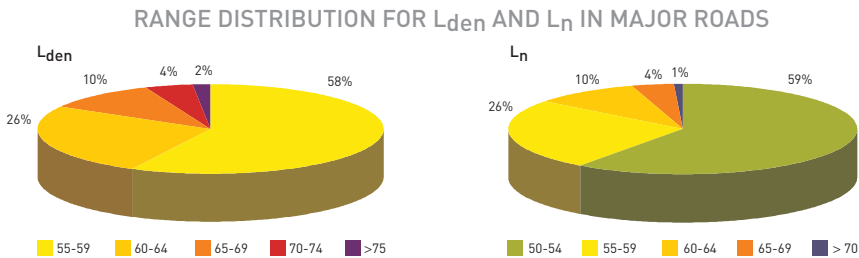
In this first stage, all major roads with more than six million vehicles a year, major railways with more than 60,000 trains a year and large commercial airports with more than 50,000 journeys a year are included.

MER's only purpose is to assess the noise situation and environmental quality of life of the population in order to implement noise action plans that may lead to the control of noise by means of a series of measures and the drawing up of necessary action plans, thus contributing to people's health protection.

The Basic Noise Pollution Information System (SICA - Sistema básico de información de la contaminación acústica), which depends of MARM, collects, analyses and processes noise data compiled by competent authorities, and also makes information publicly available and promotes research on noise pollution (<http://sicaweb.cedex.es/>).

Major roads

State highways studies include 5,953 km out of a total of 25,415 km (data from 2005) of the State Highways Network that have been organised in 27 studies, of which 7 belong to government-licensed toll roads. The remaining portion (4,790 km) has been organised by provinces or Autonomous Regions.



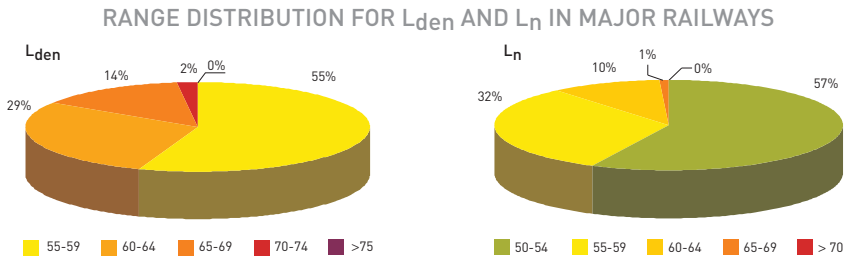
Source: SICA. MARM. 2008

The previous graphic shows L_{den} and L_n percentage breakdown for the periods considered, without including agglomerations. The number of people affected by the $L_{den} > 55$ indicator reaches 1,463,000, while a total of 884,600 people are exposed to $L_n > 50$. Regarding the population exposed, the number of inhabitants exposed to L_{den} values above 55 dB(A) per kilometre climbs to 373.

The Noise Action Plan (PAR - Plan de Acción contra el Ruido) 2008-2012 for State Highways focuses on two types of actions to alleviate noise: the mitigation of noise at its source (drain and double-layered pavements) and the reduction of sound transmission through the set-up of noise barriers. The Noise Action Plan provides for the installation of 383 km of barriers, which will benefit a total of 1,128,013 people and will cost €230,689,200. Moreover, some “complex actions” will be performed through specific regional plans for 151 km and will benefit a total of 353,574 people.

Major railways

Maps drawn up at state level in this first stage correspond to three large zones in the areas of Madrid and Castile-La Mancha; Barcelona and Valencia; and Basque Country and Asturias, with 689 km studied out of a total of 11,780 km of the state network (data from 2005).



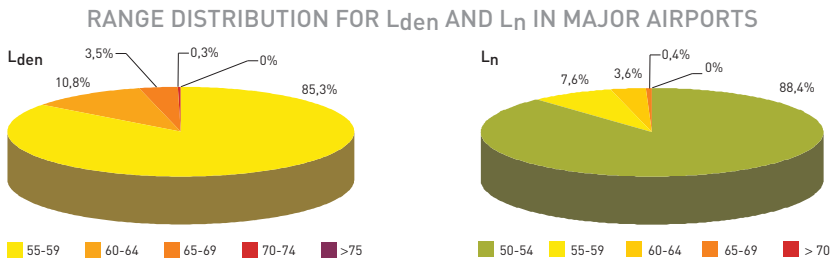
Source: SICA. MARM. 2008

The adjacent graphic shows L_{den} and L_n percentage breakdown for the periods considered, without including agglomerations. $L_{den} > 55$ value affects 78,100 people, while $L_n > 50$ affects 58,900 people.

Regarding the population exposed, the number of people exposed to $L_{den} > 55$ reaches 183 inhabitants per kilometre. In terms of action initiatives, agreements between local entities and Autonomous Regions are being made and specific action plans have been developed. Besides, noise absorption panels have been installed as corrective measures. Future actions as measures related to the 1st stage MER are being developed in appropriate Action Plans which will be effective for 5 years.

Airports

In Spain, strategic noise maps for 10 airports have been drawn up during the first stage: Madrid-Barajas, Barcelona, Palma de Mallorca, Malaga, Gran Canaria, Valencia, Alicante, South Tenerife, North Tenerife and Bilbao.



