

Data of the environment in Catalonia



2006



Government of Catalonia
**Department
of the Environment
and Housing**



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Territorial distribution of population

Groups of municipalities according to intervals of population. 2005

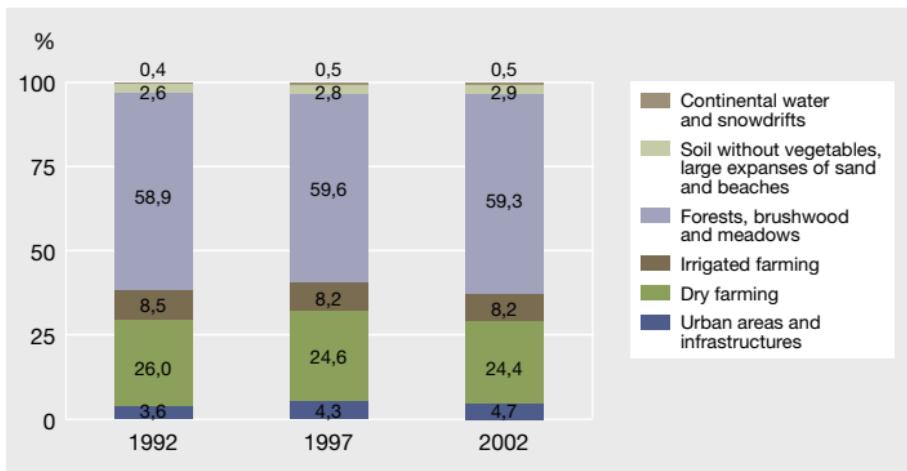
Intervals (inhabitants)	Municipalities		Population	
	Partial	Accumulated %	Partial	Accumulated %
0 - 1.000	502	53,1	200.800	2,9
1.001 - 5.000	254	79,9	593.757	11,4
5.001 - 10.000	82	88,6	557.960	19,3
10.001 - 20.000	49	93,8	763.874	30,3
20.001 - 50.000	36	97,6	965.743	44,1
50.001 - 100.000	14	99,0	968.954	57,9
more than 100.000	9	100,0	2.944.118	100,0
Total	946		6.995.206	

Geographical distribution of population. 2005

Municipalities	Municipalities	Population (inh.)	Area (km ²)	Density (inh./km ²)
Mountain	294	310.827	14.650,04	21
Coast	70	3.066.981	2.112,23	1.421
Rest of municipalities	582	3.617.398	15.133,03	239
Total	946	6.995.206	31.895,30	219

Environmental data

Land use



Structure of economics activity. 2004

Activity sectors	VAB pm ⁽¹⁾	% of the variation total	% of the variation ⁽²⁾	Employed (thousands)	% of the total	% variation
Agriculture	2.188	1,6	0,3	72,2	2,2	-4,1
Industry	35.606	25,5	1,0	783,9	23,9	-4,1
Construction	13.001	9,3	5,0	348,5	10,6	5,9
Services	89.019	63,7	3,5	2.078,5	63,3	6,5
Total	139.814	100,0	3,1	3.283,1	100,0	3,4

⁽¹⁾ Millions of euros.

⁽²⁾ Referring to the previous year, at constant prices.

Evolution of the number of motor vehicles			(in thousands of vehicles)		
Vehicle	2001	2002	2003 ⁽²⁾	2004	2005
Motorbikes	418	425	420	443	486
Cars	2.931	2.999	2.985	3.090	3.181
Buses, lorries and other	769	796	815	858	906
Total	4.118	4.220	4.220	4.391	4.573
Vehicles/1,000 inh.⁽¹⁾	647	649	649	603	654

⁽¹⁾ Official population figures in each period.

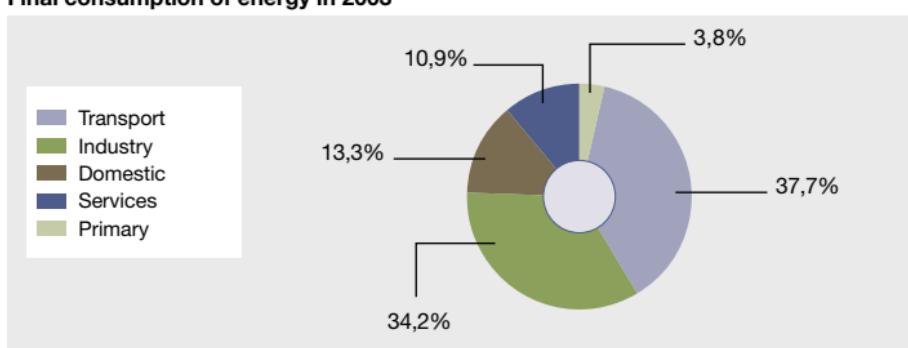
⁽²⁾ Since 2003 vehicles temporarily out of service are not included.

