

# 2.15 URBAN ENVIRONMENT



According to the European Environment Agency, by 2020, 80% of Europe's population will live in urban areas. At the moment, 75% of the European population live in cities, making Europe one of the most urbanised continents. This is also the case in Spain — in 2009, 78.9% of the country's population of 47,021,031 lived in urban areas.

Policies introduced to improve sustainability in cities comprise a range of measures to reduce energy consumption *per capita* and include, among others, schemes to encourage sustainable urban transport, to reduce household energy consumption (by improving insulation and using energy-saving light bulbs) and to promote use of clean technologies in public transport. These and other lines of action are included in the draft of the Spanish Strategy for Urban and Local Sustainability (EESUL) developed by the Spanish Ministry of the Environment and Rural and Marine Affairs, and drawn up in collaboration with the Secretariat of State for Housing and Urban Development at the Spanish Ministry of Public Works and the Network of Sustainable Local Development Networks. This Strategy adapts the Thematic Strategy on the Urban Environment (2006) to Spain's particular circumstances and builds upon the Network of Sustainable Local Development Networks' Strategy on the Urban Environment adopted in 2006, as well as on other



INDICATOR	GOAL	TREND
<b>Urban pressure on land</b>	Achieve a sustainable balance in land use	Population pressure continues to increase in urban centres with over 10,000 inhabitants, though it is becoming less intense
<b>Air quality in the urban environment</b>	Maintain air quality within established limits	In 2010, mean air quality in towns and cities with over 50,000 inhabitants was below the regulatory limit
<b>Environmental noise</b>	Maintain environmental noise within established limits and apply the legislation currently in force	Having completed the first phase of implementation of Directive 2002/49/EC, the second phase is now under way. In 2012, there are plans to create noise maps for the areas established in the second phase, and to update those drawn up the first phase
<b>Architectural heritage of Spain's cities</b>	Ensure heritage sites are comprehensively protected	The number of protected sites of cultural interest has risen to 15,904
<b>Metropolitan areas: modes of public transport</b>	Promote less pollutant modes of transport and improve the efficiency of public transport	The number of train journeys increased to the detriment of the number of bus journeys
<b>Public participation in environmental policy</b>	Undertake local sustainability commitments	Work continues to increase public participation and disseminate information about the urban environment, for example via the Ecurbano portal

relevant documents. It is hoped that the EESUL will be approved by the Council of Ministers in 2011 once it has passed the mandatory investigation and consultation procedures.

Meanwhile, from 16–22 September 2010, the MARM, which acts as the national co-ordinator of European Mobility Week (EMW), held the EMW under the slogan *Travel Smarter, Live Better*. The aim was to promote more active mobility and focused on the themes of reducing physical inactivity, excess body weight and obesity while simultaneously improving citizens' physical and mental well-being. The focus was also on emphasising the combination of health, safety and sustainable mobility, which undeniably improves the quality of life in cities by helping to reduce noise and air pollution, accidents and traffic, and by restoring more space to live in and less to drive on. This initiative has expanded year after year throughout Europe and, in 2010, involved 2,221 cities covering 221 million people. In Spain, the number of cities participating rose from 207 in 2001 to 567 in 2010. In total, 7,506 permanent measures have been implemented in Spain, concentrating mainly on infrastructure for pedestrians and cyclists, decongesting traffic, improving access to transport and increasing awareness about transport options.

Regarding mobility, throughout 2010 the MARM continued to co-ordinate and support Spain's Metropolitan Mobility Observatory (OMM), a forum which shows the contribution public transport makes to improving quality of life and sustainable development in cities. Among other activities, in 2010 it published a report (based on data for 2008) analysing general mobility trends in Spain's main metropolitan areas.

At the end of 2009, the then Ministry of Housing founded the Urban Information System, which is intended to provide information on the urban and territorial situation in Spain and support the research and decision-making stages of urban and/or territorial policy making (<http://siu.vivienda.es/portal/>).

This chapter presents a series of indicators that reflect various aspects of the situation in Spain's urban environment.

## Urban pressure on land

Population pressure generally continues to increase in urban centres with over 10,000 inhabitants, though it is becoming less intense and actually decreased in two autonomous communities

AC	Urban density 2010 (inhab/km <sup>2</sup> )	Variation 2010/2011 (%)	Variation 2010/2009 (%)	Variation 2009/2008 (%)
SPAIN	73.32	17.95	0.64	1.58
Andalusia	76.24	17.16	0.89	1.37
Aragon	19.27	13.57	0.14	1.34
Asturias	88.50	2.05	0.02	0.66
Balearic Islands	185.08	31.82	0.87	1.97
Canary Islands	254.58	23.38	0.76	1.97
Cantabria	74.72	11.18	0.26	0.92
Castile-Leon	15.25	5.67	-0.15	0.30
Castile-La Mancha	14.52	34.08	1.79	4.10
Catalonia	190.63	21.03	0.56	1.58
Valencia	182.16	25.29	0.26	1.70
Extremadura	12.92	11.31	-0.90	1.20
Galicia	65.14	6.50	0.40	1.40
Madrid	757.37	19.80	1.04	1.74
Murcia	123.40	26.87	1.08	2.18
Navarre	33.42	20.28	0.72	4.07
Basque Country	241.30	2.54	0.13	0.54
Rioja	40.42	24.07	0.15	1.35
Ceuta & Melilla	4,894.16	8.40	2.94	2.22

Source: Compiled in-house using INE data

Data from the municipal register as at 1 January 2010 reveals that, as in previous years, population continued to increase in urban centres with over 10,000 inhabitants. In 2010, this reached 17.95% above the 2001 level. The indicator shows the pressure exerted on land by population centres with over 10,000 inhabitants and is calculated by comparing the population living in these municipalities against each autonomous community's total land area.

