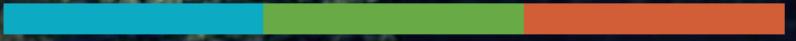
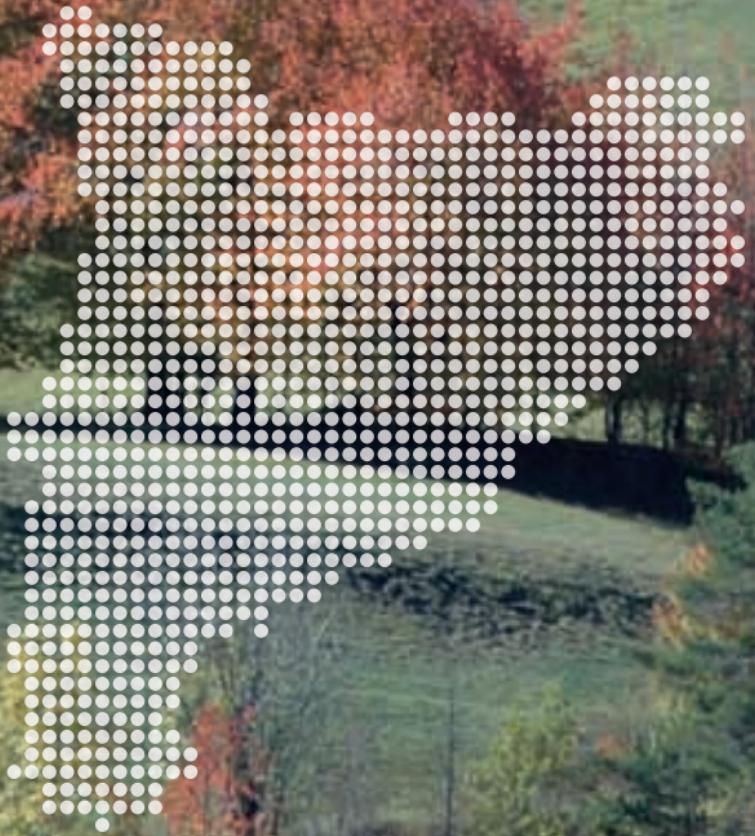


# Data of the environment in Catalonia



2010



Generalitat de Catalunya  
**Department of the Environment  
and Housing**



# Data of the environment in Catalonia



## 2010

<b>1. Interesting environmental data</b>	<b>4</b>
<b>2. Water</b>	<b>6</b>
<b>3. Climate and atmosphere</b>	<b>8</b>
<b>4. Biodiversity</b>	<b>9</b>
<b>5. Climate change</b>	<b>13</b>
<b>6. Quality and environmental evaluation</b>	<b>14</b>
<b>7. Waste</b>	<b>15</b>

## 1. Interesting environmental data

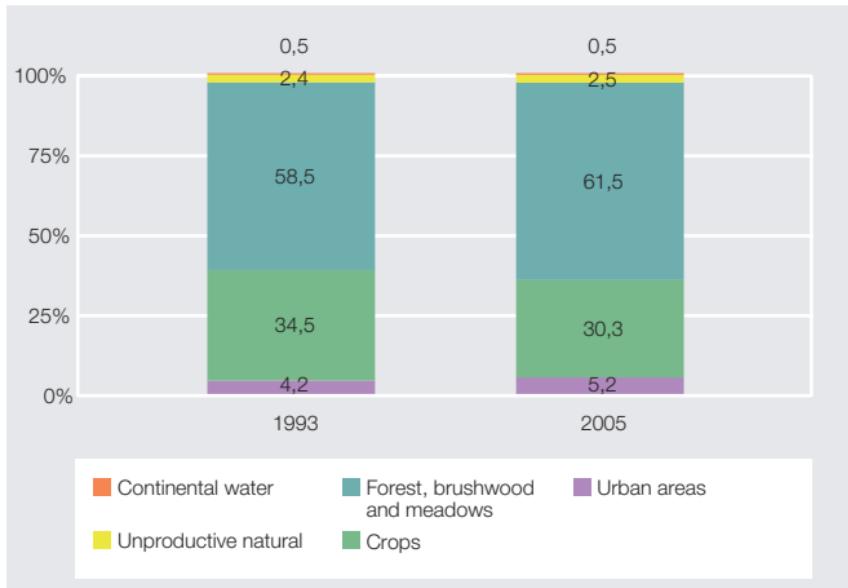
### Groups of municipalities according to intervals of population 2009

Intervals (inhabitants)	Municipalities		Population	
	Partial	Accumulated %	Partial	Accumulated %
0 - 1.000	480	50,7	192.362	2,6
1.001 - 5.000	259	78,1	592.447	10,5
5.001 - 10.000	87	87,3	602.711	18,6
10.001 -20.000	56	93,2	784.210	29,1
20.001 -50.000	41	97,6	1.242.636	45,7
50.001 -100.000	13	98,9	920.699	58,0
more than 100.000	10	100,0	3.140.355	100,0
<b>Total</b>	<b>946</b>		<b>7.475.420</b>	

### Geographical distribution of population 2009

Municipalities	Municipalities	Population (inh.)	Area (km <sup>2</sup> )	Density (inh./km <sup>2</sup> )
Mountain	294	332.191	14.650,0	23
Coast	70	3.234.737	2.112,2	1.531
Rest of municipalities	582	3.908.492	15.133,0	258
<b>Total</b>	<b>946</b>	<b>7.475.420</b>	<b>31.895,3</b>	<b>234</b>

### Land use



Source: Land cover map 3<sup>rd</sup> edition.

### Structure of economic activity 2009

Activity sectors	VAB pm <sup>1</sup>	% of the total	% variation <sup>2</sup>	Employed (thousands) <sup>3</sup>	% of the total	% variation
Agriculture	1.783	0,9	6,4	58,4	1,9	-10,3
Industry	36.071	18,7	-12,9	611,6	19,5	12,7
Construction	18.727	9,7	-6,6	299,5	9,5	18,6
Services	136.516	70,7	-1,2	2.166,8	69,1	4,4
<b>Total</b>	<b>193.097</b>	<b>100,0</b>	<b>-4,0</b>	<b>3.136,3</b>	<b>100,0</b>	<b>-7,7</b>

Data: Idescat and Spanish Regional Accounts, National Statistics Institute (INE). Base 2000.

