

### Sources

Ministry of Territory and Sustainability

Secretariat for the Environment and Sustainability

Catalan Water Agency (ACA)

Waste Agency of Catalonia (ARC)

Meteorological Service of Catalonia

Ministry of Agriculture. Livestock. Fisheries. Food and Natural Environment

Ministry of Governance and Institutional Relations Municat

Statistical Institute of Catalonia

Forest Ownership Centre

Cover photo: Pedraforca. Cadí-Moixeró Natural Park

Author: Miquel Pons Bassas

The data are from 31 December of the year indicated

Management and coordination

Subdirectorate-General for Environmental Information and Education



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# Data of the environment in Catalonia

# 2015

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### 1. General data of environmental interest

### Grouping of municipalities by population intervals 2014

|                         | Number  | of municipalities |           | Town         |
|-------------------------|---------|-------------------|-----------|--------------|
| Intervals (inhabitants) | Partial | Accumulated%      | Partial   | Accumulated% |
| 0-1,000                 | 486     | 51.3              | 195,962   | 2.6          |
| 1,001-5,000             | 251     | 77.7              | 584,974   | 10.3         |
| 5,001-10,000            | 90      | 87.2              | 630,244   | 18.7         |
| 10,001-20,000           | 57      | 93.2              | 812,780   | 29.4         |
| 20,001-50,000           | 41      | 97.6              | 1,265,606 | 46.2         |
| 50,001-100,000          | 13      | 98.9              | 931,697   | 58.5         |
| més de 100,000          | 10      | 100.0             | 3,132,562 | 100.0        |
| Total                   | 948     |                   | 7,553,825 |              |

Source, Ministry of Governance and Institutional Relations. Municat

### Structure of economic activity 2014

| Sectors of activity | GAV <sup>1</sup> | % of the total | %<br>variation <sup>2</sup> | Employed <sup>3</sup> (thousands) | % of the total | %inter-annual variation |
|---------------------|------------------|----------------|-----------------------------|-----------------------------------|----------------|-------------------------|
| Agriculture         | 1,803            | 0.9            | 1                           | 44.1                              | 1.4            | -14.0                   |
| Industry and energ  | gy 38,936        | 20.2           | 1.5                         | 568.4                             | 18.6           | 2.0                     |
| Construction        | 9,833            | 5.1            | -1.6                        | 192.0                             | 6.3            | -1.5                    |
| Services            | 142,372          | 73.8           | 1.8                         | 2,243.6                           | 73.6           | 2.8                     |
| Total               | 192,944          | 100.0          |                             | 3,048.1                           | 100.0          | 2.1                     |

<sup>1</sup> In millions of current euros

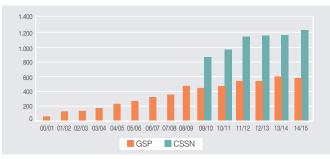
Source. Statistical Institute of Catalonia

### Number of vehicles (thousands of vehicles)

| Type of vehicle            | 2009      | 2010    | 2011    | 2012    | 2013    | 2014    |
|----------------------------|-----------|---------|---------|---------|---------|---------|
| Motorbikes                 | 645.5     | 666.7   | 685.6   | 696.8   | 706.1   | 723.3   |
| Cars                       | 3,346.6   | 3,355.7 | 3,368.1 | 3,359.7 | 3,326.9 | 3,309.6 |
| Buses: lorries and other   | 1,001.9   | 991.6   | 956.2   | 968.9   | 950.7   | 940.6   |
| Total                      | 4,994.0   | 5,014.0 | 5,009.9 | 5,025.4 | 4,983.7 | 4,973.5 |
| Vehicles/1:000 inhabitants | (1) 664.8 | 667.4   | 664.0   | 659.8   | 659:8   | 658.4   |

<sup>&</sup>lt;sup>1</sup> Official population figures for each period Source: Statistical Institute of Catalonia

### Education centres that belong to the Green Schools Programme



In 2009, the Catalan Schools for Sustainability Network (CSSN) was created

This network includes Green Schools and local networks that promote education programmes for sustainability aimed at education centres in Catalonia

GSP: Green Schools Programme

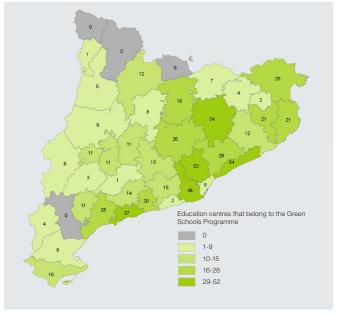
CSSN: Catalan Schools for Sustainability Network

Source: Environmental Education Service

<sup>&</sup>lt;sup>2</sup> Variation rate in volume

<sup>&</sup>lt;sup>a</sup> Source: Idescat, based on data from the Active Population Survey (INE). Fourth quarter of 2013 Note: The results in this table show economic activity classified according to the new Catalan Classification of Economic Activities 2009 (CCEA-2009)

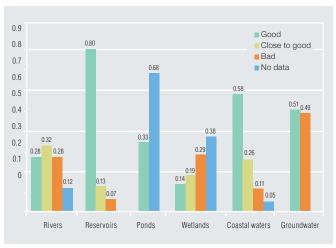
### Regional distribution of education centres that belong to the Green Schools Programme. 2014/2015



Source: Environmental Education Service

### 2. Water

# Status of water bodies. First cycle of the monitoring and control programme (2007-2012)



Note: The status 'close to good' in the general analysis of the status of water bodies means that only some quality factors. from the bottom of the hierarchy, are slightly outside the accepted limits, Although this is not a completely 'good' status. it can be considered very close to it

### Overall output of wastewater treatment plants in service\*

| 2  | 009   | 2010  | 2011  | 2012  | 2013  | 2014  |
|--|-------|-------|-------|-------|-------|-------|
| Number of treatment plants in service                      | 368   | 389   | 414   | 439   | 455   | 489   |
| Number of treatment plants analysed                        | 363   | 378   | 368   | 411   | 430   | 475   |
| Treated flow (1000 m3/day) <sup>1</sup>                    | 1,851 | 1,935 | 1,917 | 1,771 | 1,788 | 1,723 |
| Overall average efficiency of SM removal per month (%)     | 89    | 89    | 95    | 93    | 93    | -     |
| Overall average efficiency of BOD <sub>5</sub> removal (%) | 92    | 92    | 95    | 96    | 94    | 95    |
| Overall average efficiency of COD <sub>5</sub> removal (%) | 91    | 91    | 91    | 92    | 91    | 93    |