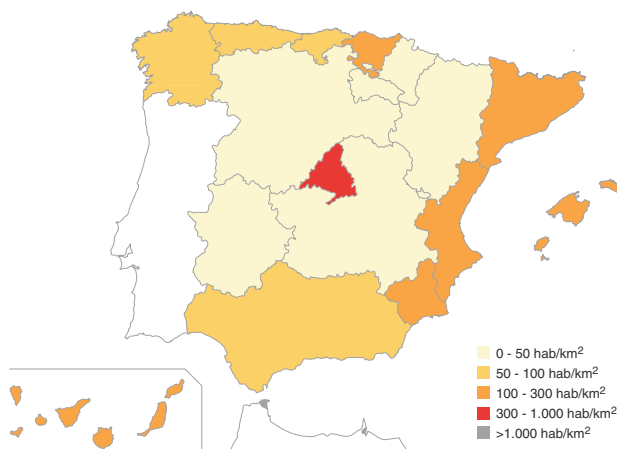
The most densely populated autonomous communities are still Madrid (757.37 inhab/km<sup>2</sup>), the Canary Islands (254.58 inhab/km<sup>2</sup>), the Basque Country (241.30 inhab/km<sup>2</sup>), Catalonia (190.63 inhab/km<sup>2</sup>), the Balearic Islands (185.08 inhab/km<sup>2</sup>), Valencia (182.16 inhab/km<sup>2</sup>) and Murcia (123.40 inhab/km<sup>2</sup>). Ceuta and Melilla also deserve special mention due to the large population living in a very small area — urban density in the two autonomous cities reached 4,894.16 inhab/km<sup>2</sup>.

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In 2010, the rate of population increase slowed and, unlike other years, urban density in two autonomous communities actually decreased on 2009 (Castile-Leon and Extremadura). Population is still rising in the rest of Spain's towns and cities with over 10,000 inhabitants, but at a slower pace.

The map below shows that the highest population densities are mainly found in Spain's islands and on its Mediterranean coast, the two exceptions being Madrid and the Basque Country. The country's least populated areas are still inland.

URBAN DENSITY BY AUTONOMOUS COMMUNITY, 2009 (inhab/km<sup>2</sup>)



Source: Compiled in-house using INE data

#### NOTES

- The indicator shows the pressure exerted on land by urban population centres with over 10,000 inhabitants. It is calculated as the coefficient of the population living in these municipalities and the surface area of each respective autonomous community. For the purpose of calculating the indicator, the data provided by the municipal register as at 1 January 2001 and at 1 January 2010 were used.
- From a demographic point of view, Spain's urban structure comprises 83 urban areas with over 50,000 inhabitants. Of these areas, 4 have over one million inhabitants (Madrid, Barcelona, Valencia and Seville), three of which (except the capital, Madrid) are located on the peninsula's periphery; 10 of these have a population of between 500,000 and 1,000,000 inhabitants (Malaga, Bilbao, central Asturias, Saragossa, Alicante/Elche, the Bay of Cadiz, Murcia, Vigo-Pontevedra, Las Palmas de Gran Canaria and Palma de Mallorca); and 29 urban centres have a population of between 50,000 and 100,000 inhabitants. The total population of Spain (according to the municipal register as at 1 January 2010) was 47,021,031.
- Although the indicator does not take into consideration the population living in towns of less than 10,000 inhabitants (rural population), it should be noted that the boundary between the urban and rural environments is becoming ever-more blurred as a result of urban sprawl, which is increasingly affecting the rural environment, especially on the urban fringe of the country's large and medium-sized conurbations.

#### SOURCES

- INE. Municipal register as at 1 January 2001 and at 1 January 2010.
- Geographic area: INEbase figures.

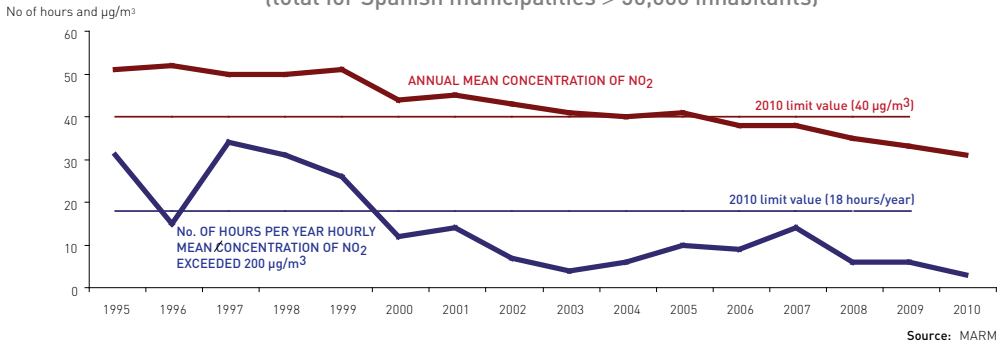
#### FURTHER INFORMATION

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

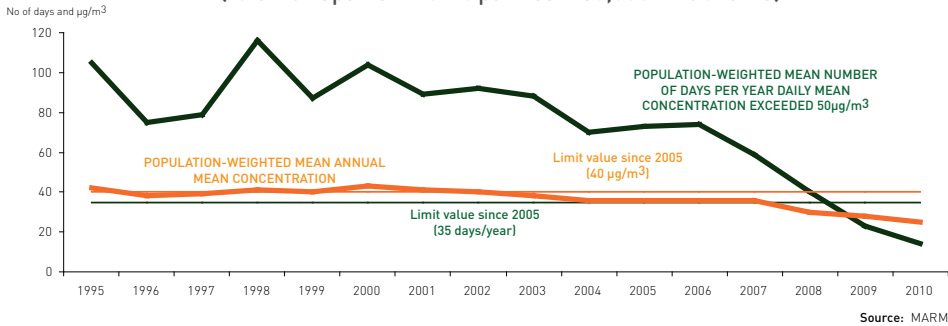
# Air quality in the urban environment

In 2010, estimated air quality in cities with over 50,000 inhabitants remained below the regulatory limits and only ozone levels worsened slightly