<sup>1</sup> Million euros

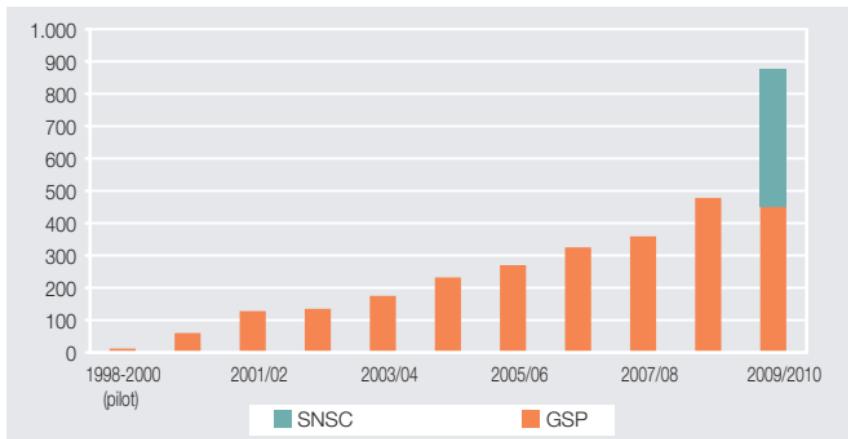
<sup>2</sup> Referring to the previous year, at constant prices. Estimation

<sup>3</sup> INE. Survey of the active population (Data available in June 2010)

**Evolution of the number of motor vehicles**

(in thousands of vehicles)

<b>Vehicles</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Motorbikes	486	536	587	624
Cars	3.181	3.243	3.333	3.370
Buses, lorries and other	906	953	1.002	1.011
<b>Total</b>	<b>4.573</b>	<b>4.732</b>	<b>4.922</b>	<b>5.005</b>
<b>Vehicles/1.000 inh.<sup>1</sup></b>	<b>654</b>	<b>663</b>	<b>683</b>	<b>670</b>

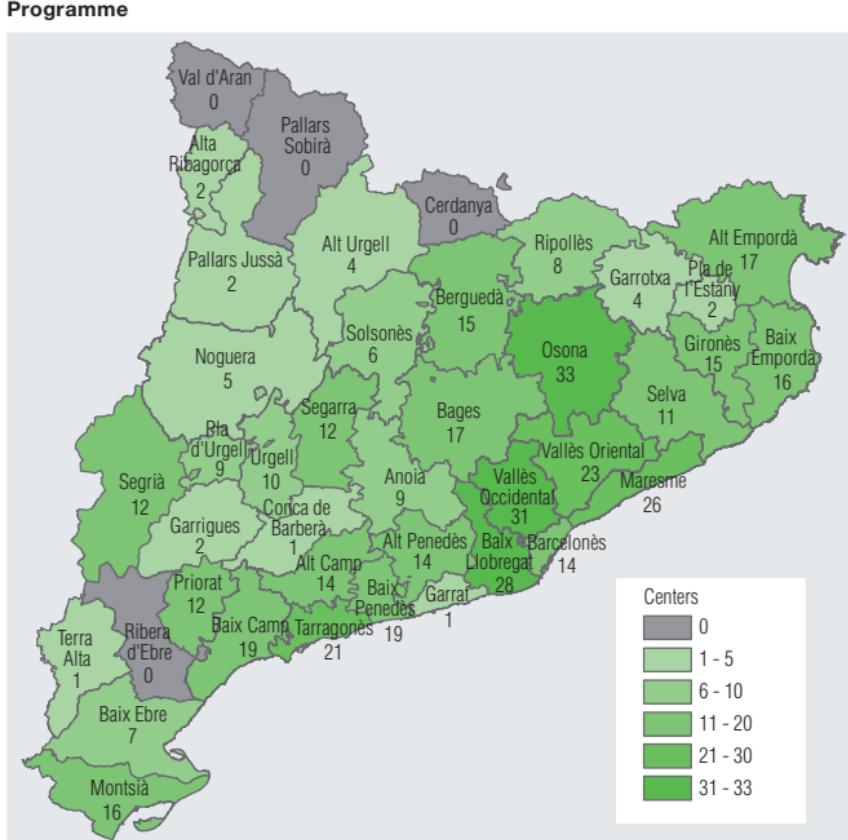
<sup>1</sup> Official population figures in each period.**Educational establishments in the Green Schools Programme**

From 2009 the School's net for the sustainability of Catalonia (SNSC) was created.

This net includes Green schools and local nets that promote education programs for the sustainability addressed to the educational centers of Catalonia

GSP: Green Schools Programme

SNSC: School's Net for the sustainability of Catalonia

**Local distribution of the educational establishments in the Green Schools Programme**

## 2. Water

### Urban wastewater treatment plants 2009

Plant	Number of plants	Treatment capacity		Total capacity in p.e. <sup>1</sup>	
		(m <sup>3</sup> /day)	%	(inh.-e)	%
Biological	331	2.787.910	97,63	15.441.691	98,05
Lagooning	33	26.115	0,91	140.228	0,89
Primary treatments	4	1.100	0,04	-	-
UWWTP	368				
Pre-treatments	5	40.430	1,42	167.591	1,06
<b>Total</b>	<b>373</b>	<b>2.855.555</b>	<b>100</b>	<b>15.749.510</b>	<b>100</b>

<sup>1</sup> p.e.: population equivalent.

<sup>1</sup> Population equivalent is the unit used to determine pollutant load. This concept is included in Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment.

### Global output of plants in service

	2005	2006	2007	2008	2009
Number of plants in service	328	330	335	340	368
Number of plants analysed	320	326	330	336	363
Treated flow (m <sup>3</sup> /day)	1.851.074	1.879.482	1.805.558	1.816.881	1.850.704
Global average output of SM elimination (%)	89	87	88	90	89
Global average output of BOD <sub>5</sub> elimination (%)	91	90	91	92	92
Global average output of COD <sub>5</sub> elimination (%)		83	84	86	91

### Generation, treatment development and destination of sewage sludge

Sludge generated <sup>1</sup>	2005	2006	2007	2008	2009
El Besòs plant	126.072	129.654	148.907	60.865	144.951
El Prat plant	47.241	53.371	57.951	145.232	53.821
Other plants	366.040	364.263	386.732	378.492	349.451
<b>TOTAL</b>	<b>539.353</b>	<b>547.288</b>	<b>593.590</b>	<b>584.589</b>	<b>548.224</b>

<sup>1</sup> Fresh material

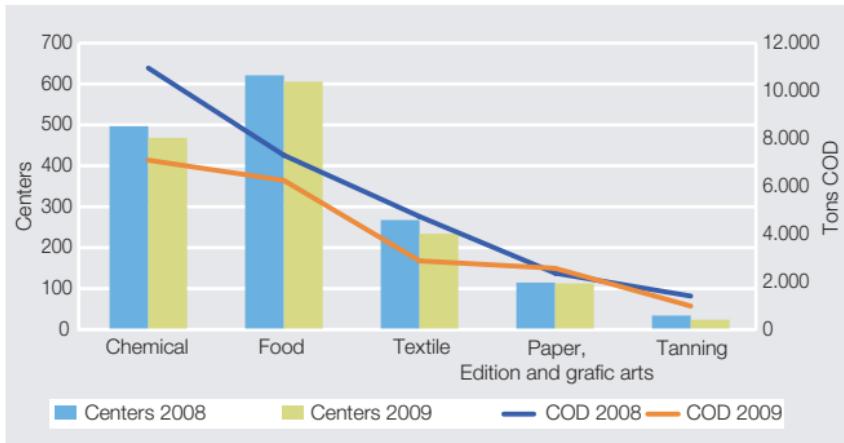
Sludge treatment	2005	2006	2007	2008	2009
Composting ACA <sup>1</sup>	43.658	35.662	39.990	42.091	37.464
Composting external	135.614	167.503	258.136	245.384	219.573
Composting	179.272	35.662	298.126	287.475	257.037
Thermal Drying	202.732	182.379	109.624	123.404	146.142
Other treatments <sup>2</sup>	-	-	14.300	14.665	7.108
Digestion without post-treatment	108.625	135.016	141.609	137.610	124.339
<b>TOTAL</b>	<b>490.629</b>	<b>520.560</b>	<b>563.659</b>	<b>563.154</b>	<b>534.626</b>

<sup>1</sup> Catalan Water Agency

<sup>2</sup> Grey composting, special treatment.