Source: SICA. MARM. 2008

The adjacent graphic shows L_{den} and L_n percentage breakdown for the periods considered, without including agglomerations. The number of people affected by $L_{den} > 55$ indicator reaches 143,700, while in the case of $L_n > 50$ indicator, it stands at 22,500.

At every airport under consideration, a series of measures are applied in order to alleviate the noise impact on the population exposed. Among others, it is worth noting the introduction of operative restrictions, the establishment of noise quotas, noise monitoring systems, air traffic control discipline and noise isolation action plans. Action plans for these 1st stage MERs are being drawn up, including actions to be developed within the next 5 years.

NOTES

- The information disclosed to the Spanish Ministry of the Environment and Rural and Marine Affairs (as the body responsible for collecting all the information that then is reported to the European Commission) on strategic noise maps has been published through the Basic Noise Pollution Information System (SICA - Sistema básico de información de la contaminación acústica, <http://sicaweb.cedex.es>) which depends of MARM and is developed and managed by the Spanish Centre for Public Works Studies and Documentation (Centro de Estudios y Documentación de Obras Públicas). MARM has renewed the collaboration agreement with this body in order to maintain said system. This agreement shall be effective for three years (2009-2012).
- The indicators used for drawing up Strategic Noise Maps (MER - Mapas Estratégicos de Ruido) are L_{den} , L_d , L_t and L_n , as defined by Royal Decree 1513/2005 that led to Act 37/2003 on Noise, in connection with the assessment and management of environmental noise. L_{den} is associated with global disturbance, L_d and L_t indicate noise related to the day-time and night-time disturbances suffered, respectively, and L_n is the indicator linked to sleep disturbances.
- A Strategic Noise Map comprises:
 - **Sound level maps:** (L_{den} , L_d , L_t , L_n): they are immision levels where isophonic contours are represented for previously defined periods with a preset range of colours to make comparison easier. Generally, the scale used is 1:25.000, except for detailed maps which use a scale of 1:5.000 in densely populated residential areas or areas of special interest or conflict which do not comply with set forth noise quality target values.
 - **Noise exposure maps:** these depict data concerning buildings, housing units and population exposed to certain noise levels at the building facade, together with other data required under the Directive. Educational and sanitary equipments are distinguished. In table 2, the affected area of state networks for transport infrastructures, which represents the area included within $L_{den} > 55$ and $L_{den} > 65$ isophonic contours, as well as housing units (in hundreds), hospitals and educational centres exposed to the same ranges can be observed.
 - **Exposure maps:** these maps collect data associated with the total area (Km²) exposed to $L_{den} > 55$, > 65 and > 75 values, and inform on the estimated total number of housing units and people (in hundreds) who live in these areas, as well as schools and hospitals exposed to these ranges of noise.

SOURCES

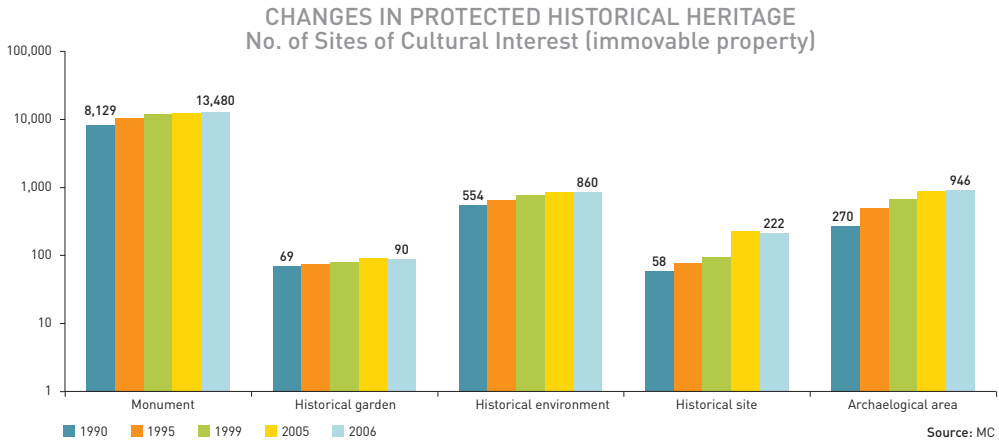
- Basic Noise Pollution Information System (SICA - Sistema Básico de Información sobre la Contaminación Acústica). Sub-Directorate of Industrial Environmental and Air Quality (Subdirección de Calidad del Aire y Medio Ambiente Industrial). Directorate General for Quality and Environmental Assessment (Dirección General de Calidad y Evaluación Ambiental). MARM.
- *First stage in the development of Strategic Noise Maps of the State Network Highways: Summary of results and Action Plan (PAR) 2008-2012, September 2008.* Ministry of Public Works (Ministerio de Fomento). Dirección General de Carreteras [Memoria]. <http://www.cedex.es/egra/DOCUMENTACION/Memoria.pdf>.