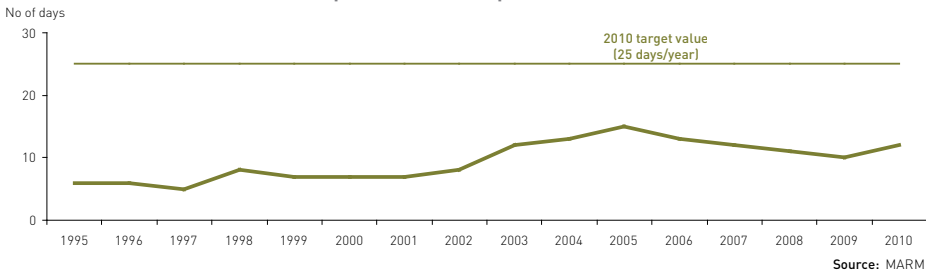
**NO<sub>2</sub>: POPULATION-WEIGHTED MEAN NO. OF HOURS PER YEAR HOURLY MEAN CONCENTRATION EXCEEDED 200 µg/m<sup>3</sup> AND ANNUAL MEAN CONCENTRATION (total for Spanish municipalities > 50,000 inhabitants)**



**PM10: POPULATION-WEIGHTED MEAN NUMBER OF DAYS PER YEAR DAILY MEAN CONCENTRATION EXCEEDED 50 µg/m<sup>3</sup> AND ANNUAL MEAN CONCENTRATION (total for Spanish municipalities > 50,000 inhabitants)**



**URBAN OZONE: POPULATION-WEIGHTED MEAN NUMBER OF DAYS PER YEAR CONCENTRATION LEVELS EXCEEDED THE MAXIMUM DAILY 8-HOUR RUNNING AVERAGE OF 120 µg/m<sup>3</sup> (Total for Spanish municipalities >50,000 inhabitants)**



In 2010, mean air quality in Spanish municipalities with over 50,000 inhabitants was satisfactory when compared to mean pollutant levels and their regulated values (limit values for NO<sub>2</sub> and suspended particulates smaller than 10 microns, and target values for ozone). This comparison, performed by weighting these variables in line with the cities' populations, reveals the following:

- For NO<sub>2</sub>, mean air quality in Spanish cities with over 50,000 inhabitants continued to improve in terms of the number of hours that exceeded a 1-hour mean concentration of NO<sub>2</sub> of 200 µg/m<sup>3</sup> (which since 2000 has been lower than the legislated limit set for 2010), and in terms of the annual mean concentration (which since 2006 has been below the limit value of 40 µg/m<sup>3</sup> set for 2010).
- Suspended particulates smaller than 10 µm (PM<sub>10</sub>) are one of the biggest problems in Spanish towns and cities as they have highly harmful effects on public health. Since 2002, the population-weighted mean of the annual mean concentration has been below the limit set for 2005, and has maintained a clearly decreasing trend, which even became more pronounced in 2010. Meanwhile, the population-weighted mean number of days per year in which the daily mean concentration exceeded 50 µg/m<sup>3</sup> has been falling strongly since 2007, and since 2009 has been below the current limit value.
- Ozone is a secondary photochemical pollutant generated by various gases emitted by combustion processes in cities and industrial areas and is strongly conditioned by solar radiation. The population-weighted mean number of days per year in which concentration levels exceeded the maximum daily 8-hour running average of 120 µg/m<sup>3</sup> remains below the target value for 2010. However, in 2010 there was a slight increase in exceedances (as in 2005), which was partly due to the high temperatures in the years used to estimate the running average.
- It is worth mentioning that a large number of the stations used in assessment measure traffic emissions and so present low background ozone levels in comparison with those found in suburban or rural areas.



**NOTES**

- A proprietary methodology has been used to produce a representative mean value to describe the quality of the air breathed in Spanish towns and cities. For each pollutant, the mean value for all of the stations belonging to each municipality with over 50,000 inhabitants (provided a sufficient amount of valid data is available) was multiplied by the population of that municipality. The sum of these values for all of the municipalities included, divided by the total population of the same, provides the weighted mean value. This weighted mean was used for all of the municipalities with over 50,000 inhabitants. In the case of ozone, the indicator, in accordance with applicable legislation, is based on the triennial mean.
- All stations with sufficient data (85% for daily and hourly exceedances and 50% for annual mean concentrations) were taken into account. Even so, it is worth highlighting that the mean value obtained is a representation of the mean situation as regards that pollutant, and there may be considerable differences between this value and individual values recorded in particular stations in the towns and cities covered.
- Station location, type (traffic, industrial or background), and percentage of valid data are three of the aspects that condition calculation of the variables and, therefore, the final indicator. Another way to proceed would be to monitor the variables of specific stations located at representative sites that had a sufficient quantity of valid data. Monitoring the resulting trends would provide an idea of air quality at those specific points, though this information would bear no relation to an estimate of general air quality throughout the country in towns and cities with a population of over 50,000 inhabitants, which is this indicator's aim.
- The indicator monitors the variables covered by the European Common Indicators (ECI) project and presents trends in these in comparison with the limit and target values set for 2005 and 2010 under current legislation (Royal Decree 102/2011).
- The total number of stations considered when calculating the indicators varied throughout the period, which had a significant effect on the final result.
- It should be noted that the analysis does not include changes in concentrations of SO<sub>2</sub> and CO, owing to the fact that in urban environments these do not represent a problem. Use of low-sulphur fuels and replacement of coal-burning boilers with natural gas units, among other measures, have led to an improvement in air quality in terms of SO<sub>2</sub> concentration. The limit value for CO (daily mean maximum of 10 mg/m<sup>3</sup> measured as an 8-hour running average) has not been exceeded since 2002, while the SO<sub>2</sub> limit value has not been exceeded since 2009.