Primary energy production and consumption. 2003

Energy	Production		Consumption	
	ktoe	%	ktoe	%
Oil	313,3	4,1	12.471,7	48,1
Nuclear	6.419,8	83,7	6.419,8	24,7
Natural gas	1,9	0,0	5.676,0	21,9
Coal	75,3	1,0	168,6	0,6
Balance of electric exchanges	0,0	0,0	336,5	1,3
Non-renewable industrial waste	56,1	0,7	56,1	0,2
Renewable energy	806,1	10,5	826,0	3,2
Hydraulic power	519,4	6,8	519,4	2,0
Urban solid waste power	147,7	1,9	147,7	0,6
Forest and farming biomass power	93,9	1,2	93,9	0,4
Wind power	14,0	0,2	14,0	0,1
Biogas power	22,7	0,3	22,7	0,1
Biofuels	5,4	0,1	25,3	0,1
Solar power	2,9	0,0	2,9	0,0
Total	7.672,5	100,0	25.954,5	100,0

Note: 2003 was a year with high hydraulicity. This fact has a notable influence on the percentage of renewable energy over the total primary energy consumption.

Final consumption of energy in 2003



Water

Urban waste water treatment plants ⁽¹⁾. 2005

Plant	Number of plants	Treatment capacity		Total capacity in inh.-e ⁽²⁾	
		(m ³ /day)	(%)	(inh.-e)	(%)
Biological	286	2.130.876	79,3	12.269.540	79,5
Physicochemical	1	525.000	19,5	3.000.000	19,5
Lagooning	34	31.160	1,2	168.603	1,1
Other appropriate treatments	7	1.300	0,0	1.000	0,0
Total	328	2.688.336	100,0	15.439.143	100,0

⁽¹⁾ The data on inhabitant equivalent and treatment capacity refer to design.

⁽²⁾ inh.-e: inhabitant equivalent.

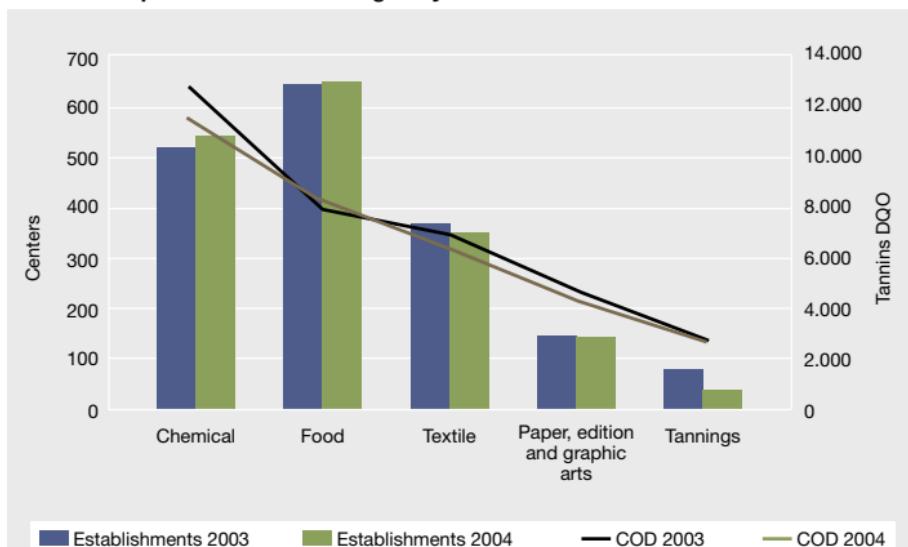
Global output of plants in service

	2000	2001	2002	2003	2004	2005
Number of plants in service	246	270	290	297	314	328
Number of plants analysed	242	248	275	279	301	320
Treated flow (m ³ /day)	1.556.860	1.534.239	1.606.844	1.958.800	1.972.069	1.851.074
Global average output of SM elimination (%)	92,2	93,6	89,3	93,2	87,1	89
Global average output of BOD ₅ elimination (%)	93,7	94,4	91,9	94,5	90,8	91
Plants in accordance with Directive 91/271/EEC (%)	94,3	93,6	95,5	95,6	92,3	85 ⁽¹⁾

⁽¹⁾ Since 2004 we also consider the plants located in environmentally sensitive zones treating more than 10,000 inh.-e, which, despite complying with their design, do not attain the Directive's aims regarding.