Sludge disposed of according to destination	2005	2006	2007	2008	2009
Agriculture and gardening	272.124	332.489	427.417	421.282	373.037
Quarry restoration	0	527	677	215	
Controlled deposit	70.509	45.703	42.834	24.170	10.979
Other	0	0	0	0	0
Energy recovery	23.765	9.703	7.767	15.738	26.823
<b>TOTAL</b>	<b>366.398</b>	<b>388.422</b>	<b>478.695</b>	<b>461.404</b>	<b>410.840</b>

### Evolution of pollutant load discharged by industrial centers<sup>1</sup>

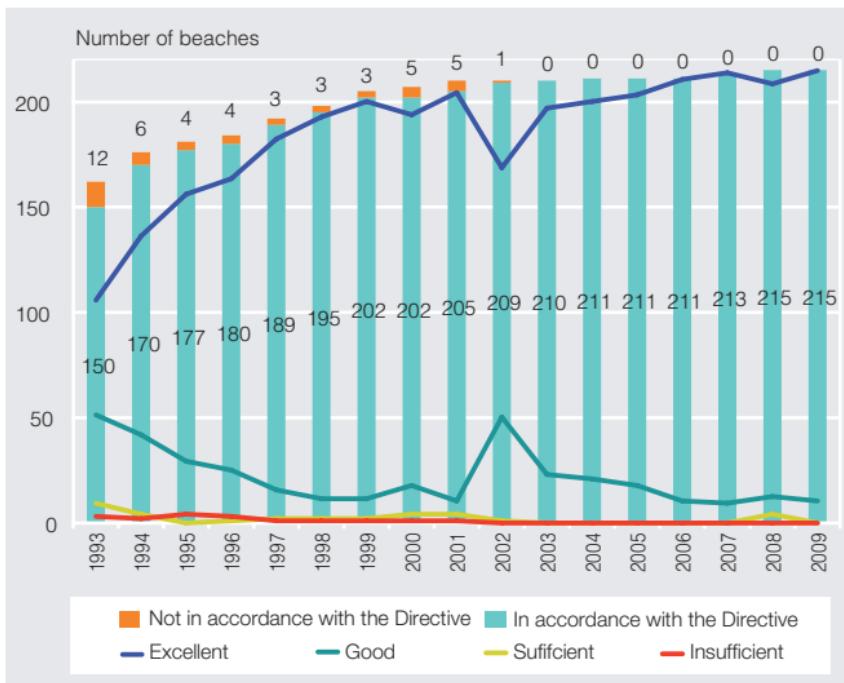


<sup>1</sup> According to the Declaration of use and pollution of water (DUCA): sections B (05.02) and C, D and E of CCAE, it exceeds the parameters indicated in the regulation, if 7,000 m<sup>3</sup>/year are exceeded. In this case, when non-discharged water represents more than 50% of total consumption, systems of treatment should be available in accordance with Decree 103/2000, of 6th March, modified by Decree 47/2005, of 22nd March.

### Water quality and quantity control points

	2005	2006	2007	2008	2009
<b>Quality control networks</b>	<b>5.670</b>	<b>6.273</b>	<b>7.105</b>	<b>6.528</b>	<b>8.645</b>
Surface water	226	225	532	512	538
Groundwater	1.362	1.567	1.840	1.851	3.422
Marine water	4.083	4.481	4.733	4.165	4.685
<b>Quantity control networks</b>	<b>803</b>	<b>370</b>	<b>396</b>	<b>427</b>	<b>464</b>
Groundwater	405	370	396	427	464
Surface water	398	—	—	—	—

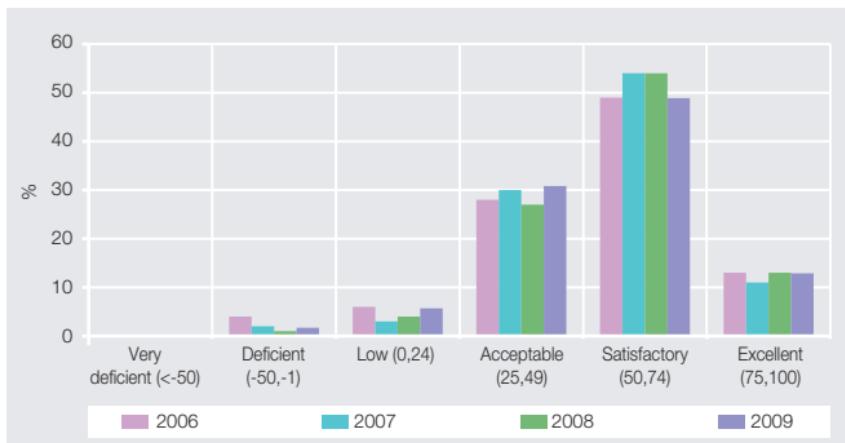
### Degree of compliance with Directive 76/160/EEC<sup>1</sup>



<sup>1</sup> In accordance with the European Directive 2006/7/CE, the category of sufficient has been added from 2008 and the categories of poor and very poor have been changed into insufficient.

### 3. Climate and Atmosphere

Distribution of ICQA<sup>1</sup> values according to air quality level



<sup>1</sup> ICQA was calculated using levels of: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>) and suspended particulate matter PM10 and PST.

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

#### Control of ozone immission levels

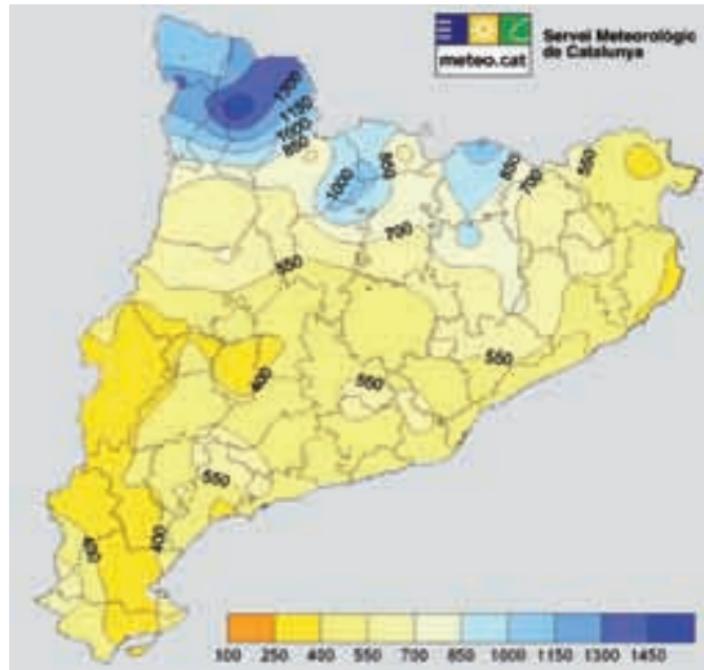
	2005	2006	2007	2008	2009
Total number of sensors	47	50	53	52	58
Stations exceeding population alert threshold <sup>1</sup>	1	1	0	0	0
Stations exceeding population information threshold <sup>2</sup>	20	20	9	8	13
Time value exceeding population information threshold (units)	111	110	15	14	60
<b>Average level ( g/m<sup>3</sup>)</b>	<b>61</b>	<b>47</b>	<b>48</b>	<b>46</b>	<b>50</b>
<b>Maximum level ( g/m<sup>3</sup>)</b>	<b>246</b>	<b>250</b>	<b>233</b>	<b>219</b>	<b>233</b>

<sup>1</sup> 240 g/m<sup>3</sup> in one hour (RD 1796/2003).