**SOURCES**

- MARM, 2011. Air Quality Database. Directorate-General for Environmental Quality and Assessment.

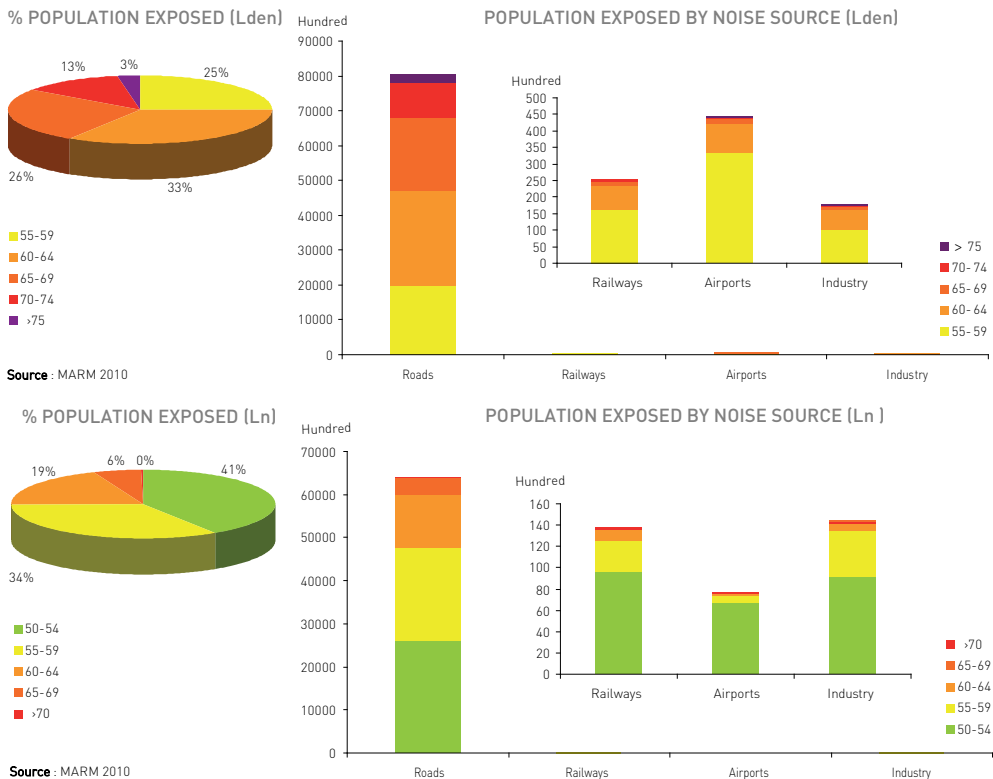
**FURTHER INFORMATION**

- [www.marm.es](http://www.marm.es)
- [www.eea.europa.eu](http://www.eea.europa.eu)

# Environmental noise

In Spain's large urban conurbations, an estimated 8,130,800 people are affected by noise from road and rail traffic, airports and industrial facilities, while those affected outside these conurbations stands at 2,520,500

NOISE LEVELS IN URBAN CONURBATIONS (2010):  
Lden AND Ln INDICATORS (expressed in hundreds)



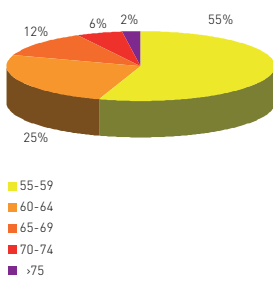
This data in the indicators form part of the information collected by the MARM in compliance with phase one of Directive 2002/49/EC, of 25 June, on the assessment and management of environmental noise, which was transposed into Spanish law (Law 37/2003 of 17 November, on noise, and Royal Decree 1513/2005, on the assessment and management of environmental noise). These regulations set a schedule in which to draw up and submit noise maps, which are used as diagnostic tools with which to produce subsequent action plans to combat noise. These plans will then be taken into account in the planning process in big cities and areas around large-scale infrastructure.

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The updated estimates based on the Strategic Noise Maps created during phase one show that 8,130,800 people are affected by noise from road and rail traffic, airports and industrial facilities in urban conurbations. Meanwhile, outside these conurbations, the estimated number of people affected stands at 2,520,500. Of these, 2,292,900 are near to major roads; 85,300 are close to major railways; and 142,300 are in the vicinity of airports.