MORE INFORMATION

- <http://sicaweb.cedex.es>
- http://eea.eionet.europa.eu/Public/irc/eionet-circle/eione_noise/library
- <http://ec.europa.eu/environment/noise/>

Monumental heritage of Spain's cities

In 2007, the legal protection of historical heritage encompassed 15,598 Sites of Cultural Interest



Immovable property included in the Spanish Historical Heritage (PHE - Patrimonio Histórico Español) represents only a small part of the Spanish heritage, given the geographical and cultural diversity of its regions and the country's history. Protection of this legacy is provided under Act 16/1985, of 25 June, on Spanish Historical Heritage (Official State Gazette of 29 June 1985), which establishes a register of Sites of Cultural Interest, including movable and immovable property. The latter are considered in the indicator, which comprises five categories: monument, historical garden, historical environment, historical site and archaeological area.

Based on data provided by the Ministry of Culture (Ministerio de Cultura) in 2007, monuments represented 86.4% of total immovable property; followed by archaeological areas (6.1%), historical environments (5.5%), historical sites (1.4%) and historical gardens (0.6%).

There are European institutions which focus on the protection of European Cultural Heritage, such as Europa Nostra or the Council of Europe. This body participates in these three areas: culture, heritage and nature, which show the close relationship between nature and cultural heritage. Its current priorities are intercultural dialogue, heritage value for society, landscape importance for sustainable development, policy-making based on knowledge, regional cooperation, climate change and biodiversity.

In Spain, the association Hispania Nostra has been developing its activities in collaboration with Europa Nostra since 1976 and focuses on the defence and

promotion of cultural heritage and its environment. Its initiatives include the development of a Red List that will highlight each element of the Spanish Historical Heritage that might be in danger of disappearing, being destructed or suffering an alteration of its core or essential values.

It is worth noting that Europa Nostra annually awards those initiatives which contribute to promote and protect European heritage. In 2008, four Spanish initiatives were awarded by Europa Nostra: the restoration of medieval bridge on Río Truchas (La Pobleta de San Miguel), the restoration of San Nicolás de Bari Church's choir (Madrigal de las Altas Torres), the restoration of Cerralbo Museum's building and collections in Madrid, Spain Fortified Military Architecture Inventory and the International Monuments Photographic Experience (EPIM) of Catalonia Museum of History, the latter for its contribution to education, training and awareness-raising.

NOTES

- The graph showing Monumental Heritage data uses a logarithmic scale due to the wide difference between the number of Historical Gardens and Monuments.
- The Immovable Property Register includes these categories: declared and initiated.
- Act 16/1985 defines the concept of Spanish Historical Heritage (PHE) as including movable and immovable property with an artistic, historical, archaeological and ethnographic value. Documentary and bibliographic heritage, archaeological sites, natural environments, gardens and parks with artistic or historical interest are also included.
- Spain heads the worldwide list along with Italy in terms of the highest number of sites declared as World Heritage by the UNESCO (40 nominations), the last one being Teide National Park in 2007. It will be decided halfway through 2009 whether the Tower of Hercules will be included in UNESCO'S World Heritage List. The UNESCO list, in addition to its strictly monument-related categories, also includes four National Parks, and semi-natural sites such as Las Médulas.
- The Council of Europe is an international organization of states constituted in La Haya in 1948. It has 47 member states, almost all European countries except for Belarus and Kosovo. According to its Statute (1949), it was constituted with the purpose of defending human rights, pluralist democracy and the rule of law, as well as encouraging the development of Europe's cultural identity. This council should not be confused with the Council of the European Union (EU deliberative body) or the European Council (meeting of the heads of state or government from the member states and the president of the European Union Commission) in spite of their symbol sharing. This is merely due to the fact that both share the purpose of promoting European integration. Spain presided over the Council of Ministers, the executive body of the Council, between 27 November 2008 and 12 May 2009.

SOURCES

- Spanish Ministry of Culture (Ministerio de Cultura), 2008: Anuario de estadísticas culturales 2007 (*Cultural Statistics Yearbook*).
- Decision no. 1855/2006/ of the European Parliament and the Council of 12 December 2006. (*Culture Programme 2007-2013*).
- Act 16/1985 of 25 June on Spanish Historical Heritage (*Official State Gazette of 29 June 1985*).

MORE INFORMATION

- <http://www.mcu.es>

Local Mobility and Passenger Transport: Public Transport Metropolitan Area

Spain's 16 public transport metropolitan areas accommodate a population of 21.3 million people, with 55,000 km of bus lines (urban and metropolitan) and 2,380 km of railway lines