Treatment evolution and destination of sludge produced in plants (tons of fresh material)

	2000	2001	2002	2003	2004	2005
Sludge removed according to destination	416.515	401.784	384.358	326.860	312.792	366.399
Agriculture and gardening	266.602	267.281	248.459	222.663	219.678	272.125
Quarry restoration	11.672	4.966	2.661	—	—	—
Landfill	138.241	126.744	133.223	104.197	93.115	70.509
Ecobrick and other	—	2.793	15	—	—	—
Energy recovery	—	—	—	—	—	23.765
Treated sludge	47.752	73.015	199.680	335.348	296.874	471.248
Thermal drying	9.596	18.883	33.270	61.940	55.115	202.732
Composting	38.156	54.132	113.781	145.383	136.955	179.272
Aerobic/anaerobic digestion				143.463	128.025	104.804
						89.244

Evolution of pollutant load discharged by industrial centres ⁽¹⁾

⁽¹⁾ 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 m³/year are exceeded. Or, 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.

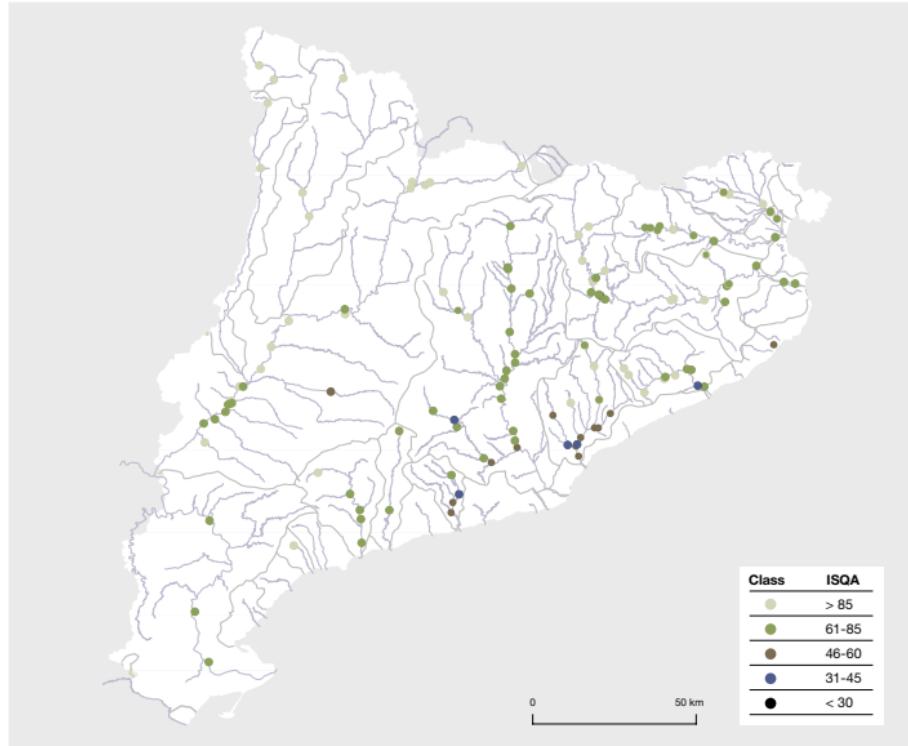
Water quality and quantity control points

	2000	2001	2002	2003 ⁽¹⁾	2004 ⁽²⁾	2005
Quality control networks	6.438	5.991	6.519	5.699	5.794	5.670
Surface water	714	754	775	167	236	225
Ground water	1.416	1.333	1.600	1.445	1.468	1.362
Marine water	4.308	3.904	4.144	4.087	4.090	4.083
Quantity control networks	738	772	808	768	857	803
Ground water	430	430	430	380	380	405
Surface water	308	342	378	388	477	398

⁽¹⁾ In 2003, the number of control points in surface water is lower than in the previous ones, since the sampling rate and the number of controlled parameters have been intensified.