<sup>1</sup> In thousands

Sludge generated<sup>1</sup>

El Besòs plant

# Generation. treatment and destination of sludge generated in wastewater treatment plants

2009

144,951

Tonnes **2104** 

122,927

| Sludge treatment         2009         2010         2011         2012         2013           Composting'         37,464         42,278         39,166         40,057         24,525           External composting         219,573         136,248         124,147         115,272         170,125           Composting         257,037         178,526         163,313         155,329         194,651           Thermal drying         146,142         233,053         240,422         226,542         164,266           Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803  |                                  |         |         |         |         |         |         |
|---|----------------------------------|---------|---------|---------|---------|---------|---------|
| TOTAL GENERATED         548,223         535,419         537,166         535,335         527,924           Fresh matter           Sludge treatment         2009         2010         2011         2012         2013           Composting¹         37,464         42,278         39,166         40,057         24,525           External composting         219,573         136,248         124,147         115,272         170,125           Composting         257,037         178,526         163,313         155,329         194,651           Thermal drying         146,142         233,053         240,422         226,542         164,266           Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803 | El Prat plant                    | 53,821  | 55,146  | 52,831  | 56,193  | 53,475  | 52,746  |
| Sludge treatment         2009         2010         2011         2012         2013           Composting¹         37,464         42,278         39,166         40,057         24,525           External composting         219,573         136,248         124,147         115,272         170,125           Composting         257,037         178,526         163,313         155,329         194,651           Thermal drying         146,142         233,053         240,422         226,542         164,266           Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803  | Other plants                     | 349,451 | 335,645 | 347,473 | 344,648 | 340,843 | 345,170 |
| Sludge treatment         2009         2010         2011         2012         2013           Composting¹         37,464         42,278         39,166         40,057         24,525           External composting         219,573         136,248         124,147         115,272         170,125           Composting         257,037         178,526         163,313         155,329         194,651           Thermal drying         146,142         233,053         240,422         226,542         164,266           Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803  | TOTAL GENERATED                  | 548,223 | 535,419 | 537,166 | 535,335 | 527,924 | 520,843 |
| Composting¹         37,464         42,278         39,166         40,057         24,525           External composting         219,573         136,248         124,147         115,272         170,125           Composting         257,037         178,526         163,313         155,329         194,651           Thermal drying         146,142         233,053         240,422         226,542         164,266           Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803  | <sup>1</sup> Fresh matter        |         |         |         |         |         | Tonnes  |
| External composting         219,573         136,248         124,147         115,272         170,125           Composting         257,037         178,526         163,313         155,329         194,651           Thermal drying         146,142         233,053         240,422         226,542         164,266           Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803   | Sludge treatment                 | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    |
| Composting         257,037         178,526         163,313         155,329         194,651           Thermal drying         146,142         233,053         240,422         226,542         164,266           Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803   | Composting <sup>1</sup>          | 37,464  | 42,278  | 39,166  | 40,057  | 24,525  | 31,268  |
| Thermal drying         146,142         233,053         240,422         226,542         164,266           Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803  | External composting              | 219,573 | 136,248 | 124,147 | 115,272 | 170,125 | 209,406 |
| Other treatments*         7,108         3,981         12,369         16,674         20,916           Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803   | Composting                       | 257,037 | 178,526 | 163,313 | 155,329 | 194,651 | 240,674 |
| Digestion with no post-treatment         124,339         115,193         120,658         136,545         146,803  | Thermal drying                   | 146,142 | 233,053 | 240,422 | 226,542 | 164,266 | 43,879  |
|   | Other treatments*                | 7,108   | 3,981   | 12,369  | 16,674  | 20,916  | 49,653  |
| TOTAL SLUDGE TREATED 534,626 530,753 536,762 535,090 526,635  | Digestion with no post-treatment | 124,339 | 115,193 | 120,658 | 136,545 | 146,803 | 185,934 |
|   | TOTAL SLUDGE TREATED             | 534,626 | 530,753 | 536,762 | 535,090 | 526,635 | 520,140 |

2010

144.628

2011

136,862

2012

134,495

2013

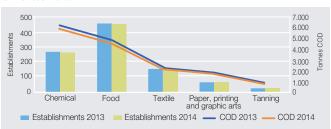
133,606

Tonnes

| Sludge disposed of by destination | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    |
|-----------------------------------|---------|---------|---------|---------|---------|---------|
| Use on soil                       | 373,037 | 287,157 | 267,462 | 280,849 | 343,794 | 412,363 |
| Restoration of quarries           |         | 171     | 3,138   | 3,853   | -       | -       |
| Controlled landfill               | 10,979  | 5,609   | 3,065   | 10,759  | 18,159  | 25,330  |
| Energy recovery                   | 26,823  | 41,322  | 58,402  | 46, 658 | 27,045  | 7,615   |
| TOTAL SLUDGE TREATED              | 410,839 | 334,259 | 332,067 | 342,118 | 388,999 | 445,307 |

Source: Catalan Water Agency (ACA)

# Pollutant load discharged by establishments (COD per year) by production sector to river basin or to WWTP<sup>1</sup>



|                          | 2013  | 2014   | Number of establishments |
|--------------------------|-------|--------|--------------------------|
| Other production sectors | 3,982 | 3, 698 | 952                      |

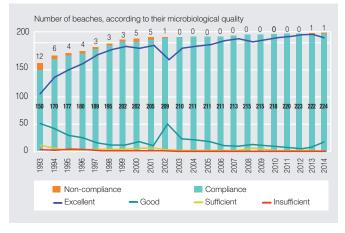
<sup>\*</sup> Currently, over 95% of the population of Catalonia is connected to urban wastewater treatment plants Source: Catalan Water Agency (ACA)

Catalan Water Agency (ACA)

<sup>\*</sup>Composting of contaminated material. hazardous treatment, etc

'According to the Declaration on the Use and Pollution of Water (DUCA), sections B (05,02) and C. D and E of CCEA, if 7000 m3/year are exceeded, if pollution exceeds the parameters indicated in the regulations, if non-discharged waters represent over 50% of the total consumption or if the establishment has its own treatment system, according to Decree 103/2000, of 6 March, amended by Decree 47/2005, of 22 March Source: Catalan Water Agency (ACA)