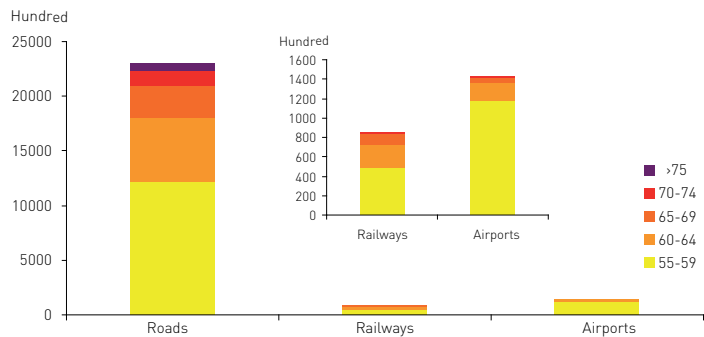
### TRANSPORT INFRASTRUCTURE NOISE LEVELS: MAJOR ROADS, RAILWAYS AND AIRPORTS Lden AND Ln INDICATORS (expressed in hundreds)

% POPULATION EXPOSED (Lden)

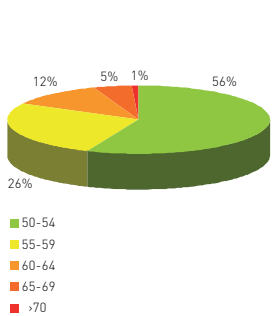


Source: MARM 2010

POPULATION EXPOSED BY NOISE SOURCE (Lden)

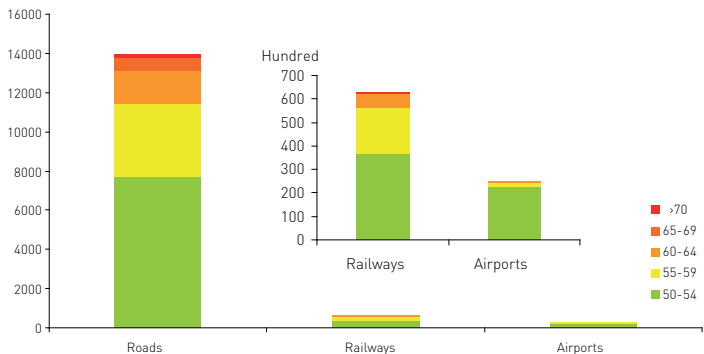


% POPULATION EXPOSED (Ln)



Source: MARM 2010

POPULATION EXPOSED BY NOISE SOURCE (Ln)



This data covers all of the conurbations and airports that were obliged to create Strategic Noise Maps, 91% of Spain's major roads and 90% of its major railways.

The values were obtained from strategic noise maps for 529 strategic mapping units (sections or groups of sections), which include 8,573.79 km of roads and 31 rail sections totalling 812.55 km.

Strategic maps have also been drawn up for 19 urban conurbations in phase one, covering a population of 12.2 million people. Of these, 66.6% were exposed to  $L_{den}$  levels above 55 dB and 27.7% were exposed to  $L_{den}$  levels above 65 dB.

Several authorities (for roads, railways and conurbations) have already created Action Plans to Combat Noise, through which they intend to introduce various means of improving acoustic quality for those affected. These measures include improving mobility in cities; tackling acoustic problems at source, at the recipient's end, or in between; educating the public; and declaring some areas as "quiet zones".

#### NOTES

- The indicators used to create Strategic Noise Maps are  $L_{den}$ ,  $L_d$ ,  $L_e$  and  $L_n$ , which are defined by Royal Decree 1513/2005, which implements Law 37/2003, on noise, as regards the assessment and management of environmental noise.  $L_{den}$  is associated with overall discomfort;  $L_d$  and  $L_e$  show, respectively, the noise level and associated discomfort during the daytime and evening; and  $L_n$  is an indicator associated with sleep disturbance.
- The large conurbations referred to by the indicators are Alicante, Barcelona (I and II), Baix Llobregat, Bilbao, Cordoba, Gijon, Madrid, Malaga, Murcia, Palma de Mallorca, Las Palmas de Gran Canaria, Santa Cruz de Tenerife-San Cristobal de la Laguna, Saragossa, Seville, Valencia, Valladolid and Vigo. Strategic Noise Maps have been created for the airports of Alicante, Barcelona, Bilbao, Gran Canaria, Madrid-Barajas, Malaga, Palma de Mallorca, Tenerife Norte, Tenerife Sur and Valencia.
- A Strategic Noise Map comprises:
  - Noise level maps ( $L_{den}$ ,  $L_d$ ,  $L_e$ ,  $L_n$ ), which show emission levels and isophones for predetermined intervals in a range of predefined colours to facilitate comparison. In general, the scale used is 1:25,000 (except on the detailed maps that use 1:5000 in areas of high population density, areas of special interest, and in conflictive areas that do not meet noise quality targets).
  - Exposure maps, which show data about buildings, housing units and population exposed to certain noise levels at building facades and other data required by the Directive. The maps differentiate between educational and health facilities. Table 2 shows the area affected by state-owned transport infrastructure within the  $L_{den} > 55$  and  $L_{den} > 65$  isophones, as well as housing units (in hundreds), hospitals and educational institutions exposed to the same noise levels.
  - Affected area maps, which show the total area (km<sup>2</sup>) exposed to  $L_{den} > 55$ ,  $> 65$  and  $> 75$ , and report the estimated total number of housing units and people (in hundreds) within each of these areas, as well as hospitals and schools exposed to these noise ranges.