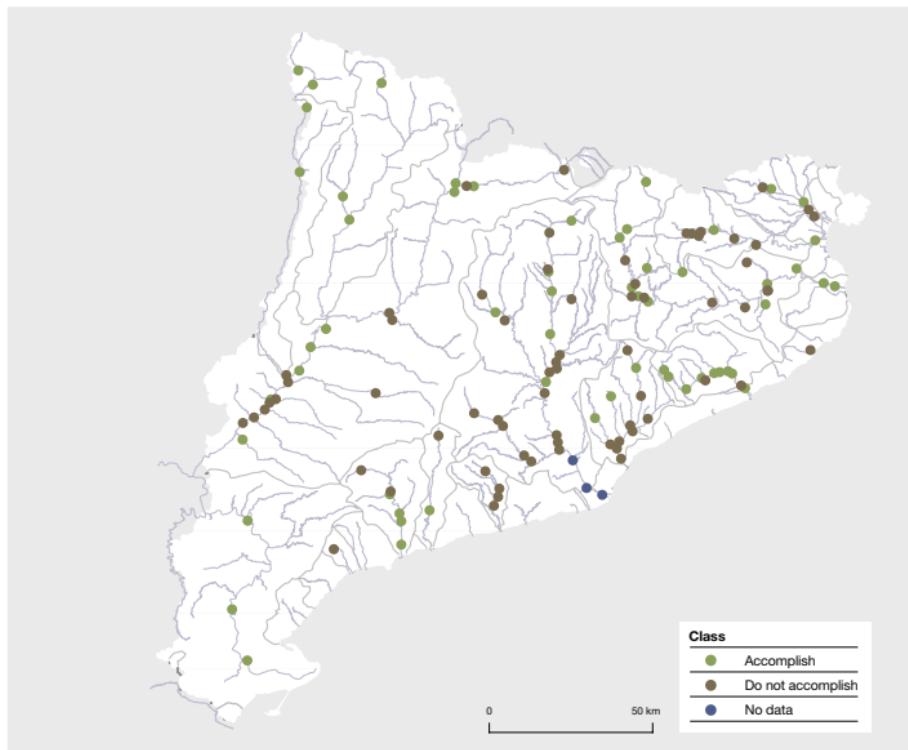
⁽²⁾ Since 2004 all points where manual quantity control is undertaken (in rivers, water channels and marshes) have been counted.

Surface water quality. Average data of ISQA. 2005 ⁽¹⁾



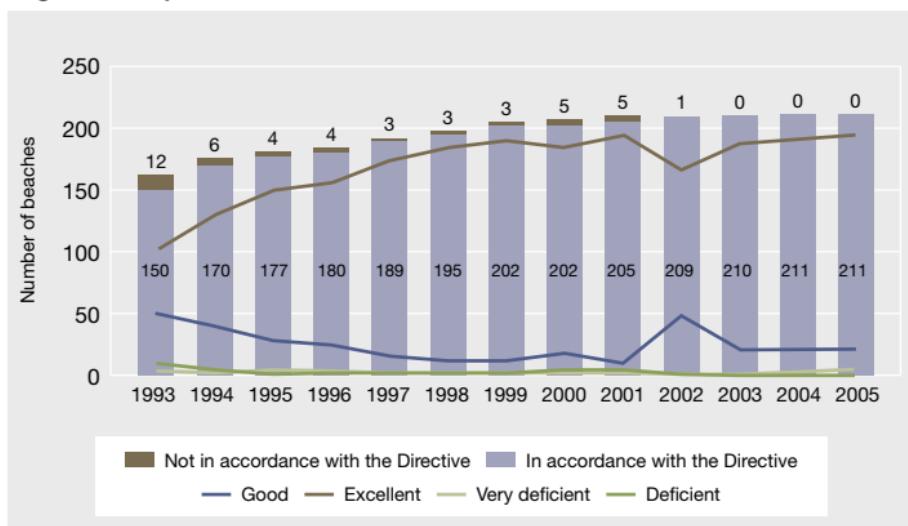
⁽¹⁾ This map shows the average data of ISQA classified according to the Catalan Sanitation Programme. ISQA is a simplified index of water quality calculated from temperature, suspended matter, oxidability, dissolved oxygen and conductivity.

Surface water quality. State of compliance with ISQA according to the aims set out in the Catalan Sanitation Programme. 2005⁽¹⁾



⁽¹⁾ This map shows the level of ISQA compliance in each control point, comparing the measured data with the aims set out in the Catalan Sanitation Programme. Most points under fixed aims are in the threshold (see *Catalonia Statistic Yearbook*).