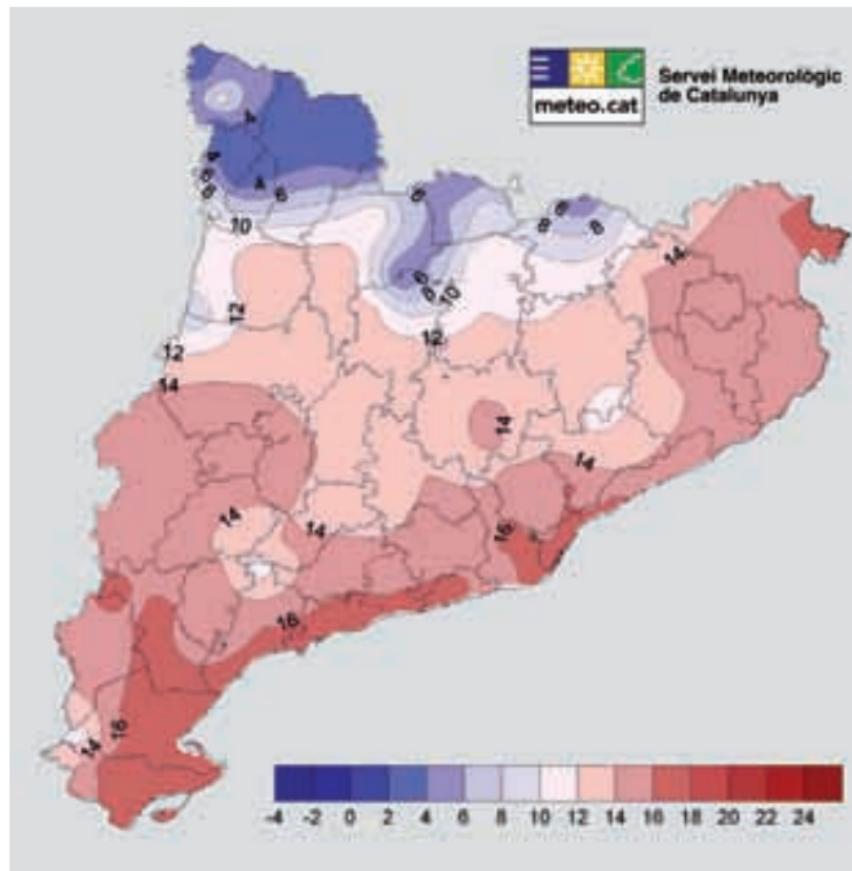
<sup>2</sup> 180 g/m<sup>3</sup> in one hour (RD 1796/2003).

#### Automatic meteorological stations

Map of annual precipitation in mm. 2009



Map of annual medium temperature in °C. 2009



## 4. Biodiversity

Current situation of Plan for Areas of Natural Interest (PEIN) and Natura 2000 Network

	Situation on 31.12.2009			Percentage in respect to the total
	Number of areas	Terrestrial hectares	Marine hectares	
<b>PEIN</b>	166	977.108	77.819	30,44
<b>NASP<sup>1</sup></b>	79	277.892	3.532	
<b>Natural Park</b>	11	224.494		
<b>Natural Site of National Interest</b>	7	12.022		
<b>Nature Reserve</b>	5	1.844	20	
<b>National Park</b>	1	13.900		
 <b>NWR</b>	 13	 2.059		
 <b>Natura 2000 network</b>	 8 ecological types <sup>2</sup>	 976.393	 85.142	 30,41 <sup>3</sup>

<sup>1</sup> Including nature wildlife reserves

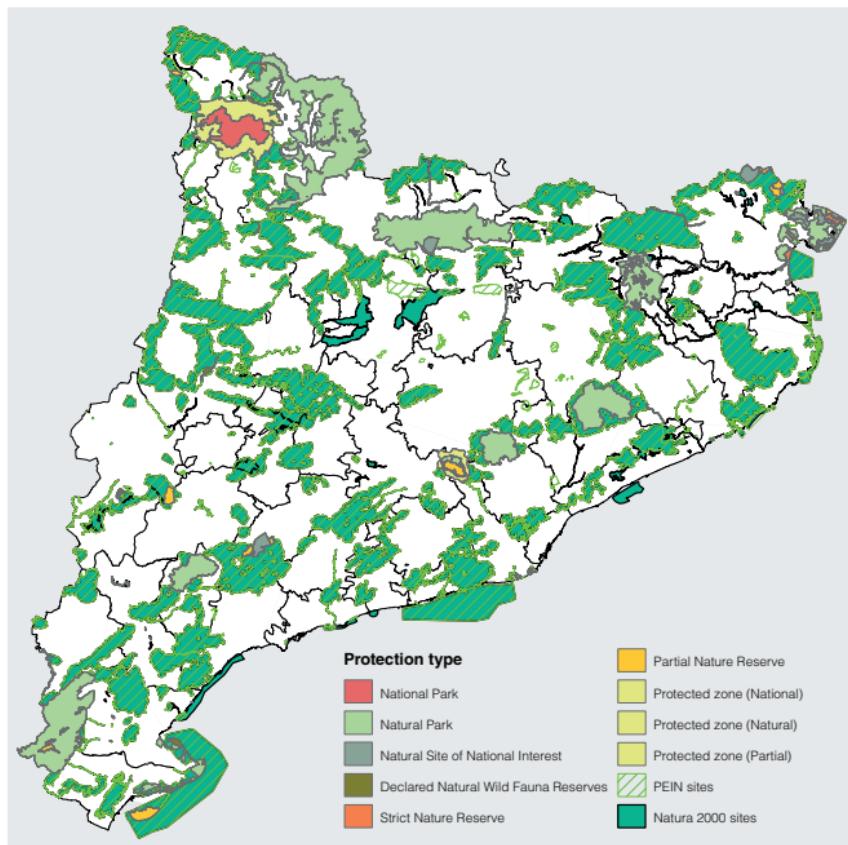
<sup>2</sup> Pyrenean sites – Pre-Pyrenean sites – Agricultural plain – Inland mountain – Inland water – Coastal mountain – Coastal marshes and marine areas.

<sup>3</sup> Total terrestrial.

NASP: Natural Area of Special Protection.

NWR: Declared Nature Wildlife Reserve, pending approval with regard to definitive demarcation.