#### SOURCES

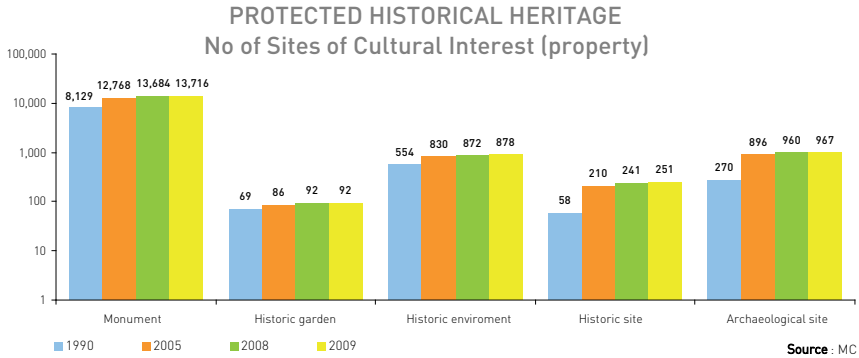
- SICA (Basic Noise Pollution Information System). Sub-Directorate for Air Quality and the Industrial Environment. Directorate-General for Environmental Quality and Assessment. MARM.
- *Primera fase de la elaboración de los mapas estratégicos de Ruido de las Carreteras de la Red del Estado: Resumen de resultados y Plan de Acción PAR 2008-2012*, September 2008. Madrid. Ministry of Public Works. Directorate-General for Highways [report]. <http://www.cedex.es/egra/DOCUMENTACION/Memoria.pdf>.

#### FURTHER INFORMATION

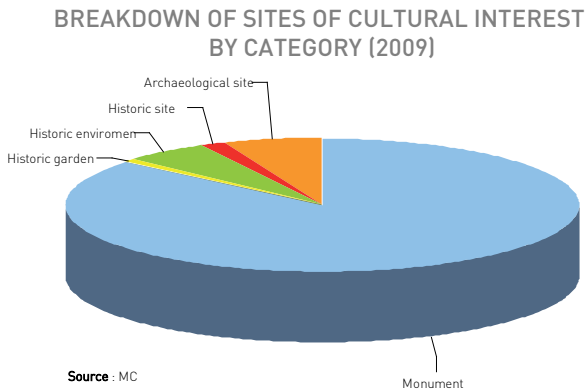
- <http://sicaweb.cedex.es>
- [http://eea.eionet.europa.eu/Public/irc/eionet-circle/eione\\_noise/library](http://eea.eionet.europa.eu/Public/irc/eionet-circle/eione_noise/library)
- <http://ec.europa.eu/environment/noise/>

# Architectural heritage of Spain's cities

In 2009, legal protection for Spain's historical heritage covered 15,904 Sites of Cultural Interest



Data from 2009 shows a slight increase in the number of sites classified as being of cultural interest. The figure rose to 15,904 (55 more than the previous year). Of these, monuments accounted for 86.2%, followed by archaeological sites (6.1%), historic environments (5.5%), historic sites (1.6%) and historic gardens (0.6%).



The autonomous communities with the highest number of Sites of Cultural Interest (SCIs) remained the Balearic Islands, Andalusia, Catalonia, Castile-Leon and Valencia. It is worth noting that Andalusia recorded the biggest increase in the number of SCIs, with 20 new sites, while Navarre was the region that registered the largest percentage increase with 18 new SCIs, a rise of 10.7% on the previous year.

In 2009, the Ministries of Culture (MC) and of the Environment, Rural and Marine Affairs signed the 3<sup>rd</sup> Collaboration Agreement to work on preservation of Spain's historical heritage in accordance with Law 16/1985, of 25 June, which makes it

compulsory for public works contracts to allocate at least 1% of their budget to the conservation or enhancement of the country's historical heritage. This agreement promotes funding of programmes such as the Cultural Landscapes, Historic Gardens and National Heritage Conservation Plans, as well as of the Archaeological Site Recovery Programme.

In 2009, Spain's Ministry of Culture, in conjunction with the Ministry of Industry, Tourism and Trade and the Ministry of Foreign Affairs and Co-operation, agreed to draw up the Cultural Tourism Development Plan 2009–2012, which aims to promote and raise awareness about Spain's cultural products abroad to encourage the perception of Spain as a cultural destination. This action plan includes creation of a series of cultural itineraries that promote Spain's historic and artistic heritage and are linked to specific historical periods and artistic styles, such as historic routes, themed routes (i.e. Islamic Spain, Jewish quarters or royal seats) and the 2010 Holy Year of St James.

#### NOTES

- The graph showing data on Architectural Heritage was produced using a logarithmic scale due to the large difference between the number of monuments and the other categories.
- The register includes sites in both the 'declared' and 'under application' categories.
- Law 16/1985, of 25 June, on Spain's historical heritage makes it compulsory for public works contracts to allocate at least 1% of their budget to projects to conserve or enhance Spain's historical heritage.

#### SOURCE

- MC, 2009. *Anuario de Estadísticas Culturales*, 2009.

#### FURTHER INFORMATION

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

## Metropolitan areas: modes of public transport

The number of train journeys increased to the detriment of the number of bus journeys

METROPOLITAN AREAS: MODES OF PUBLIC TRANSPORT

Metropolitan area (MA)	No of municipalities	Size of metropolitan area (km <sup>2</sup> )	Population of metropolitan area (1/1/2008)	Built-up area (km <sup>2</sup> )	Density of metropolitan area (inhab/km <sup>2</sup> )	Density of main city (inhab/km <sup>2</sup> )	Main city-to-MA population ratio (%)
Madrid	179	8,030	6,271,638	1,049	781	5,304	51
Barcelona	164	3,239	4,929,000	588	1,522	15,921	33
Valencia	60	1,415	1,775,714	325	1,255	5,898	45
Murcia	45	11,313	1,426,109	n.d.	126	486	30
Seville	32	1,997	1,293,703	374	648	4,952	54
Asturias	78	10,604	1,080,138	n.d.	102	1,182	20
Malaga	13	1,258	972,762	75	773	1,435	58
Mallorca	53	3,623	855,343	206	236	1,857	46
Gran Canaria	21	1,560	829,597	330	532	3,773	46
Bay of Cadiz	9	2,905	701,275	140	241	8,958	18
Guipuzcoa	88	1,980	701,056	n.d.	354	690	26
Camp de Tarragona	131	2,999	599,804	n.d.	200	2,109	23
Granada	32	861	500,479	n.d.	582	12,216	47
Alicante	5	355	452,462	74	1,275	1,650	73
Pamplona	18	92	318,865	46	3,481	7,860	62
Vigo						2,740	100
Corunna						6,662	100

Source: OMM, 2008

Notes: The table is arranged in descending order by size of population of the metropolitan area. n.a.: data not available. The Metropolitan Public Transport Authorities shown are those selected in the OMM report.