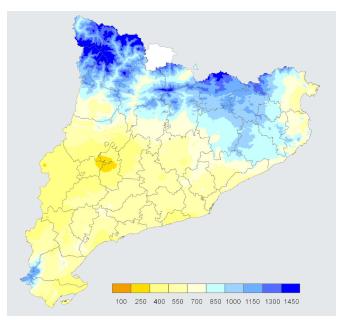
### Degree of compliance with Directive 2006/7/EC. beaches1



<sup>&</sup>lt;sup>1</sup> According to European Directive 2006/7/EC, from 2008 the category of 'sufficient' is included, and the categories of 'poor' and 'very poor' are replaced by insufficient Source: Catalan Water Agency (ACA)

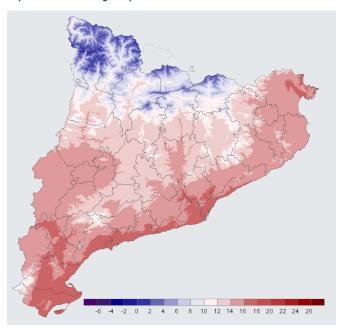
### 3. Atmospheric environment

### Map of precipitation in mm. Year 2014



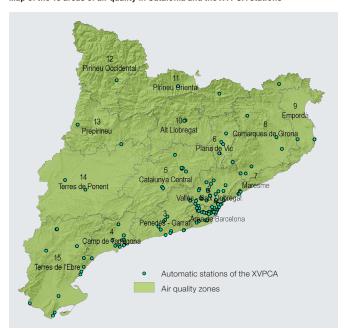
Source: Meteorological Service of Catalonia

Map of cumulative average temperature in C°. Year 2014



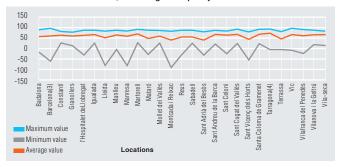
Source: Meteorological Service of Catalonia

Map of the 15 areas of air quality in Catalonia and the XVPCA stations



Source: Air Monitoring and Surveillance Service

### Distribution of ICQA1 values, according to air quality



<sup>&</sup>lt;sup>1</sup> The ICQA: Catalan Air Quality Index

NOTE:

The ICQA is calculated using the following emission levels carbon monoxide (CO) nitrogen dioxide (NO $_{g}$ ) sulphur dioxide (SO $_{g}$ ) ozone (O $_{g}$ ) and suspended particles (PM $_{g}$ ) and TSP)

The result is a value for the measuring station and day that represents different levels of quality

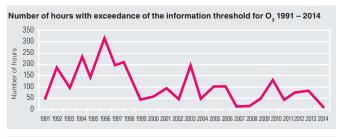
Source: Air Monitoring and Surveillance Service

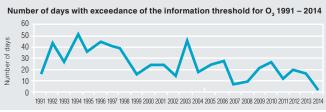
| 2010  | 2011                           | 2012   | 2013  | 2014  |  |  |  |
|---|--------------------------------|--|---|---|--|--|--|
|   |                                |  |   |   |  |  |  |
| 32  | 57                             | 57   | 70  | 77  |  |  |  |
| 100   | 100                            | 100  | 100   | 100   |  |  |  |
|   |                                |  |   |   |  |  |  |
| 0   | 0                              | 0  | 0   | 0   |  |  |  |
| 4   | 10                             | 10   | 3   | 2   |  |  |  |
| Number of hours with exceedance of threshold values. according to current regulations on O <sub>3</sub> |                                |  |   |   |  |  |  |
| 125   | 34                             | 71   | 79  | 5   |  |  |  |
| 28  | 14                             | 21   | 19  | 4   |  |  |  |
|   | 32<br>100<br>0<br>4<br>rrent r | 32 57<br>100 100<br>0 0<br>4 10<br>rrent regular<br>125 34 | 32 57 57<br>100 100 100<br>0 0 0<br>4 10 10<br>rent regulations 125 34 71 | 32 57 57 70 100 100 100 100  0 0 0 0 4 10 10 3  rent regulations on 0 <sub>3</sub> 125 34 71 79 |  |  |  |

<sup>&</sup>lt;sup>1</sup>Annual limit value

Source. Air Monitoring and Surveillance Service

# Graphs of the number of hours and days with exceedance of the information threshold for $\mathbf{O}_{\tau}$



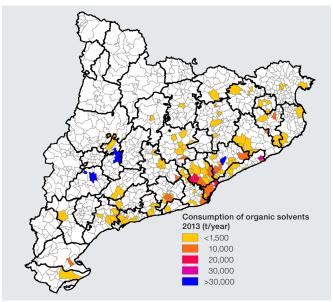


Source: Air Monitoring and Surveillance Service

<sup>&</sup>lt;sup>2</sup> Air quality zone

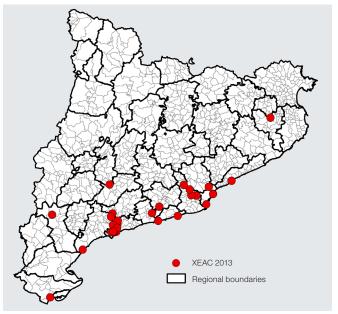
<sup>&</sup>lt;sup>3</sup>Limit value

# Consumption of organic solvents 2013 from industrial activities affected by the RD 117/2003



Source: Air Monitoring and Surveillance Service

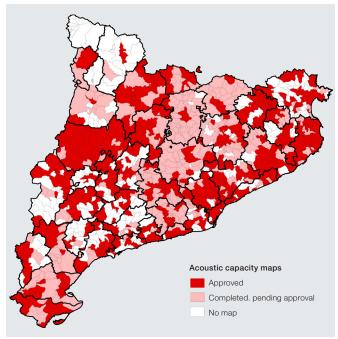
# Location $\mathsf{Map^t}$ of automatic sensors of the Network of atmospheric emissions of Catalonia (XEAC)



<sup>&</sup>lt;sup>1</sup>This map allows continuous monitoring in real time of the pollutants emitted by sources that have more impact on the atmosphere