GENERAL CHARACTERISTICS OF PUBLIC TRANSPORT METROPOLITAN AREAS - 2006

Metropolitan Area	No. of Participating Municipalities	Metropolitan Area (km ²)	Population Metropolitan Area (1/1/2006)	Urbanized Area (km ²)	Density Metropolitan Area (inhab/km ²)	Density of Main City (inhab/km ²)	Ratio Population Main City/ MA (%)
Madrid	179	8,030	6,008,183	1,040	5,775	5,164	52
Barcelona	164	3,239	4,857,000	539	9,011	15,714	33
Valencia	60	1,415	1,732,830	325	5,332	5,885	46
Seville	31	1,741	1,250,597	306	4,086	4,985	56
Biscay	111	2,217	1,139,863	ND	ND	8,583	31
Asturias	43	5,191	947,681	ND	ND	1,151	23
Malaga	14	1,258	931,508	ND	ND	1,421	60
Gran Canaria	21	1,560	807,049	330	2,446	3,751	47
Zaragoza	35	2,234	731,998	116	6,310	611	89
Bay of Cadiz	7	1,877	644,738	80	8,059	10,880	20
Camp de Tarragona*	131	2,999	530,115	ND	177	1,965	24
Granada	32	861	484,168	ND	ND	12,328	49
Alicante	5	355	434,505	66	6,543	1,604	74
Pamplona	17	90	309,607	44	7,008	7,765	63
Vigo	1	109	297,028	ND	ND	2,715	100
A Coruña	1	37	244,388	ND	ND	6,641	100

Source: Metropolitan Mobility Observatory. [5th report] June 2008. NOTE: NA= Data not available

The Public Transport Authorities (ATP – Autoridades de Transporte Público) have been created in order to provide a coordinated response to the population mobility demand in public transport metropolitan areas (MA). According to the Metropolitan Mobility Observatory, residing population in these areas reached 21.3 million inhabitants in 2006, occupying an area of 33.2 million km², of which 10% (3,243 km²) belongs to the main city that is the core of the surrounding areas. The 16 MA include a total of 816 municipalities, among which we can find Spain's 5 most-populated cities.

These areas are divided into three groups based on their population: large (Madrid, Barcelona, Valencia, Seville and Biscay); medium (Asturias, Malaga, Gran Canaria, Zaragoza, Tarragona and Bay of Cadiz); and small (Granada, Alicante, Pamplona, Vigo and A Coruña). It is worth noting that the concept of Metropolitan Area in connection with public transport does not match the idea behind the use of this concept in urban planning. Thus, in the case of Madrid, its metropolitan core includes 27 municipalities, instead of the 179 that were used in that context and that make up the total of this Autonomous Region.

The highest population density belongs to the city of Barcelona, followed by Granada, Cadiz and Bilbao, which have densities that exceed by far the average density figure (3,067 inhabitants per km²) of the main cities. The highest population density in Metropolitan Areas also belongs to Barcelona, followed by the Bay of Cadiz and Pamplona.

Two new entities have been incorporated: the Gran Canaria Sole Transport Authority (AUTGC - Autoridad Única del Transporte de Gran Canaria) and the Public Transport Authority (ATP - Autoridades de Transporte Público) of the City of Vigo. The first one is composed of the Cabildo of Gran Canaria, the Local Council of Las Palmas and other Local Councils with jurisdiction over regular passenger public transport. Its territorial scope is the island of Gran Canaria, with a population of almost one million inhabitants. Regarding the City of Vigo, the authority in charge of bus public transportation management is the Local Council, providing services to a population of almost 300,000 inhabitants within its territory (109 km²).

In order to meet their goals, the ATPs have an infrastructure that offers one or more transport modes, mainly urban and metropolitan buses and rails (subway, RENFE's short distance trains, tramways, autonomic railways and narrow gauge railways). In just one case (Pamplona), the ATPs have authority over taxis. As evidenced by the bus lines-related data included in the table below, the lengths of urban and metropolitan lines are close to 9,000 and 45,000 km, respectively.

PUBLIC TRANSPORT METROPOLITAN AREAS LENGTH OF BUS LINES (KM)
AND NUMBER OF STOPS

Metropolitan Area	Number of lines		Number of stops		Length of lines (km)	
	Urban	Metropolitan	Urban	Metropolitan	Urban	Metropolitan
Madrid	209	441	10.430	19.667	3.444	20.823
Barcelona	112	497	5.520	19.000	1.808	8.555
Valencia	59	55	2.031	1.919	884	2.095
Seville	40	50	1.680	916	537	1.510
Asturias	13	305	756	ND	154	ND
Malaga	40	51	1.782	650	610	1.516
Gran Canaria	41	145	1.768	4.512	370	3.177
Zaragoza	38	44	1.739	1.956	557	3.551
Bay of Cadiz	52	41	ND	911	ND	2.324
Granada	28	53	ND	ND	335	1.445
Alicante	13	24	ND	ND	ND	ND
Pamplona	20		706		343	
Vigo	29		1.050		ND	
A Coruña	22		961		147	

Source: Metropolitan Mobility Observatory. [5th report] 2005-2007

Middle-sized areas, such as Gran Canaria, Zaragoza or Granada, have the *highest densities of bus lines* per inhabitant (between 4,000-5,000 million

inhabitants). Regarding the area of the MAs, the greatest density values belong to the big and small areas (between 3,000 and 4,000 km/1,000 km²). The lowest stops density values – both in relation to inhabitants and the area of the MA – belong to Valencia, Seville, Asturias and Malaga. In 2007, the several rail modes amounted to 2,380 km, distributed in the manner presented in the table hereinbelow. Regarding density (km/area), Barcelona, Valencia and Asturias (which have several lines in their own respective territories) show the highest values, in comparison with metropolitan areas such as Malaga and the Bay of Cadiz, where only short-distance services are available. This also applies if the calculation is based on population.