In 2008, 50% of Spain's population lived in metropolitan areas served by Public Transport Authorities (MPTAs). These covered 930 municipalities and over 23 million people. In total, MPTAs served an area of 52,231 km<sup>2</sup>. Of this, the main cities within the metropolitan areas (MAs) accounted for 6% (3,506 km<sup>2</sup>).

MPTAs offer one or more modes of transport, usually urban and metropolitan buses and rail networks (which could include metro systems, trams, regional networks and narrow gauge railways). In 2008, city and inter-city bus lines totalled 69,943 km, while rail networks totalled 3,251.6 km.

Analysis of the way MPTAs have developed over the past six years reveals an increase in total population in the majority of metropolitan areas at the same as a decrease in

the population concentration ratio. In other words, population density is growing in the metropolitan suburbs. This population shift has dramatically increased car ownership (in many cases the motorisation index is around or over 20%), and, in parallel, journeys have risen in number and grown in length. As a consequence, management of public transport faces several obstacles, the principal one being that population density is not high enough to make public transport operationally efficient. The number of car owners continues to rise and these people are becoming more dependent on their cars.

#### VARIATIONS IN POPULATION SIZE, MOTORISATION INDEX AND PUBLIC TRANSPORT USE IN SPAIN'S MPTAS

Metropolitan area	Variation in population (%)	Variation in population density (%)	Variation in motorisation index (%)	Variation in no of bus journeys (%)	Variation in no of train journeys (%)
Madrid	15.6	-6	11	-8.3	25.1
Barcelona	10	-2.4	5.2	6.1	18.3
Valencia	10.7	-2.4	11	-6.7	13
Murcia	n.d.	n.d.	n.d.	n.d.	n.d.
Seville*	15.4	-13.7	15.7	-5.1	356.2
Asturias	15.8	-5.2	-2.2	3.5	-4.1
Malaga*	34.8	-21.3	5.4	34.8	11.9
Mallorca	5	-1.5	-1	n.d.	n.d.
Gran Canaria	2.8	-1.7	4.8	-5.7	n.d.
Saragossa	2.7	-1	3.8	n.d.	n.d.
Bay of Cadiz*	13.9	-19.1	15	-9.8	-1
Granada	12.4	-13.3	12.4	20.3	n.d.
Alicante	14.9	1.9	18.1	6.2	1,212.5
Pamplona	7.9	-4.8	6.7	15.4	n.d.
Vigo	0.6	n.d.	n.d.	6.2	n.d.
Corunna	1	n.d.	n.d.	n.d.	n.d.

Source: OMM, 2008

Notes: Motorisation index: number of vehicles/1000 inhabitants. n.a.: data not available. \*Over time, these MPTAs have expanded to include new municipalities, which has brought significant variations in population size. These calculations take 2002 as the base year. If there are no data for 2002, the base year is the first one for which data are available (see the OMM's report).

The number of train journeys (metro, regional, etc.) rose in all the MPTAs with rail networks. The most significant increases reflect major government investment in this mode of transport in recent years (i.e., in Alicante, which now has a tram system and an upgraded regional rail network). This general growth contrasts with the fall in the number of bus journeys in several MPTAs. In many cases, this reflects users' switch to rail.



### NOTES

- Metropolitan area: In accordance with the criteria established by the OMM, a metropolitan area is defined as "an urban geographical area with a high degree of interaction between its various urban centres in terms of journeys, day-to-day relationships, economic activity, etc." A single definition has not been established to demarcate Spain's metropolitan areas. Under OMM criteria, metropolitan areas coincide with the area within which each Public Transport Authority (PTA) operates.
- The data on MPTAs were provided to the OMM by the PTAs. Population data are as at 1 January 2008.
- The information provided by each PTA is not necessarily complete and the information available within a PTA may vary from year to year. Nevertheless, the data provided, even if partial, provide a good reflection of PTA development in Spain.

### SOURCES

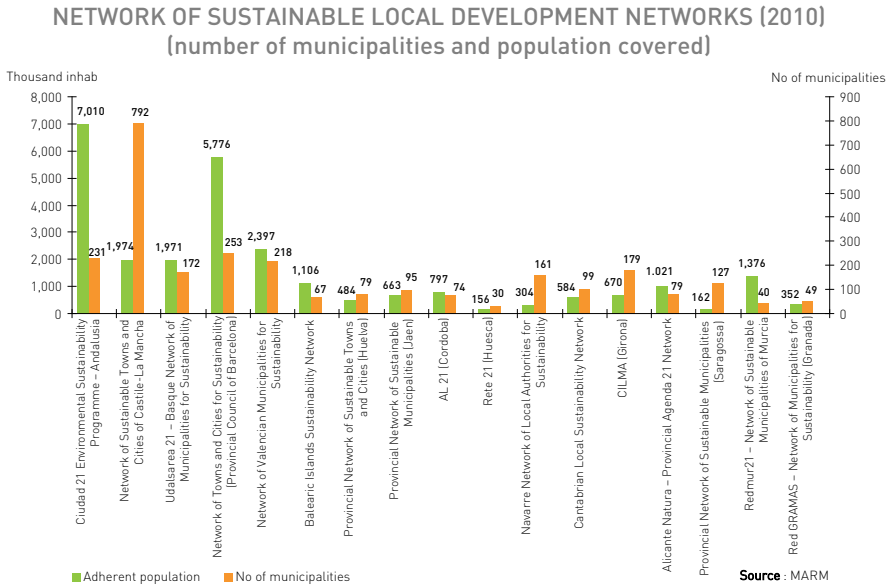
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- MF. *Anuario estadístico 2008*.