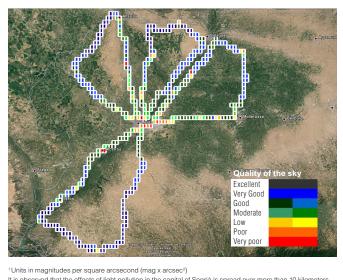
Source: Air Monitoring and Surveillance Service

### Status of municipalities. regarding acoustic capacity maps. Year 2014



Source: Light and Noise Pollution Prevention Service

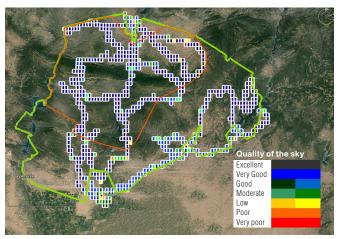
### Effects of urban lighting on the brightness of the night environment Map of the quality of the sky on the Plana de Lleida1



<sup>1</sup>Units in magnitudes per square arcsecond (mag x arcsec<sup>2</sup>) It is observed that the effects of light pollution in the capital of Segrià is spread over more than 10 kilometers

Source: Light and Noise Pollution Prevention Service

### Mapa de mesures1 del fons del cel a la zona del Montsec\*



<sup>&</sup>lt;sup>1</sup>Units in magnitudes per square arcsecond (mag x arcsec<sup>2</sup>)

### 4, Biodiversity and natural environment

### Diversity of species in Catalonia and Europe, Data from several years\*

|                             |                  | Catalonia      |         |            |                   | оре          |
|-----------------------------|------------------|----------------|---------|------------|-------------------|--------------|
|                             | Number           | of species     | %       |            | Number of species |              |
|                             | Known            | Likely minimum | Endemic | Threatened | Known Li          | kely minimum |
| Freshwater algae            | 2,163            | 4,000          | -       | -          | -                 | -            |
| Benthic marine algae        | 483              | 530            | 0       | -          | -                 | -            |
| Planktonic marine algae     | 574              | 700            | -       | -          | -                 | -            |
| Fungi                       | 5,681            | >10,000        | 0       | -          | -                 | -            |
| Lichen                      | 1,500            | 1,800          | -       | -          | 3,500             | 4,300        |
| Bryophytes                  | 802              | 900            | 0       | 5.1        | 1,687             | 1,800        |
| Vascular plants             | 3,600            | 3,700          | 3.5     | 5.5        | 12,500            | 14,000       |
| Non-arthropod invertebrates | 2,9881           | 5,000          | -       | -          | -                 | -            |
| Molluscs (inland waters)    | 312 <sup>2</sup> | -              | 8       | -          | 3,560             | -            |
| Arthropods                  | 12,5623          | -              | -       | -          | 90,190            | 140,000      |
| Fish (inland waters)        | 414              | -              | 0       | 835        | 211               | -            |
| Fish (marine)               | 456              | -              | -       | -          | -                 | -            |
| Amphibians                  | 16               | -              | 6       | 19         | 85                | -            |
| Reptiles (inland            | 34               | -              | 6       | 29         | 119               | -            |
| Reptiles (marine)           | 3                | -              | -       | 100        | 5                 | -            |
| Birds                       | 414              | -              | 0       | 18-20      | 761               | -            |
| Mammals (inland)            | 95               | -              | 0       | 15         | 231               | -            |
| Mammals (marine)            | 14               | -              | 0       | 20         | 50                | -            |
| TOTAL                       | 31,205           |                |         |            | 113,399           |              |

<sup>&</sup>lt;sup>1</sup> Data from the Catalan Biodiversity Database (BDBC), Figures are increasing annually, and it is predicted that there may be 5,000 species of non-arthropod invertebrates in the future

Source: Ministry of Agriculture, Livestock, Fisheries and Food. Directorate-General for Forests, Forestry Management Service

<sup>\*</sup>The green contour corresponds to the tourist destination and the red one to the Starlight reservation Source: Light and Noise Pollution Prevention Service

<sup>&</sup>lt;sup>2</sup> Included in non-arthropod invertebrates

<sup>&</sup>lt;sup>3</sup> Data from the Catalan Biodiversity Database (BDBC). Figures are increasing annually, and it is predicted that there may be around 15,000 species of arthropods in the future. The main group is that of hexapods (insects, Diplura, Collembola and Protura) with 11,148 species

<sup>&</sup>lt;sup>4</sup> 24 autochthonous and 17 introduced

<sup>&</sup>lt;sup>5</sup> Percentage of autochthonous threatened species

<sup>\*</sup> Latest data available

### Natural and semi-natural CORINE habitats in Catalonia and the threat level

| Habitats grouped by environments    | Number of habitats | Threatened | Percentage |
|-------------------------------------|--------------------|------------|------------|
| 1. Coastal and saline environment   | 60                 | 17         | 28.3       |
| 2. Inland waters                    | 62                 | 13         | 21.0       |
| 3. Shrubs and herbaceous vegetation | on 216             | 36         | 16.7       |
| 4. Forests                          | 111                | 32         | 28.8       |
| 5. Marshes and wetlands             | 39                 | 17         | 43.6       |
| 6. Rocks. scree and glaciers        | 35                 | 7          | 20.0       |
| Total                               | 523                | 122        | 23.3       |

Source: CARRERAS, J. and FERRÉ, A. 2008; revised in 2012. Report assessing the threat and conservation interest level of different types of habitats in Catalonia

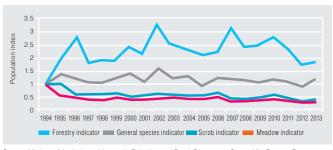
Methodological proposal and assessments. Government of Catalonia, Ministry of Territory and Sustainability. University of Barcelona. Unpublished

### Indicators for common birds



Source: Monitoring Common Birds of Catalonia (SOCC) project. Catalan Ornithological Institute (ICO)

### Indicators for butterflies



Source: Ministry of Agriculture, Livestock, Fisheries and Food. Directorate-General for Forests. Forestry Management Service