PUBLIC TRANSPORT METROPOLITAN AREAS LENGTH OF RAILWAYS (KM) AND NUMBER OF STOPS

	Subway	Tramway	RENFE (short-distance train)	FEVE (narrow-gauge)	Autonomic Rails	TOTAL Railways	Total stations
Madrid	233.0	23.80	340.00	-	-	596.80	295
Barcelona	110.3	15.92	453.00	-	120.00	699.20	339
Valencia	121.7	-	85.00	-	-	206.70	140
Seville*	-	-	145.00	-	-	145.00	24
Asturias	-	-	117.70	459.73	-	577.43	226
Malaga	-	-	67.90	-	-	67.90	25
Bay of Cadiz	-	-	51.10	-	-	51.10	13
Alicante	-	29.8	-	-	-	29.8	-
A Coruña	-	6.25	-	-	-	6.25	-

Source: Metropolitan Mobility Observatory (5th report) 2005-2007

(*) On 1 April, 2009, line 1 of Seville subway was opened, with a length of 18 km and 22 stops

The indicators that allow the comparison of different services and cities are the following: “vehicles-km per year” and “beds-km per year”, both in connection with buses and railways, as shown below:

VEHICLES-KM PER YEAR (million)

	Buses			Rail Modes
	Urban Buses	Metropolitan Buses	Total Buses	Total Rail Modes
Madrid	100.00	163.00	263.00	259.00
Barcelona	42.10	66.00	108.10	167.80
Valencia	21.40	8.79	30.19	28.07
Seville	17.00	9.00	26.00	2.18
Asturias	3.70	n.d.	3.70	6.68
Malaga**	9.45	6.00	15.45	3.28
Gran Canaria	10.70	29.70	40.40	-
Zaragoza	19.90	5.10	25.00	-
Granada	7.21	5.43	12.65	-
Alicante	4.29	3.66	7.95	0.39
Pamplona		6.75	6.75	-
A Coruña		5.58	5.58	-

Source: OMM. 5th report 2005-2007.

BEDS-KM PER YEAR (MILLION)

	Buses			Rail Modes
	Urban Buses	Metropolitan Buses	Total Buses	Total Rail Modes
Madrid	7,802	11,101	18,903	37,473
Barcelona	3,789	5,082	8,871	25,893
Valencia	2,342	791	3,133	4,362
Seville	1,430	720	2,150	614
Asturias	425	n.d.	425	1,156
Malaga**	945	432	1,377	272
Gran Canaria	1,063	1,507	2,570	-
Zaragoza	2,144	299	2,443	-
Alicante	331	281	612	78
Pamplona		777	777	-
A Coruña		614	614	-

Source: OMM. 5th report 2005-2007.

In connection with rail modes, we must highlight the importance of short-distance trains in order to achieve sustainable mobility in metropolitan areas and to contribute to the cohesion and integration of the territory surrounding the metropolis. The table below shows some of the most relevant data provided by RENFE (Spanish National Railway Network) in eight specific areas.

RENFE SHORT DISTANCE SERVICE IN METROPOLITAN AREAS

Metropolitan Area	Length of Lines	No. of Stops in Lines	Tourists-km (million)	Beds-km offered (million)	Average frequency during rush hour	Average Commercial Speed (km/h)	Average distance traveled by tourist (km)
Madrid	587.5	191	3,894.13	9,928	5	52.54	15.22
Barcelona	543.1	139	2,682.52	7,047	7	50.23	21.95
Valencia	405.7	84	784.32	1,720	25	64.34	30.83
Seville	193.1	31	171.39	617	30	60.60	24.21
Biscay	75.2	52	208.16	656	15	43.19	9.87
Asturias	140.1	53	173.96	706	30	49.65	21.99
Malaga	67.9	26	160.44	272	30	41.02	16.32
Bay of Cadiz	51.2	13	81.14	252	30	52.59	23.38

Source: RENFE, General Directorate of Short and Medium-Distance Services (quoted by the Metropolitan Mobility Observatory). This data encompasses some publications that do not belong to the transport authorities scope of action.

The quality of services rendered by the public offer of buses may be analysed through a set of indicators, among which we can mention: the commercial speed of buses, the frequency, the service hourly range, the night services, and the percentage of the fleet that is entirely equipped for people with limited mobility.

Due to its importance in terms of the environment, we also provide the percentage of bus fleets with reduced emissions capabilities. It is worth highlighting that since the time when data was collected (2005-2007), the urban fleet has evolved towards a greater sustainability level in terms of the use of fuel. For example, Madrid's EMT had,

in 2007, 1,266 buses that used alternative energy (of a total of 2,033 as of 31/12/2007), of which 69% used bio-diesel and 27.72% used compressed natural gas, according to the report issued in the Technical Conference V, organized by MARM and the Metropolitan Mobility Observatory (Valencia, 2008). Recently (2009), a hybrid bus prototype was tested in Barcelona (electric propulsion, assisted by a diesel engine), which may reduce fuel consumption and therefore, pollutant emissions, reaching at the very least, a 20% less than a conventional thermal motor vehicle.