**Natural areas of special protection, Plan for areas of natural interest (PEIN) and Natura 2000 network**



**Parks of Catalonia 2009**

	Year of creation	Terrestrial hectares <sup>1</sup>	Marine hectares	Observ. (protection areas,etc)	Visitors <sup>2</sup>
<b>National Parks</b>					
Aigüestortes i Estany de Sant Maurici	1955	139		26.079,24	268.800
<b>Parcs naturals</b>					
El Cadi-Moixeró	1983	41060			430.000
Zona Volcànica de la Garrotxa	1982	15310			600.000
Aiguamolls de l'Empordà	1983	4731			188.000
Delta de l'Ebre	1983	8445	564,43		919.000
Montserrat	1987	3500		4.261,20	–
El Montseny	1987	17126			–
Sant Llorenç del Munt i Serra de l'Obac	1987	9410			–
Cap de Creus	1998	10770	3.062,75		435.000
Els Ports	2001	35050			142.000
El Montsant	2002	9242			68.700
L'Alt Pirineu	2003	69850			150.000

<sup>1</sup> Some ENPE areas can be included in other protection classifications, such as nature reserves.

<sup>2</sup> Estimated figures.

### Hunting and fishing areas. Year 2009

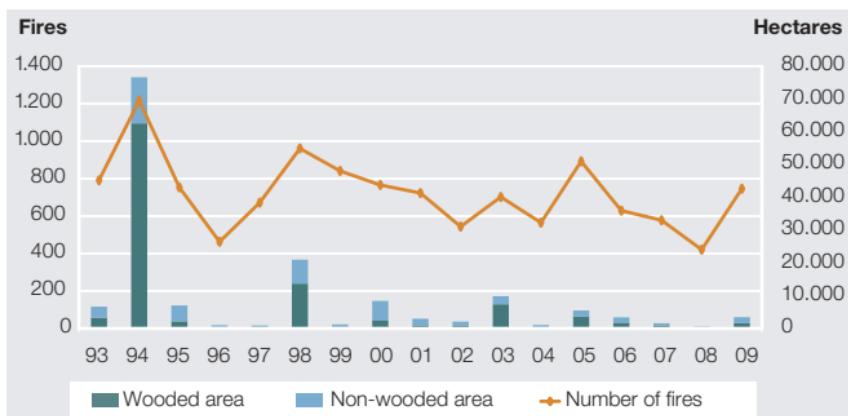
	Number of areas	Area hectares
<b>Authorised hunting/fishing</b>		
National hunting reserves	7	239.283
Controlled hunting zones	16	81.738,04
Controlled fishing zones	303	1.441 <sup>1</sup> <sup>2</sup>
Free catch-and-release fishing zones	44	127 <sup>2</sup>
<b>Protected areas</b>		
Wildlife preserves	84	11.032,89
Hunting preserves	2	355
Refugis de pesca	233 <sup>3</sup>	1340

<sup>1</sup> Area in km.

<sup>2</sup> Surface calculated without the Val d'Aran

<sup>3</sup> In the Val d'Aran are fishing preserves not delimited by controlled fishing zones

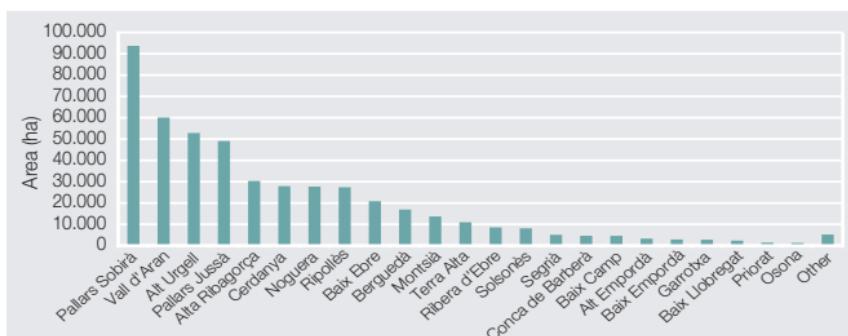
### Evolution of number of fires and affected area



### Evolution of the planning of public forests

Year	Number of valid forest plans	Number of plans approved per year	Area of public forests planned per year (hectares)	Accumulated area of planned public forests (hectares)
2001	40	23	6.860,27	32.129,47
2002	44	4	8.735,07	40.864,54
2003	73	29	18.327,19	59.191,73
2004	146	73	47.221,56	106.413,29
2005	273	127	64.888,48	171.301,77
2006	305	32	13.471,39	184.773,16
2007	360	55	37.091,76	221.864,92
2008	18	58	46.287,34	268.152,26
<b>2009</b>	<b>487</b>	<b>69</b>	<b>30.817,80</b>	<b>298.970,06</b>

### Area of public forests by counties. Year 2009



**Evolution of the forest planning of private property (technical plans PTGMF and simple plans PSGF)**

Year	PTGMF valid	Area under organisation with PTGMF (hectares)	Number of PTGMF approved per year	Area under organisation with PTGMF (hectares) per year
2000	1.047	164.113,7	171	28.925,1
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
<b>2009</b>	<b>2.833</b>	<b>419.339,70</b>	<b>207</b>	<b>28.293,3</b>

Year	PSGF valid	Area under organisation with PSGF (hectares)	Number of PSGF approved per year	Area under organisation with PSGF (hectares) per year
2004	18	255,1	18	255,1
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	2567,03	19	243,3
<b>2009</b>	<b>231</b>	<b>2.761,50</b>	<b>14</b>	<b>218,8</b>
<b>Total PTGMF and PSGF 2009</b>	<b>3.064</b>	<b>422.101,20</b>	<b>221</b>	<b>28.512,10</b>

## 5. Climate change

Total greenhouse gas emissions in Catalonia. From the base year to 2007

Sectors	Base year <sup>1</sup>	ktCO <sub>2</sub> equivalents					
		1990	1995	2000	2005	2006	2007
Energy processing	26.301	26.301	31.941	34.947	44.206	42.558	42.813
Industrial processes (non-energy)	7.169	5.019	7.472	9.706	5.991	5.914	5.953
Use of solvents and other products	245	245	226	285	265	270	296
Agriculture	5.061	5.061	5.254	5.956	5.591	5.509	5.584
Waste treatment and disposal	1.737	1.737	2.344	2.846	3.171	3.294	3.413
<b>Total Percentage increase compared to base year</b>	<b>40.513</b>	<b>38.363</b>	<b>47.237</b>	<b>53.740</b>	<b>59.224</b>	<b>57.545</b>	<b>58.059</b>
	<b>0%</b>	<b>-5%</b>	<b>17%</b>	<b>33%</b>	<b>46%</b>	<b>42%</b>	<b>43%</b>

Emissions data from inventory of 7 IPCC sectors.

<sup>1</sup> Base year emissions: emissions for 1990 in regard to CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O, and emissions for 1995 in regard to HFC, PFC and SF<sub>6</sub>.

The base year is the method used to calculate compliance with Kyoto and, therefore, a reference point. The other reference point is the average emissions of gases CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC and SF<sub>6</sub> in the Kyoto Protocol compliance period (2008 - 2012).