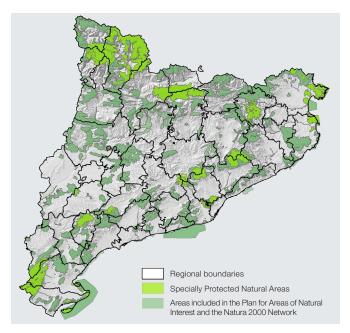
# Current situation of the Plan for Areas of Natural Interest (PEIN) and the Natura 2000 network

|                                   | Situation as at 31.12.2014 |                  |              |                                      |  |  |  |  |
|-----------------------------------|----------------------------|------------------|--------------|--------------------------------------|--|--|--|--|
|                                   |                            |                  | Surfa        | ace area                             |  |  |  |  |
|                                   | Number of areas            | Hectares<br>land | Hectares Sea | Percentage compared to the total (3) |  |  |  |  |
| PEIN                              | 184                        | 1,018,530        | 86,473       | 31.72                                |  |  |  |  |
| ENPE (1)                          | 103                        | 296,351          | 5,530        | 9.23                                 |  |  |  |  |
| Natural Park                      | 13                         | 237,645          | 5,530        | 7.40                                 |  |  |  |  |
| Natural Site of National Interest | 7                          | 12,032           | 20           | 0.37                                 |  |  |  |  |
| Undeveloped Nature Reserve        | 6                          | 1,829            | 20           | 0.06                                 |  |  |  |  |
| National Park                     | 1                          | 13,900           | -            | 0.43                                 |  |  |  |  |
| RNFS                              | 13                         | 2,022            | 143          | 0.06                                 |  |  |  |  |
| Natura 2000 network               | 8 ecological types (2)     | 979,678          | 85,512       | 30.51                                |  |  |  |  |

ENPE: Specially Protected Natural Area

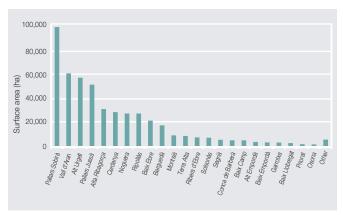
RNFS: Declared wildlife reserves, pending recognition for the purposes of the definitive delimitation of the areas Source: Natural Environment Planning Service

# Specially Protected Natural Areas (ENPE). Plan for Areas of Natural Interest (PEIN) and Natura 2000 Network. Year 2014



Source: Natural Environment Planning Service

### Total publicly owned forest surface area by region. Year 2014



Source. Ministry of Agriculture. Livestock. Fisheries. Food and Natural Environment, Directorate-General for the Natural Environment and Biodiversity, Forestry Management Service,

<sup>(1)</sup> Includes the partial nature reserves and the peripheral protection zones. All the ENPE (Specially Protected Natural Areas) are included within the PEIN

<sup>&</sup>lt;sup>(2)</sup> Areas of the Pyrenees, the Pre-Pyrenees, the agricultural plain, inland mountains, inland waters, coastal mountains, coastal wetlands and marine areas

<sup>(3)</sup> Total land

### Forest management of publicly owned forests\*

| Year | Number of publicly<br>owned forests managed<br>per year | Publicly managed area per year (ha) |
|------|---|-------------------------------------|
| 2001 | 24  | 7,269.69                            |
| 2002 | 4   | 11,126.94                           |
| 2003 | 29  | 18,335.36                           |
| 2004 | 76  | 51,703.46                           |
| 2005 | 126   | 64,493.52                           |
| 2006 | 32  | 14,397.12                           |
| 2007 | 56  | 38,549.89                           |
| 2008 | 64  | 47,001.88                           |
| 2009 | 71  | 34,762.29                           |
| 2010 | 30  | 17,286.87                           |
| 2011 | 36  | 12,429.60                           |
| 2012 | 73  | 24,919.12                           |
| 2013 | 24  | 10,296.00                           |
| 2014 | 12  | 4,918.29                            |

<sup>\*</sup> The data are not cumulative

Source: Ministry of Agriculture, Livestock, Fisheries and Food, Directorate-General for Forests, Forestry Management Service

| Existing management 2014         | 455 | 254,886.00 |
|----------------------------------|-----|------------|
| Forests with PEFC certification* | 56  | 30,337.63  |

<sup>\*</sup>Programme for Endorsement of Forest Certification

Source: Ministry of Agriculture, Livestock, Fisheries and Food. Directorate-General for Forests. Forestry Management Service

# Forest management on private estates\* Technical Forest Management and Improvement Plans

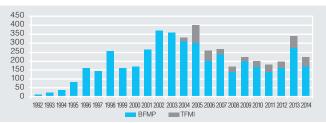
| Year | TFMIP<br>in effect | Managed<br>area (ha) with<br>efective TFMIP | Number of<br>TFMIP<br>approved by<br>year | Area managed<br>(ha) with<br>TFMIP<br>per year |
|------|--------------------|---|---|--|
| 2001 | 1,308              | 205,511.2                                   | 273                                       | 43,324.9                                       |
| 2002 | 1,679              | 259,989.2                                   | 377                                       | 56,336.6                                       |
| 2003 | 2,033              | 309,023.6                                   | 364                                       | 50,201.5                                       |
| 2004 | 2,312              | 348,520.5                                   | 312                                       | 44,875.7                                       |
| 2005 | 2,550              | 379,111.5                                   | 308                                       | 37,701.0                                       |
| 2006 | 2,601              | 389,527.2                                   | 203                                       | 30,433.9                                       |
| 2007 | 2,733              | 405,641.0                                   | 242                                       | 34,058.5                                       |
| 2008 | 2,787              | 413,248.3                                   | 150                                       | 20,052.4                                       |
| 2009 | 2,833              | 419,339.7                                   | 207                                       | 28,293.3                                       |
| 2010 | 2,893              | 424,458.8                                   | 173                                       | 27,892.7                                       |
| 2011 | 2,884              | 424,327.0                                   | 148                                       | 23,067.0                                       |
| 2012 | 2,893              | 428,407.5                                   | 160                                       | 24,274.0                                       |
| 2013 | 2,974              | 444,896.0                                   | 285                                       | 43,412.0                                       |
| 2014 | 2,991              | 452,476.0                                   | 172                                       | 27,329.0                                       |