URBAN BUSES WITH REDUCED EMISSIONS IN COMPARISON
WITH THE FLEET TOTAL (%)

	Euro IV	GNC	GLP	Hybrids	Bio-diesel	Other*
Madrid	78.3	10.0	-	1.0	10.3	0.4
Barcelona	-	20.2	-	-	-	0.3
Valencia	-	6.3	-	0.6	20.8	-
Seville	-	20.1	-	-	14.0	-
Asturias	-	-	-	-	100.0	-
Malaga	0.4	1.7	-	-	65.0	-
Gran Canaria	4.6	-	0.8	-	-	-
Zaragoza	-	-	-	-	9.7	-
Vigo	-	-	0.9	-	1.8	-

Source: Metropolitan Mobility Observatory [5th report] 2008 [*] Other: hydrogen and bioethanol, CNG: Compressed Natural Gas, LPG: Liquefied Petroleum Gas

NOTES

- Metropolitan Area: following the criteria of the Metropolitan Mobility Observatory, metropolitan area means: "the urbanized geographical area where there is a high degree of interaction between the several urban centres in terms of journeys, daily relations, economic activities, etc."
- The transport data of the metropolitan areas has been provided by the ATPs. Population data was last updated on 1 January, 2006, except Camp de Tarragona's, which was last updated on 1 January, 2005. There is no data available of this metropolitan area for the tables presented in the foregoing.
- The draft of the "Spanish Sustainable Mobility Strategy" (public information until 15 February 2009) includes certain action proposals that lead to a change in the current mobility model, making it more efficient and sustainable, and contributing to the fight against climate change and the reduction of the mobility model impact on the environment, especially on the atmosphere.
- Regarding urban and metropolitan transport, the EEMS highlights the need to implement a series of measures, among which we can mention: a) to draw up mobility evaluation studies in order to implement corrective measures; (b) to establish the basis set forth in the PEIT in order to boost the cooperation with other administrations having jurisdiction over transport in cities and metropolitan areas; (c) to encourage short-distance rail services; (d) to establish public transport access in the terminals of the different transport modes; (e) to encourage alternatives such as Bus and Bus/VAO lanes in order to increase the capacity of the access ways to the big cities, (f) to encourage non-motorized transport modes, thus increasing opportunities for the use of bicycles and for pedestrians; (g) to implement sustainable mobility plans that include a diagnosis of the situation and the goals of that state, the measures to be adopted and the funding mechanisms; (h) to encourage mobility plans for companies and industrial parks; and (i) to limit the speed in access ways to the big cities.
- According to said Strategy, in order to achieve sustainable mobility the problem must be tackled from three angles: economic, social and environmental. In terms of this sustainability approach, the Strategy objectives are developed in five areas: 1) territory (through planning of transport and its infrastructures); 2) fight against climate change and energy dependence; 3) improvement of air quality and noise mitigation; 4) enhancement of road safety and sanitary conditions; and, lastly, 5) demand management. The Strategy defines general guidelines for these five objectives and details measures to be implemented in the most important areas.
- Data provided by the Metropolitan Mobility Observatory [5th report, 2008] has been supplied by the ATPs. Population data was last updated on 1 January, 2006, except Camp de Tarragona's, which was updated on 1 January, 2005, since there is no data available that will allow updating the relevant tables and charts.

SOURCES

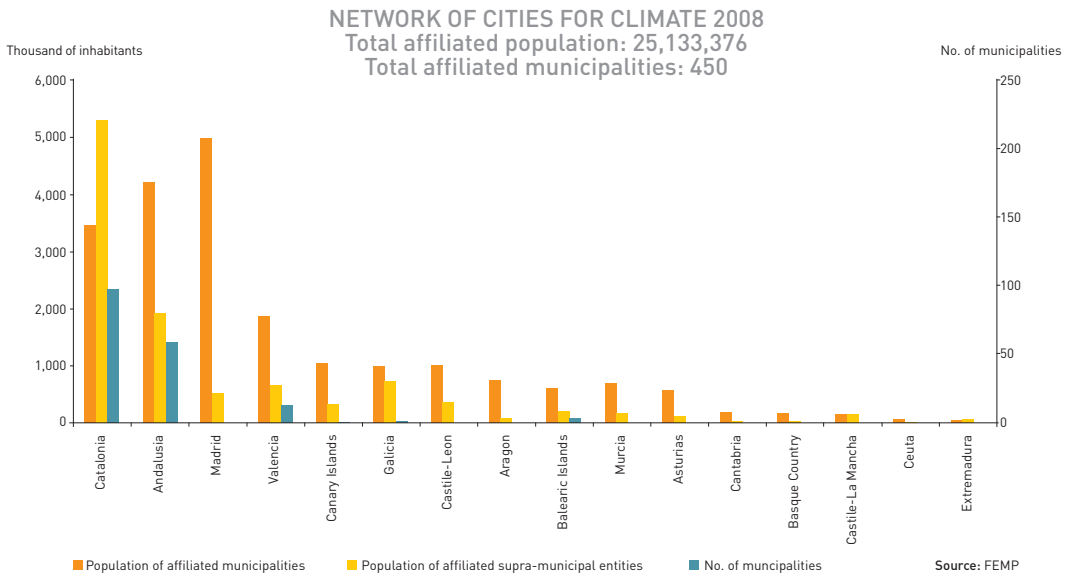
- The Commission Green Paper, of 25 September 2007 – Towards a New Culture for Urban Mobility [COM (2007) 551 final – Not published in the Official Journal].
- MARM. MF: Metropolitan Mobility Observatory Report 2008 (5th report). Madrid, 2008.
- Metropolitan Mobility Observatory: Technical Conference V: Transport Authorities and Climate Change Valencia, June 2008. [several papers]. <http://www.transyt.upm.es/index.php?lang=en>