### FURTHER INFORMATION

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

# Public participation in environmental policy

Public participation in local sustainable development networks continues to increase



Spanish towns and cities need to aim to create more sustainable scenarios if they are to resolve the environmental issues that affect citizens' quality of life. Land-use planning should be used to create an urban model based on compact yet diverse population centres and to promote energy saving, sustainable mobility, energy-efficient construction and the development and implementation of renewable energy sources on a local scale.

Since 2005, the Ministry of the Environment and Rural and Marine Affairs has been implementing policies and strategies to change the unsustainable trends that have developed in recent decades in Spain's villages, towns and cities. These new measures aim to create population centres that are compact, complex, efficient and socially cohesive.

The MARM's Network of Sustainable Local Development Networks was set up in 2005, and since then, it has been working to develop more sustainable municipalities according to the principles and actions established in the Urban Environment Strategy (EMAU), a reference document approved by the Network of Networks in 2006. The

## 2.15 URBAN ENVIRONMENT

Network of Networks consists of the 17 regional networks responsible for implementing Local Agenda 21, as well as the Spanish Federation of Municipalities and Provinces (FEMP), and represents over 2,700 municipalities and local authorities, and almost 26 million citizens.

In 2010, the MARM updated the Ecurbano knowledge portal, a tool created as part of the EMAU to disseminate information about the urban environment and flagship projects. Since September 2010, Ecurbano has had a blog providing updated news about the urban environment and about the most noteworthy initiatives and projects implemented by members of the Network of Networks. The blog also reviews projects and initiatives that comply with the sustainability guidelines set out in the Green Paper on the Urban Environment, the conceptual and pragmatic framework within which the EMAU is applied, thereby giving users a place to discuss the projects. The blog is accessed via the following link: [www.ecurbano.es/blog](http://www.ecurbano.es/blog).

Network	No. of municipalities/local authorities	Population
Ciudad 21 Environmental Sustainability Programme – Andalusia	231	7,009,718
Network of Sustainable Towns and Cities of Castile-La Mancha	792	1,974,381
Udalsarea 21 – Basque Network of Municipalities for Sustainability	172	1,970,636
Network of Towns and Cities for Sustainability (Provincial Council of Barcelona)	253	5,775,958
Network of Valencian Municipalities for Sustainability	218	2,397,179
Balearic Islands Sustainability Network	67	1,106,049
Provincial Network of Sustainable Towns and Cities (Huelva)	79	483,792
Provincial Network of Sustainable Municipalities (Jaen)	95	663,185
AL 21 (Cordoba)	74	797,192
Rete 21 (Huesca)	30	156,375
Navarre Network of Local Authorities for Sustainability	161	303,995
Cantabrian Local Sustainability Network	99	583,671
CILMA (Girona)	179	670,239
Alicante Natura – Provincial Agenda 21 Network	79	1,020,935
Provincial Network of Sustainable Municipalities (Saragossa)	127	161,794
Redmur21 – Network of Sustainable Municipalities of Murcia	40	903,894
Red GRAMAS – Network of Municipalities for Sustainability (Granada)	49	351,924
<b>TOTAL</b>	<b>2,721</b>	<b>25,931,438</b>

\*Some municipalities that are part of the Ciudad 21 Environmental Sustainability Programme – Andalusia also belong to one of the three other Andalusian networks (Huelva, Jaen or Cordoba). When calculating the total number of municipalities and citizens within the Network of Networks, this factor was taken into account so as not to duplicate the data, and all duplicate figures for municipalities and population were subtracted from the totals.

In 2009, a working group was set up to define a system of indicators for the EMAU that would allow monitoring of compliance with the principles and measures set out in the Strategy to create more sustainable towns and cities. Creation of this group constitutes implementation of the final measure envisaged in the EMAU. In November 2010, the working group approved two documents that defined the aforementioned local sustainability indicators. The first document, entitled *Sistema municipal de indicadores de sostenibilidad* (Municipal System of Sustainability Indicators), contains sustainability indicators common to large and medium-sized population centres, as well as to those with fewer than 2,000 inhabitants. The second document contains the system of indicators and determining factors drawn up for large and medium-sized cities.

In December 2010, the Spanish Network of Cities for Climate (RECC) covered approximately 27.9 million inhabitants and included 300 local authorities (i.e., local councils, island councils, autonomous cities, provincial councils and local authority associations). This network focuses on leading local policies to combat climate change. The Network is currently working on the Local Carbon Sinks project, a programme launched in 2010 to offset emissions in Spanish municipalities by improving carbon sinks.

#### SOURCES

- MARM. Sub-Directorate General for Air Quality and the Industrial Environment. Department for the Urban Environment.
- FEMP. Office for Co-ordination of Territorial Action and Sustainable Development.

#### FURTHER INFORMATION

- <http://www.redciudadesclima.es>
- <http://www.ecourbano.es>
- <http://www.femp.es>