### Basic Forest Management Plans (BFMP)

| Year                      | BFMP<br>in effect | Area managed<br>(ha) with<br>BFMP in effect | Number of BFMP approved per year | Area managed<br>(ha) with BFMP<br>per year |
|---------------------------|-------------------|---|----------------------------------|--|
| 2005                      | 113               | 1,322.0                                     | 95                               | 1,066.9                                    |
| 2006                      | 180               | 2,061.6                                     | 67                               | 739.6                                      |
| 2007                      | 199               | 2,323.7                                     | 19                               | 262.1                                      |
| 2008                      | 218               | 2567.0                                      | 19                               | 243.3                                      |
| 2009                      | 231               | 2,761.5                                     | 14                               | 218.8                                      |
| 2010                      | 260               | 3,154.2                                     | 29                               | 392.7                                      |
| 2011                      | 290               | 3,452.0                                     | 31                               | 320.0                                      |
| 2012                      | 331               | 3,941.4                                     | 41                               | 496.0                                      |
| 2013                      | 395               | 4,743.0                                     | 64                               | 802.0                                      |
| 2014                      | 450               | 5,529.0                                     | 56                               | 796.0                                      |
| Total TFMIP and BFMP 2014 | 3,441             | 458,005.0                                   | 228                              | 28,125.0                                   |

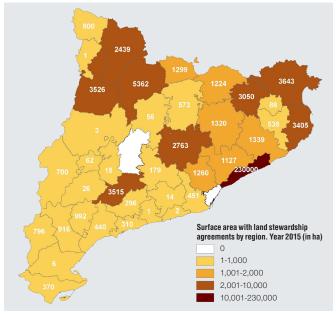
<sup>\*</sup>The data are not cumulative, they show annual totals Source: Forest Ownership Centre

### Annual distribution of TFMIP and BFMP approved for 1991-2014



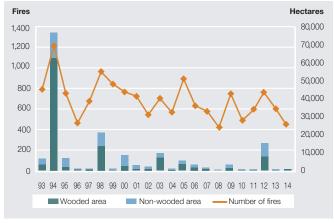
Source: Forest Ownership Centre

### Map of surface area of land stewardship agreements



Source: Natural Environment Planning Service

### Evolution of number of fires and affected area



Source: Ministry of Agriculture, Livestock, Fisheries and Food. Directorate-General for Forests. Forest Fire Prevention Service

### 5. Climate change

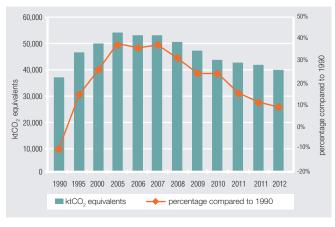
### Total GHG emissions in Catalonia\*

ktCO<sub>2</sub> equivalent<sup>1</sup>

| Sectors                           | 1990   | 1995   | 2000   | 2005   | 2010   | 2011   | 2012   |
|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Energy processing                 | 26,078 | 33,974 | 34,604 | 43,460 | 36,427 | 34,122 | 32,631 |
| Industrial processes (non-energy) | 4,930  | 7,407  | 9,616  | 5,917  | 4,169  | 3,800  | 3,589  |
| Solvents and other products       | 271    | 287    | 330    | 321    | 280    | 253    | 227    |
| Agriculture                       | 3,841  | 3,854  | 4,290  | 3,925  | 3,894  | 3,983  | 4,107  |
| Waste processing and disposal     | 1,432  | 1,815  | 2,202  | 2,281  | 2,643  | 2,627  | 2,586  |
| Total                             | 36,551 | 47,337 | 51,041 | 55,903 | 47,412 | 44,784 | 43,139 |

<sup>\*</sup>Emissions data from an inventory of 7 IPCC sectors

### Trend of total GHG emissions in Catalonia



Source: Catalan Office for Climate Change

Unlike Spanish inventories, this does not take into account land-use changes and the forestry sector 'ktCO<sub>a</sub> eq = thousands of tonnes

| Type of activity                | Numbers       |                        | Tonnes CO <sub>2 eq</sub> |                  |  |  |  |
|---------------------------------|---------------|------------------------|---------------------------|------------------|--|--|--|
|                                 | of facilities | Emissions reported [E] | Rights<br>reporteds [A]   | Balance<br>[A-E] |  |  |  |
| Combustion sector               | 71            | 3,935,493              | 2,820,491                 | -1,115,002       |  |  |  |
| 1.b Cogeneration                | 44            | 2,590,682              | 1,542,352                 | -1,048,330       |  |  |  |
| 1.c Other combustion facilities | 27            | 1,344,811              | 1,278,139                 | -66,672          |  |  |  |
| Electrical energy               | 7             | 2,270,655              | 26,253                    | -2,244,402       |  |  |  |
| 1.a Electricity generation      | 7             | 2,270,655              | 26,253                    | -2,244,402       |  |  |  |
| Industrial sector               | 53            | 7,009,933              | 6,521,910                 | -488,023         |  |  |  |
| 2. Refineries                   | 2             | 2,292,272              | 1,733,743                 | -558,529         |  |  |  |
| 5. Cast iron/steel              | 1             | 178,735                | 260,705                   | 81,970           |  |  |  |
| 6. Ferrous metals               | 1             | 23,275                 | 30,882                    | 7,607            |  |  |  |
| 9. Non-ferrous metals           | 1             | 24,454                 | 23,378                    | -1,076           |  |  |  |
| 10. Cement                      | 5             | 2,980,696              | 2,735,031                 | -245,665         |  |  |  |
| 11. Lime                        | 4             | 225,090                | 298,780                   | 73,690           |  |  |  |
| 12. Glass                       | 7             | 287,704                | 234,345                   | -53,359          |  |  |  |
| 13. Ceramics                    | 9             | 53,869                 | 79,794                    | 25,925           |  |  |  |
| 16. Paper pulp                  | 3             | 195,154                | 68,846                    | -126,308         |  |  |  |
| 17. Paper and packaging board   | 15            | 235,192                | 293,405                   | 58,213           |  |  |  |
| 19. Nitric acid                 | 1             | 26,878                 | 0                         | -26,878          |  |  |  |
| 23. Crude organic materials     | 3             | 143,443                | 390,015                   | 246,572          |  |  |  |
| 24. Hydrogen and syngas         | 1             | 343,171                | 372,986                   | 29,815           |  |  |  |
| Total                           | 131           | 13,216,081             | 9,368,654                 | -3,847,427       |  |  |  |