MORE INFORMATION

- <http://europa.eu/scadplus/leg/es/lvb/l24484.htm>
- <http://www.fomento.es>

Public Participation in Environmental Policies

Public participation in environmental policies is organized through networks such as the Spanish Network of Cities for Climate (Red Española de Ciudades por el Clima) and the Network of Networks for Sustainable Local Development (Red de Redes de Desarrollo Local Sostenible), which encompasses 16 regional or provincial networks



Public participation is a key factor for the implementation of sustainability policies. This document shows the available data on two initiatives launched by the Spanish Ministry of the Environment and Rural and Marine Affairs: The Spanish Network of Cities for Climate and the Network of Networks for Sustainable Local Development. Both initiatives encompass a great number of local councils, and, in the case of the former, it also includes supra-municipal bodies such as: councils, cabildos and commonwealths. The Spanish Network of Cities for Climate has a clearer goal (to develop local policies to combat climate change), but it is also clear that both are closely related to sustainable local development and the local Agenda 21.

In the case of the Spanish Network of Cities for Climate, the number of affiliated municipalities is given, together with the population of said municipalities. The population figures breakdown shows the population affiliated through municipalities and the population affiliated through supra-municipal entities that promote their own local networks. The number of municipalities exclusively refers to the ones expressly

listed in the documents provided by the source, without taking into account those that might have also been affiliated through their respective supra-municipal entities.

The Spanish Network of Cities for Climate was established due to the collaboration agreement executed between the FEMP and the Ministry of the Environment on 4 November 2004. The general goal of this agreement was to create a framework for the definition of actions and the implementation of pollution and climate change prevention initiatives, within a general context aimed at local sustainability.

This initiative is closely related to the implementation of the Local Agendas 21, which encourage the inter-administrative coordination and cooperation with the purpose of establishing necessary actions and mechanism in order to meet the sustainability goals set forth in Rio 92, and that join other initiatives with similar goals, such as the Network of Networks for Sustainable Local Development.

This agreement included the actions to be carried out in order to promote sustainability policies in Spanish cities, based on the important role that municipal policies play in the reduction of greenhouse gas emissions. On the one hand, the goal was to provide technical support to municipalities (collaboration with the development of projects or programmes, creation of an experience exchange forum and a website, promotion of the environment management, implementation of joint public awareness actions); and, on the other hand, to follow-up and evaluate the proposed actions within the Network framework (development of an indicator system, follow-up of the development of Local Agendas 21, development of annual reports, etc.).

Actions carried out under the scope of the FEMP's initiative were planned in two stages, which were subject to an evaluation report (2007). This report summarized the status of the different commitments undertaken in the affiliated local councils, indicating the percentage of those that participated of said actions: land reserves for green zones (54.2%), awareness-raising campaigns (45.8%), agreements with economic agents (7.6%), traffic relief measures (67.45%), energy efficiency in municipal facilities (33.3%), sustainability criteria for the hiring process (32.05%), energy efficiency criteria for the hiring process (16.7%) and economic and tax measures (58.3%). Second stage actions were also evaluated: bioclimatic architecture promotion (15.3%), sustainable mobility plan (15.3%), lighting efficiency resolution (9.7%), thermal solar energy resolution (24.3%), renewable energy implementation (45.1%), energy-related audits (31.3%) and municipal energy plans (12.5%).

The Network celebrated its 3rd Meeting (San Sebastián, 21-22 July 2008) in which it was agreed on the objective of reaching the total of 36 million inhabitants during the current municipal term and encouraging the Covenant of Mayors, a European

movement which establishes the commitment to reduce 20% of greenhouse gas (GHG) emissions in municipalities by 2020. It is worth noting that the Network received international acknowledgement (November 2008), being granted the award as one of the twelve best practices in the international contest promoted by the United Nations Human Settlements Programme (UN Habitat), sponsored by Dubai Municipality (United Arab Emirates).

Regarding the Network of Networks for Sustainable Local Development, it is a forum created in December 2005 that includes 2,536 municipalities encompassing a population of 25 million people. The MARM acts as the Secretariat branch of the Network. Data offered here is provided by affiliated networks and the possibility of figure overlapping that may occur due to the fact that municipalities may freely sign up for more than one network is not considered. As a result, Andalusia, for instance, besides being affiliated to Programme Ciudad 21 at a regional level, belongs to other autonomous provincial networks (Huelva, Jaen and Cordoba).