Unlike Spanish inventories, this does not take into account the land-use changes and silviculture sector

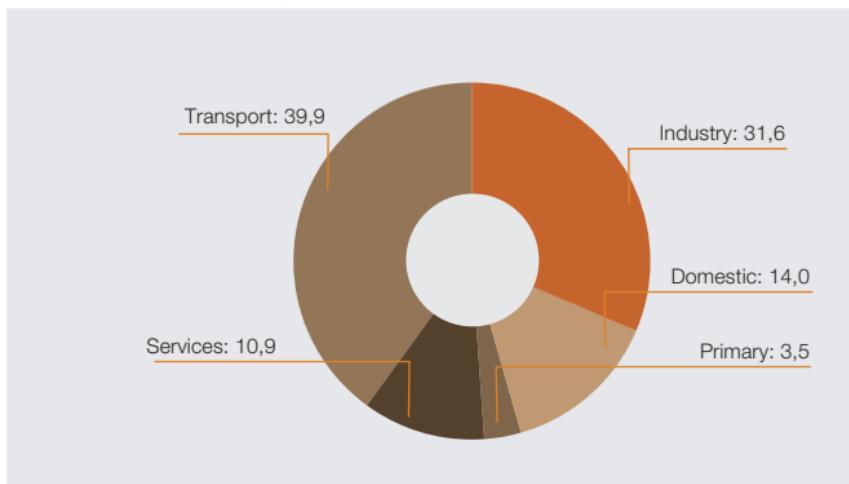
### Trend of total greenhouse gas emissions in Catalonia



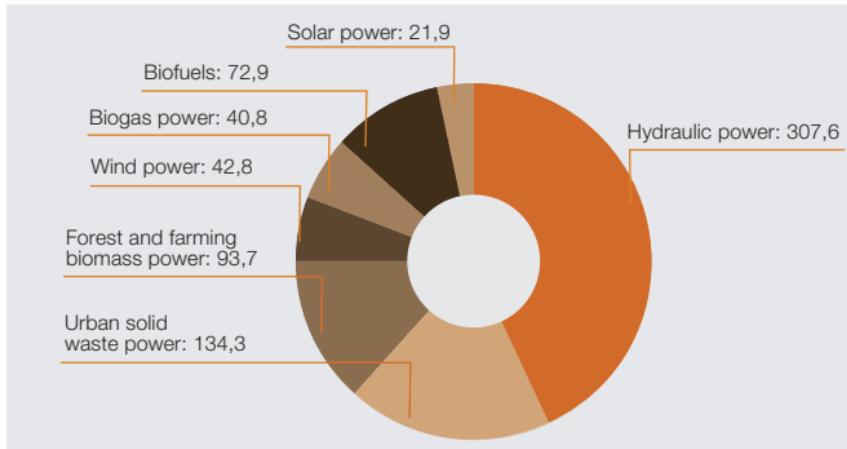
### Primary energy production and consumption 2007

Energy	Production		Consumption	
	ktoe	%	ktoe	%
Oil	140,2	2,2	12.933,8	48,2
Nuclear	5.280,3	84,2	5.280,3	19,7
Natural gas	1,4	0,0	6.682,6	24,9
Coal	65,4	1,0	303,9	1,1
Balance of electric exchanges	0,0		825,7	3,1
Non-renewable industrial waste	71,4	1,1	71,4	0,3
Renewable energy	714,0	11,4	742,5	2,8
<i>Hydraulic power</i>	307,6	4,9	307,6	1,1
<i>Urban solid waste power</i>	134,3	2,1	134,3	0,5
<i>Forest and farming biomass power</i>	93,7	1,5	93,7	0,3
<i>Wind power</i>	42,8	0,7	42,8	0,2
<i>Biogas power</i>	40,8	0,7	40,8	0,2
<i>Biofuels</i>	72,9	1,2	101,5	0,4
<i>Solar power</i>	21,9	0,3	21,9	0,1
<b>Total</b>	<b>6.272,6</b>	<b>100,0</b>	<b>26.840,3</b>	<b>100,0</b>

### Final consumption of energy in 2007



### Production of primary energy from renewable sources in 2007



## 6. Quality and environmental evaluation

### Number of companies with voluntary systems to protect the environment System

System	2005	2006	2007	2008	2009
Ecolabel	7	11	17	37	51
Emblem of environmental quality guarantee					
Products	848	1.100	1.144	1.304	1.281
Services	147	165	188	220	221
Eco-Management and Audit Scheme (EMAS)	159	190	206	232	249

### Open cast mining according to its degree of restoration 2009

Degree of restoration	Dossier Number	Surface areas	
		Hectares	%
Briefed and/or authorized open cast mining when it is not evident that they have pioneered the exploitation	370	13	1.328
Open cast mining in exploitation and with no restoration started	815	28	5.249
Open cast mining in exploitation with integrated restoration	345	13	3.930
Restored open cast mining in guarantee period	296	11	1.479
Restored open cast mining with a returned deposit (467 activities) or of PWR <sup>1</sup> (459 activities)	1057	35	2.030
<b>Totals</b>	<b>2.883</b>	<b>100</b>	<b>14.016</b>
			<b>100</b>

<sup>1</sup> Public Water Resources.

### Number of declarations of environmental impact issued<sup>1</sup>

Actions	2005	2006	2007	2008	2009
Harbours	3	0	0	0	0
Linear infrastructures	6	9	23	15	26
Basins	1	1	3	7	5
Industrial activities	78	133	184	112	120
Soil use transformation	4	3	0	5	5
Affecting PEIN areas	5	9	5	6	2
<b>Total</b>	<b>97</b>	<b>155</b>	<b>215</b>	<b>145</b>	<b>158</b>

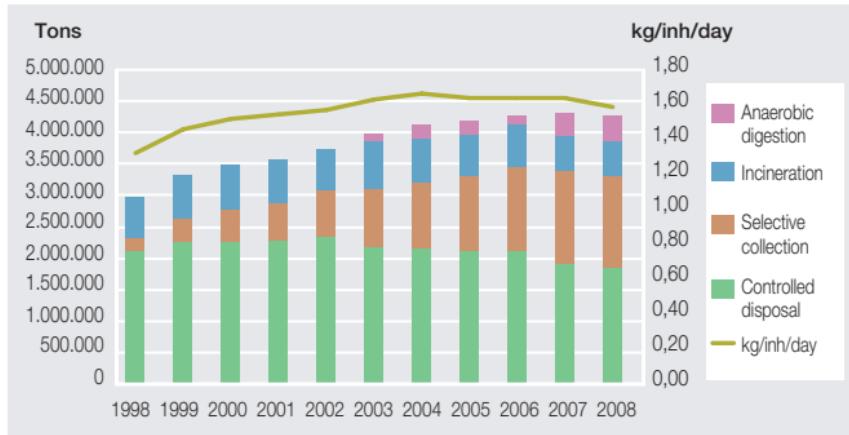
<sup>1</sup> According to the date of the environmental report.

## 7. Waste

### Final destination of municipal waste

Municipal waste production 2008: 4.278037,13 tones

Production coefficient (kg/h./dia) 2008: 1,59



Municipal waste is waste coming from domestic activities and shops, offices or services, activities whose nature or composition are comparable to domestic waste.

Based on the official population figures published by IDECAT.

### Selective collection 2008

Waste	Tons	Generation coefficient (kg/inhab./yr) <sup>1</sup>
Glass	204.358,5	27,8
Paper and cardboard	411.317,5	55,9
Light packaging	116.239,3	15,8
Organic matter <sup>2</sup>	315.804,2	42,9
Batteries	603,4	0,1
Medicines	611,8	0,1
Large packaging	132.082,3	17,9
Pruning-gardening	86.684,6	11,8
Textile	7.989,5	1,1
Collection centres <sup>3</sup>	196.365,4	
<b>Total selective collection</b>	<b>1.472.057</b>	

<sup>1</sup> Official population in 2008 published by IDECAT.