### Emissions, designations and number of facilities. 2005-2014



Source: Activity Monitoring and Information Service

### 6. Sustainable production and consumption

### Number of companies with voluntary environmental protection systems

| Issue of licenses with the quality sign* | 2009  | 2010  | 2011  | 2012 | 2013 | 2014 |
|--|-------|-------|-------|------|------|------|
| Production companies                     | 48    | 50    | 46    | 50   | 41   | 35   |
| Service companies                        | 197   | 193   | 187   | 134  | 141  | 164  |
| Number of products                       | 1,276 | 1,203 | 1,387 | 825  | 822  | 823  |
| Number of service establishments         | 218   | 213   | 189   | 122  | 141  | 157  |
| Total number of companies awarded        | 245   | 243   | 233   | 184  | 182  | 199  |



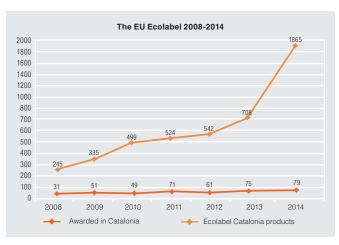
Source: Environmental Certification Service

| The EMAS* register      | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------------------------|------|------|------|------|------|------|
| Number of organizations | 249  | 255  | 295  | 295  | 289  | 283  |
| Number of centres       | 331  | 355  | 416  | 415  | 417  | 369  |



\*Eco-Management and Audit Scheme Source: Environmental Certification Service

| The European Union Ecolabel | 2009 | 2010 | 2011 | 2012 | 2013 | 2014  |
|-----------------------------|------|------|------|------|------|-------|
| Ecolabel Catalonia          | 51   | 49   | 71   | 61   | 75   | 79    |
| Ecolabel Catalonia products | 335  | 499  | 524  | 542  | 708  | 1,865 |



### 7. Environmental assessment

### Number of impact assessment statements issued 1

|  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|------|------|------|------|------|------|
| Ports                                      | 0    | 1    | 0    | 0    | 0    | 0    |
| Linear infrastructure                      | 26   | 18   | 3    | 6    | 5    | 7    |
| Reservoirs and water infrastructure        | 5    | 1    | 1    | 1    | 2    | 2    |
| Industrial activities                      | 120  | 137  | 149  | 118  | 100  | 92   |
| Changes in the use of the land             | 5    | 6    | 3    | 1    | 2    | 1    |
| Impact on areas of natural interest (PEIN) | 2    | 14   | 6    | 7    | 1    | 2    |
| Total                                      | 158  | 177  | 162  | 133  | 110  | 104  |

<sup>&</sup>lt;sup>1</sup> According to the date of approval by the Environmental Panel Source: Projects Service

### Number of decisions on environmental reports for plans and programmes

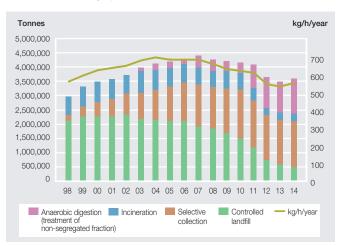
| Actions  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|------|------|------|------|------|------|
| Partial territorial plans and territorial master plans | 1    | 3    | 0    | 0    | 0    | 0    |
| Urban master plans                                     | 12   | 9    | 1    | 0    | 0    | 2    |
| Municipal urban development plans (POUM)               | 37   | 75   | 45   | 31   | 27   | 30   |
| Changes to general urban development planning          | 61   | 40   | 38   | 25   | 26   | 26   |
| Derived urban development planning                     | 12   | 19   | 22   | 16   | 26   | 15   |
| Mobility plans   | 1    | 3    | 2    | 7    | 5    | 7    |
| Other sector plans and programmes                      | 1    | 7    | 0    | 3    | 1    | 51   |
| Total  | 125  | 156  | 108  | 82   | 85   | 85   |

Source: Plans and Programmes Service

### 8. Waste

### Final destination of municipal waste

Municipal waste generation 2014: 3,650,848.96 tonnes Generation coefficient (kg/h/year) 2014: 485.55



Municipal waste is considered waste from domestic activities, shops, offices or services whose nature or composition is similar to that of domestic waste

We have used the official population data for each year, published by Idescat

### Selective collection 2014

| Waste                               | Tonnes<br>Ollection 2014 | Tonnes collection 2013 | % Total compared to MW <sup>1</sup> | Variation % compared to 2013 |
|-------------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------|
| Home or community compostin         | ig 5,970.90              | 5,857.20               | 0.16%                               | 1.94%                        |
| Organic fraction                    | 375,261.94               | 373,827.85             | 10.28%                              | 0.38%                        |
| Pruning-gardening                   | 109,171.38               | 102,208.58             | 2.99%                               | 6.81%                        |
| Paper and packaging board           | 271,427.48               | 262,427.50             | 7.43%                               | 3.43%                        |
| Glass                               | 162,447.16               | 158,240.87             | 4.45%                               | 2.66%                        |
| Light packaging                     | 129,956.36               | 127,574.39             | 3.56%                               | 1.87%                        |
| Bulky and wood                      | 175,235.32               | 161,536.39             | 4.8%                                | 8.48%                        |
| RAEES <sup>2</sup>                  | 25,377.28                | 17,786.28              | 0.69%                               | 42.68%                       |
| Scrap metal                         | 5,471.96                 | 5,337.78               | 0.15%                               | 2.51%                        |
| Vegetable oils                      | 1,047.40                 | 1,168.42               | 0.03%                               | -10.36%                      |
| Textile                             | 5,976.91                 | 5,876.55               | 0.16%                               | 1.71%                        |
| Rubble                              | 112,534.38               | 117,796.64             | 3.08%                               | -4.47%                       |
| REPQ <sup>3</sup>                   | 2,169.35                 | 2,170.73               | 0.06%                               | -0.06%                       |
| Other selective collection          | 17,952.28                | 20,006.66              | 0.49%                               | -10.27%                      |
| Total gross<br>selective collection | 1,400,000.12             | 1,361,815.84           | 38.33%                              | 2.80%                        |