NETWORK OF NETWORKS FOR SUSTAINABLE LOCAL DEVELOPMENT - 2008

Supra-municipal sustainability	Nº municipalities	Population
Environmental Sustainability Programme (Programa de Sostenibilidad Ambiental Ciudad 21), Andalusia	231	6,917,653
Castile-La Mancha Network of Sustainable Towns and Cities (Red de ciudades y pueblos sostenibles de Castilla-La Mancha)	670	1,797,649
Basque Network of Municipalities for Sustainability (Udalsarea 21 - Red vasca de municipios hacia la sostenibilidad)	197	1,936,354
Network of Towns and Cities for Sustainability (Xarxa de ciutats i Pobles cap a la Sostenibilitat), Barcelona Provincial Govt	208	5,456,229
Network of Valencian Municipalities for Sustainability (Xàrcia de municipis valencians cap a la sostenibilitat)	208	2,394,820
Balearic Sustainability Network (Xarxa Balear de Sostenibilitat)	67	1,072,844
Huelva Provincial Network of Sustainable Cities (Red provincial de ciudades sostenibles, Huelva)	79	483,792
Jaen Provincial Network of Sustainable Municipalities (Red de municipios sostenibles de la provincia de Jaén)	76	469,309
Cordoba Local Agenda 21 Network (Red de Agendas 21 Locales Cordobesas)	48	275,936
Alto Aragón Network of Local Authorities for Sustainability (RETE 21 - Red de Entidades Locales del alto Aragón por la sostenibilidad), Huesca	30	152,788
Navarre Network of Local Authorities for Sustainability (Red Navarra de entidades locales hacia la sostenibilidad)	272	584,734
Cantabrian Network of Local Sustainability (Red Local de Sostenibilidad de Cantabria)	82	572,824
Girona Council of Local Initiatives for the Environment (CILMA - Consell d'Iniciatives Locals per al Medi Ambiente de les comarque de Girona)	176	677,897
Alicante Natura - Provincial Network of Agenda 21	76	814,457
Zaragoza Provincial Network of Sustainable Municipalities (Red de municipios sostenibles de la provincia de Zaragoza)	76	109,116
RedMur21 - Network of Sustainable Municipalities of the Region of Murcia (Red de Municipios Sostenibles de la Región de Murcia)	40	1,342,879

Source: MARM. 2009

The incorporation of three new networks should also be highlighted: Alicante Natura - Provincial Network of Agenda 21, the Network of Sustainable Municipalities of Zaragoza, and RedMur21- Network of Sustainable Municipalities of the Region of Murcia, which reveals an increase of 192 municipalities and almost 3 million inhabitants (2,835,233).

Regarding the extent of development of sustainability processes being developed in municipalities, the Spanish Sustainability Monitoring Centre (Observatorio de la

Sostenibilidad en España) has published a report in which sustainability is assessed separately in urban and rural environments. The global assessment carried out in this report regarding the implementation and development of Agenda 21 schemes in the urban environment (through a detailed analysis of the provinces' capital cities) is not very positive; specially in relation to people's involvement, the small number of municipalities that have an Action Plan or the environmental approach shown by most Agendas 21.

It is not easy to make a relative summary of sustainability in rural environments due to its large area (90% of total territory and 20% of total population), the number of municipalities and its diversity. However, in OSE's report, not only problems are highlighted, but also challenges and opportunities that would make sustainable development possible, provided specific supporting policies are applied. In this respect, Act 45/2007 for the Sustainable Development of the Rural Environment brings about a significant array of opportunities for this sector as it recognizes Spanish rural environment diversity, the most serious problems it has to deal with, the diversity of the participants involved and how important and necessary it is to develop coordination and collaboration mechanisms.

NOTES

- According to the Spanish Federation of Municipalities and Provinces, supra-municipal entities affiliated to the Network of Cities for Climate are mentioned in the table below. The Council of Barcelona participates through Xarxa de Ciutats and Pobles Cap a la Sostenibilitat, which encompasses municipalities inside and outside the province of Barcelona.

SUPRA-MUNICIPAL ENTITIES AFFILIATED TO THE NETWORK OF CITIES FOR CLIMATE – 2009

Entity	Population
Island Cabildo of La Gomera	22,622
Island Council of Ibiza	66,283
Island Council of Menorca	34,834
Provincial Council of Barcelona	2,315,224
Provincial Council of Cádiz	524,319
Provincial Council of Huelva	375,147
Provincial Council of Jaén	488,604
Provincial Council of Castellón	315,878
Celanova Commonwealth	22,685
TOTAL	4,165,596

SOURCES

- Urban Ecology Agency of Barcelona (Agencia de Ecología Urbana de Barcelona).
- MARM. Directorate General of Industrial Environmental and Air Quality (Dirección General de Calidad del Aire y Medio Ambiente Industrial). Urban Environment Area (Área de Medio Ambiente Urbano).
- Spanish Sustainability Monitoring Centre (OSE – Observatorio de la Sostenibilidad en España): "Local Sustainability: an urban and rural approach" [s.l.: Alcalá de Henares; D.L.2008].

MORE INFORMATION

- <http://www.redciudadesclima.es>
- <http://www.ecourbano.es> (includes links to all bodies of the Network of Networks for Sustainable Local Development).