<sup>2</sup> Population only considered where the selective collection is well-established.

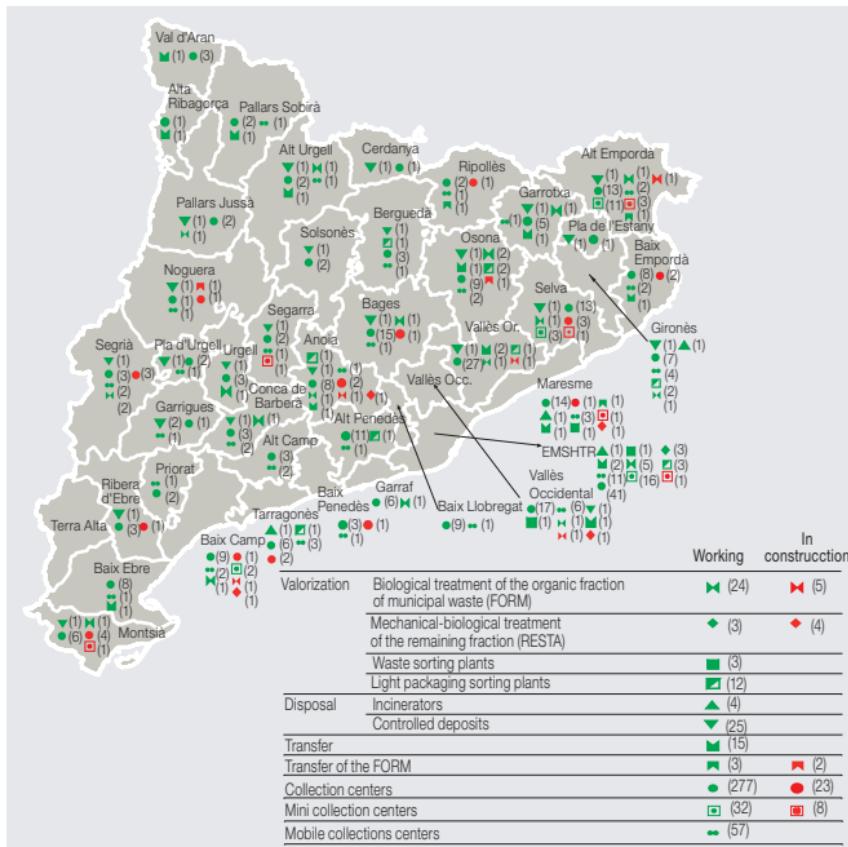
<sup>3</sup> Except glass, paper, large packaging, pruning and gardening and batteries collected in a collection centre.

### Treatment of declared industrial waste<sup>1</sup>. Year 2008

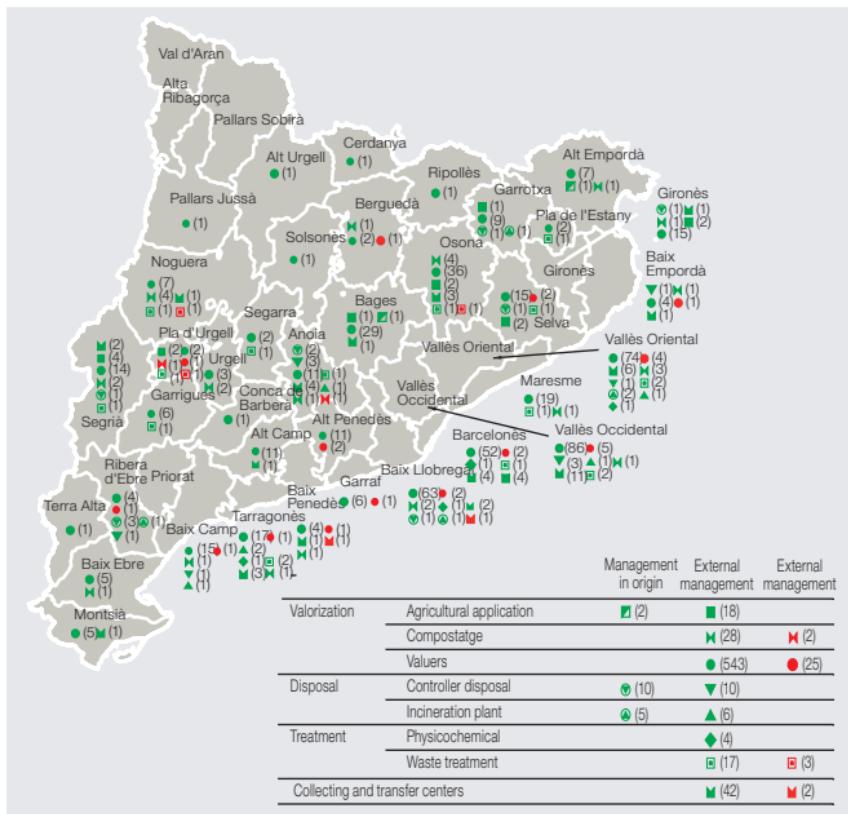
Type of treatment	Hazardous	Non-hazardous	Total
Recovery	350.876	3.418.177	3.769.053
Sub-product	23.039	311.120	334.159
Storage	5.325	21.509	26.834
Physicochemical-biological plant	89.790	243.783	333.573
Controlled disposal	63.513	932.236	995.749
Incineration	105.023	14.331	119.354
Insufficient management	1.154	5.175	6.329
No specified management	5.505	29.832	35.337
<b>Total</b>	<b>644.225</b>	<b>4.976.163</b>	<b>5.620.388</b>

<sup>1</sup> Industries and wastewater treatment plants.

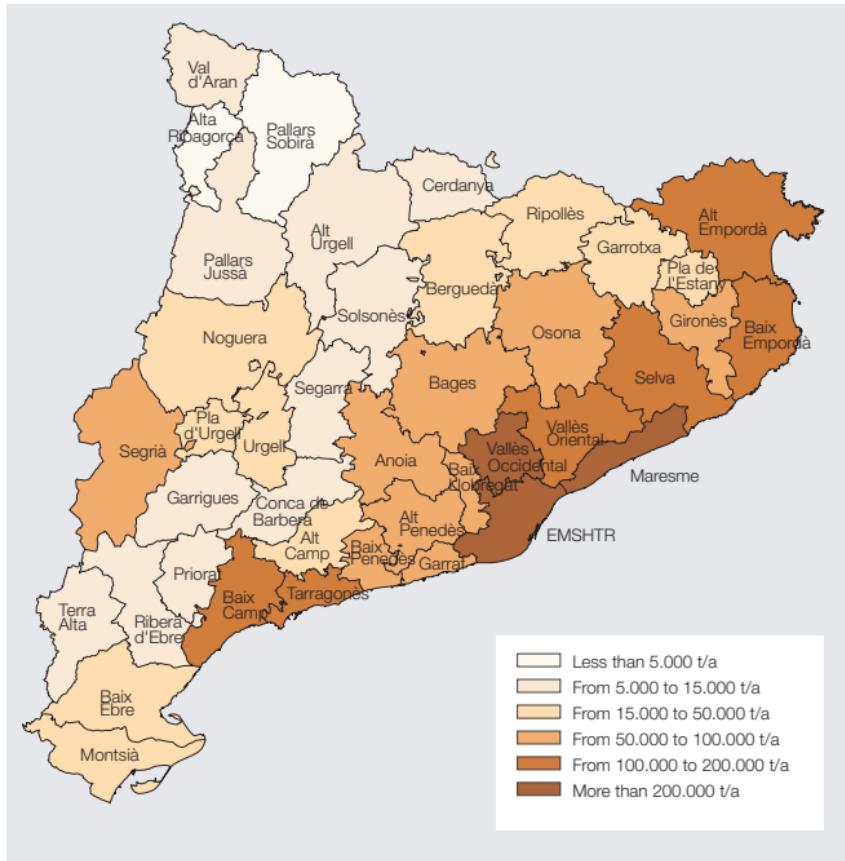
**Installations working and in construction for the management of municipal waste in Catalonia. Year 2008**