<sup>1</sup> Municipal waste

### Carbon footprint of municipal waste in Catalonia, Treatment and transport

|                                    | 2011                                  | 2012                                  | 2013                                  |
|------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
|                                    | t CO <sub>2</sub> eq/year             | t CO <sub>2</sub> eq/year             | t CO <sub>2</sub> eq/year             |
| Total emissions generated          | 1,648,195                             | 1,558,560                             | 1,440,861                             |
| Total emissions avoided            | -753,169                              | -769,167                              | -730,369                              |
| Total carbon footprint             | 895,026                               | 789,393                               | 710,492                               |
|                                    | kg CO <sub>2</sub> eq/inhabitant/year | kg CO <sub>2</sub> eq/inhabitant/year | kg CO <sub>2</sub> eq/inhabitant/year |
| Emissions generated per inhabitant | 219                                   | 206                                   | 191                                   |
| Emissions avoided per inhabitant   | -100                                  | -102                                  | -97                                   |
| Carbon footprint per inhabitant    | 119                                   | 104                                   | 94                                    |
|                                    | kg CO <sub>2</sub> eq/tonne/year      | kg CO <sub>2</sub> eq/tonne/year      | kg CO <sub>2</sub> eq/tonne/year      |
| Emissions generated per inhabitant | 407                                   | 418                                   | 401                                   |
| Emissions avoided per inhabitant   | -186                                  | -206                                  | -204                                  |
| Carbon footprint per inhabitant    | 221                                   | 212                                   | 197                                   |

 $CO_2$  eq: This is a universal measure to describe how much global warming each greenhouse gas may cause. It is used to assess the environmental impacts of the emission (or to prevent the emission) of various greenhouse gases

<sup>&</sup>lt;sup>2</sup>Register of Electronic and Electrical Equipment

<sup>&</sup>lt;sup>3</sup> Small quantities of hazardous waste (produced by workshops and small-scale industries)

Source: Waste Agency of Catalonia (ARC)

# Industrial waste declaration by industrial activity (CCEA 2009) according to the 2014 declaration\*

| Description of industrial activity (CCAE 2009)                                     | Total* | %     |
|--|--------|-------|
| Food, drink and tobacco industries   | 924    | 25.6% |
| Metallurgy: manufacture of basic iron, steel, ferroalloy and other metal products  | 771    | 21.4% |
| Chemical industries, pharmaceutical products, rubber and plastic materials         | 609    | 16.9% |
| Paper-related industries, graphic arts and reproduction of recorded media          | 466    | 12.9% |
| Manufacture of machinery, computer, electrical, electronic and transport equipment | 356    | 9.9%  |
| Manufacture of other non-metallic mineral products                                 | 147    | 4.1%  |
| Other services   | 87     | 2.4%  |
| Textiles, footwear and hide  | 59     | 1.6%  |
| Other < 1.5 %  | 188    | 5.2%  |
| Total  | 3,607  | 100   |

<sup>\*</sup>All data are in tonnes

The data may be slightly skewed due to the use of rounded-up decimals in calculations Source: Waste Agency of Catalonia (ARC)

### Types of treatment of industrial waste declared1 in 2014\*

(tonnes)

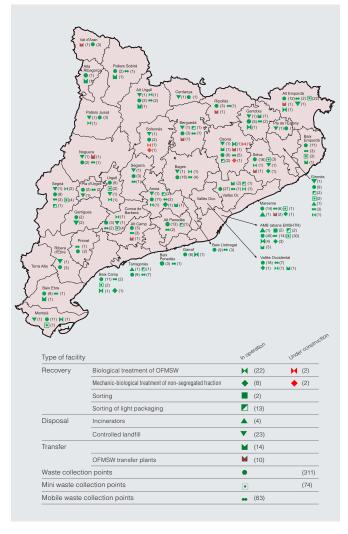
| Type of treatment         | Hazardous | Non-hazardous | Total |
|---------------------------|-----------|---------------|-------|
| Recovery <sup>2</sup>     | 228       | 2,621         | 2,849 |
| Physicochemical treatment | 100       | 60            | 160   |
| Controlled disposal       | 51        | 495           | 546   |
| Incineration              | 32        | 2             | 34    |
| Storage                   | 1         | 10            | 11    |
| Insufficient management   | 0         | 1             | 1     |
| Unspecified management    | 1         | 7             | 8     |
| Total*                    | 413       | 3,196         | 3,609 |

<sup>&</sup>lt;sup>1</sup> Does not include WWTP sludge

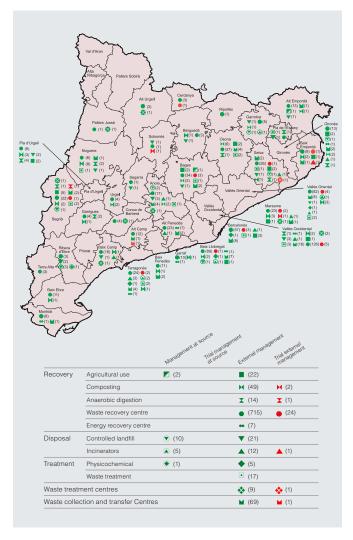
<sup>&</sup>lt;sup>2</sup> Includes recovery at source, by-products, external and energy

<sup>\*</sup> The data may be slightly skewed due to the use of rounded-up decimals in calculations Source: Waste Agency of Catalonia (ARC)

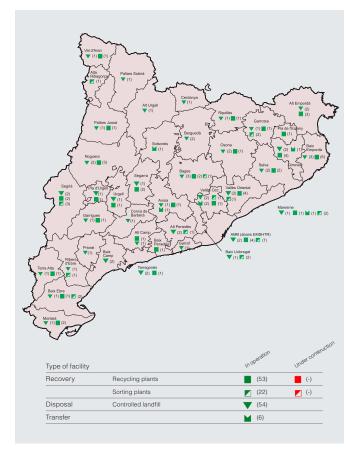
# Facilities in operation and under construction for the management of municipal waste. Year 2014



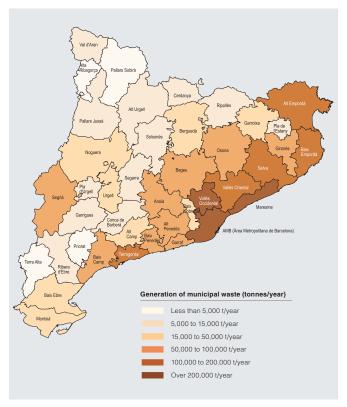
### Facilities in operation and on trial for the management of industrial waste. Year 2014



### Facilities in operation for the management of rubble and other construction waste. Year 2014



### Generation of municipal waste by region. Year 2014



### Industrial waste declared by region. Year 2014