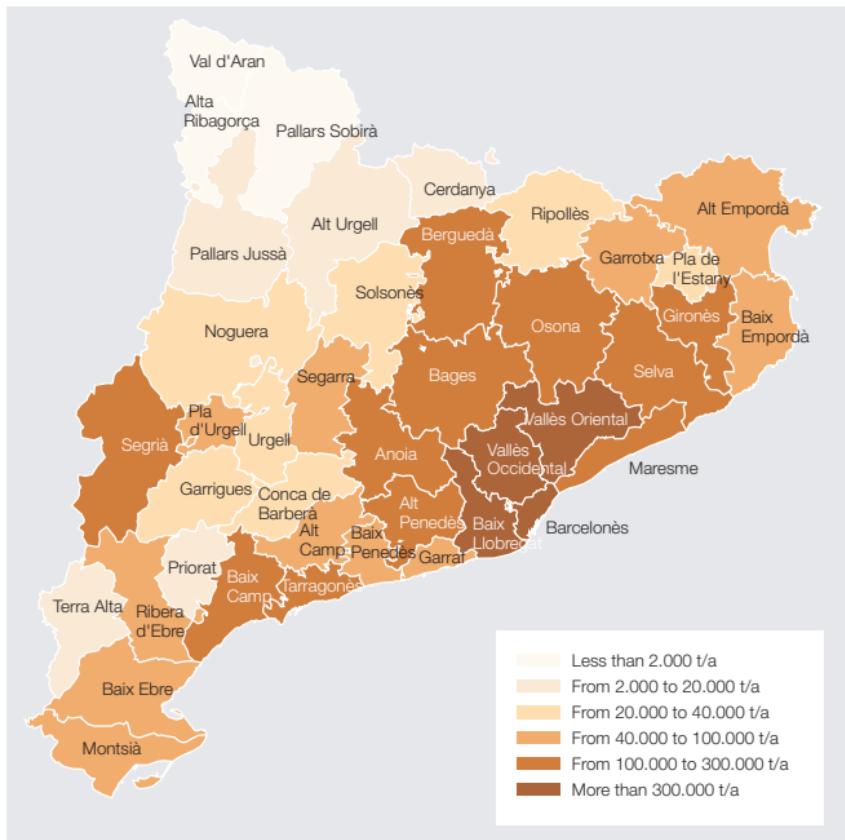
**Installations working and on trial for the management of industrial waste in Catalonia. Year 2008**



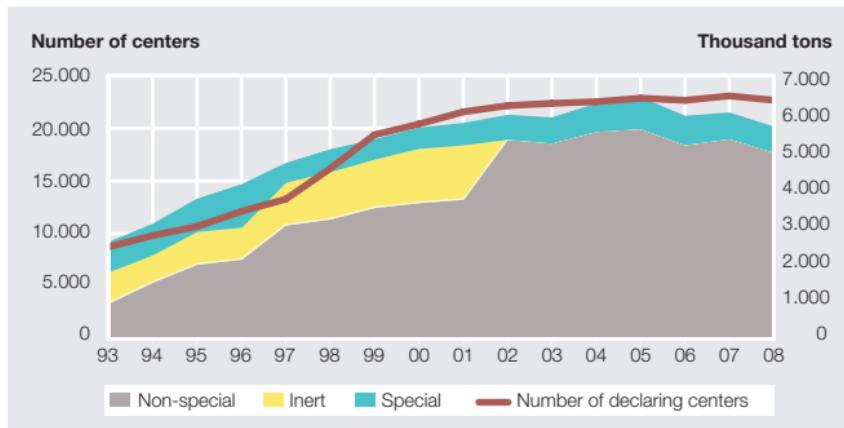
### Generation of municipal waste by region. Year 2008



### Industrial waste declared by region. Year 2007



### Evolution of the number of declaring centres and declared industrial waste



Waste of industries and treatment plants is not counted. They are not business agents.

With the entry into force of the European Waste Catalogue in 2002, the category inert waste is eliminated (type 210 of waste) and becomes non-hazardous (149) or hazardous in some cases (61).

### Industrial waste declaration in economic sectors

Sub-sector CCAE <sup>1</sup>	Sector	Tons			
		2005	2006	2007	2008
10	Extraction and accumulation of anthracite, hard coal, lignite and peat	11	32	30	46
15	Food and drink industry	1.164.769	1.263.190	1.248.196	1 217 611
17	Textiles industry	111.403	107.934	113.767	55 723
19	Hide preparation, tanning and finishing; fur manufacture, leather goods, saddlery and shoes	34.432	32.298	34.795	25 970
20	Wood and cork industry, except furniture, basketwork and esparto workshop	140.637	122.274	201.186	199 517
21	Paper industry	401.609	357.938	387.855	360 151
22	Publishing, graphic arts and reproduction of registered supports	136.883	157.284	173.859	152 785
24	Chemicals industry	667.904	674.636	669.647	654 551
25	Manufacture of rubber and plastic products	142.686	132.205	136.203	125 127
26	Manufacture of other non-metallic mineral products	374.770	432.645	464.649	376 954
27	Metallurgy	596.733	563.040	564.258	585 887
28	Manufacture of metallic products except machinery and equipment	336.782	431.908	430.754	403 974
29	Machinery and mechanical equipment construction industries	81.620	85.714	98.479	81 119
31	Manufacture of machinery and electrical material	65.148	68.087	70.760	69 730
34	Manufacture of motor vehicles, trailers and semi-trailers	317.177	343.425	362.774	295 726
36	Manufacture of furniture; other manufacturing industry	64.405	80.541	79.156	53 486
37	Recycling	209.113	109.383	61.924	54 371
40	Production and distribution of electrical energy, gas, steam and hot water	97.941	149.182	101.135	98 949
90	Public sanitation activities	1.238.275	664.873	611.765	604 584
	Other	216.275	129.030	182.948	203 958
	<b>Total</b>	<b>6.398.573</b>	<b>5.905.619</b>	<b>5.994.140</b>	<b>5.620.218</b>

<sup>1</sup> Catalan Classification of Economic Activities.

<http://mediambient.gencat.cat/eng>