Degree of compliance with Directive 76/160/EEC

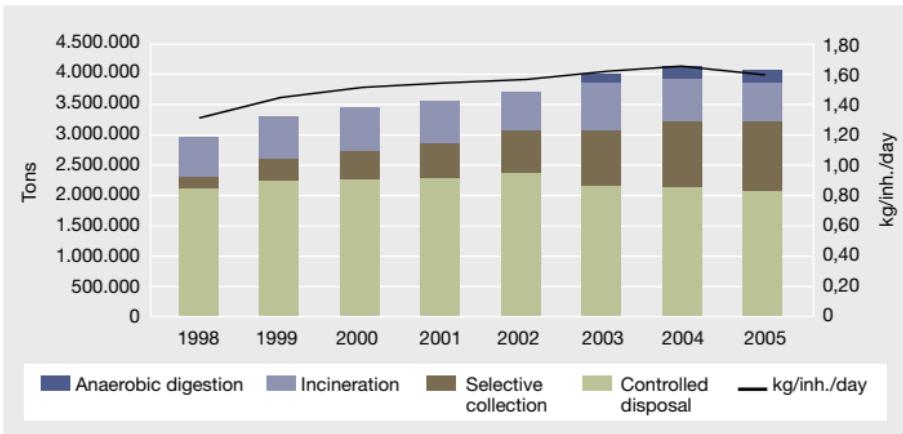


Waste

Final destination of municipal waste

Municipal waste production 2005: 4,188,063 tones

Production coefficient (kg/inh./day) 2005: 1.64



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 IDESCAT.

Selective collection. 2005

Waste	Tons collected	Generation coefficient (kg/inh./yr)
Glass	162.375	23,2
Paper and cardboard	402.900	57,6
Light packaging	72.261	10,3
Organic matter ⁽¹⁾	204.794	29,3
Batteries	516	0,1
Medicines	440	0,1
Large packaging	142.266	20,3
Pruning-gardening	59.813	8,6
Textile	4.966	0,7
Collection centres ⁽²⁾	161.208	
Total selective collection	1.211.537	

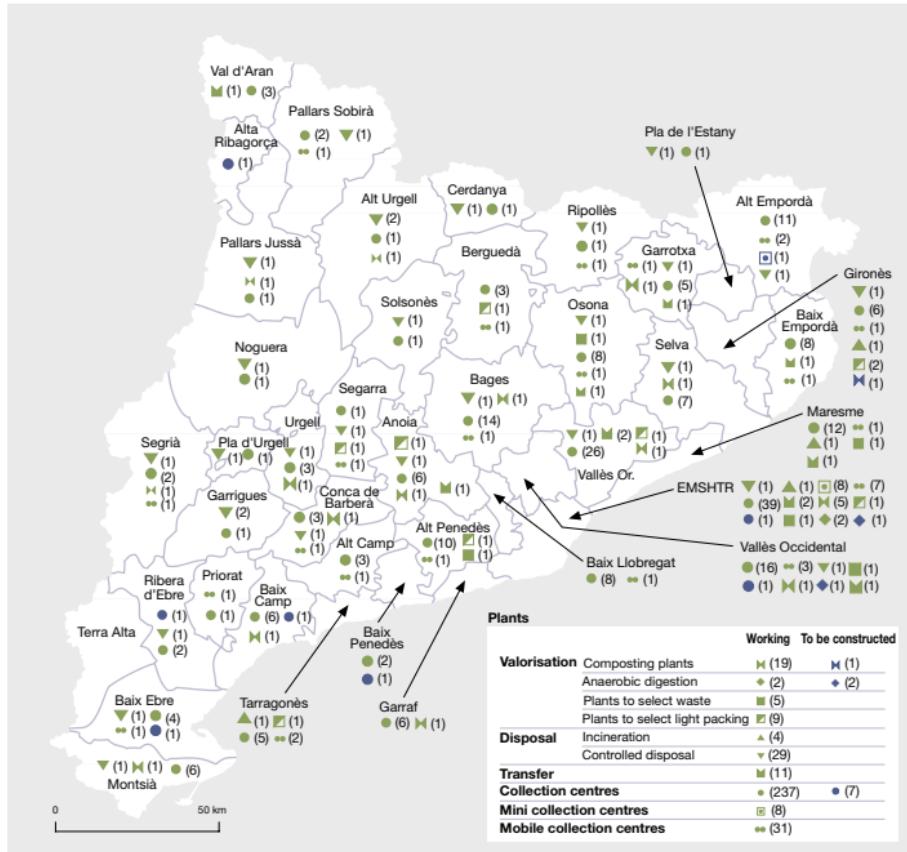
⁽¹⁾ Population only considered where the selective collection is well-established.

⁽²⁾ Except glass, paper, large packaging, pruning and gardening and batteries collected in a collection centre.

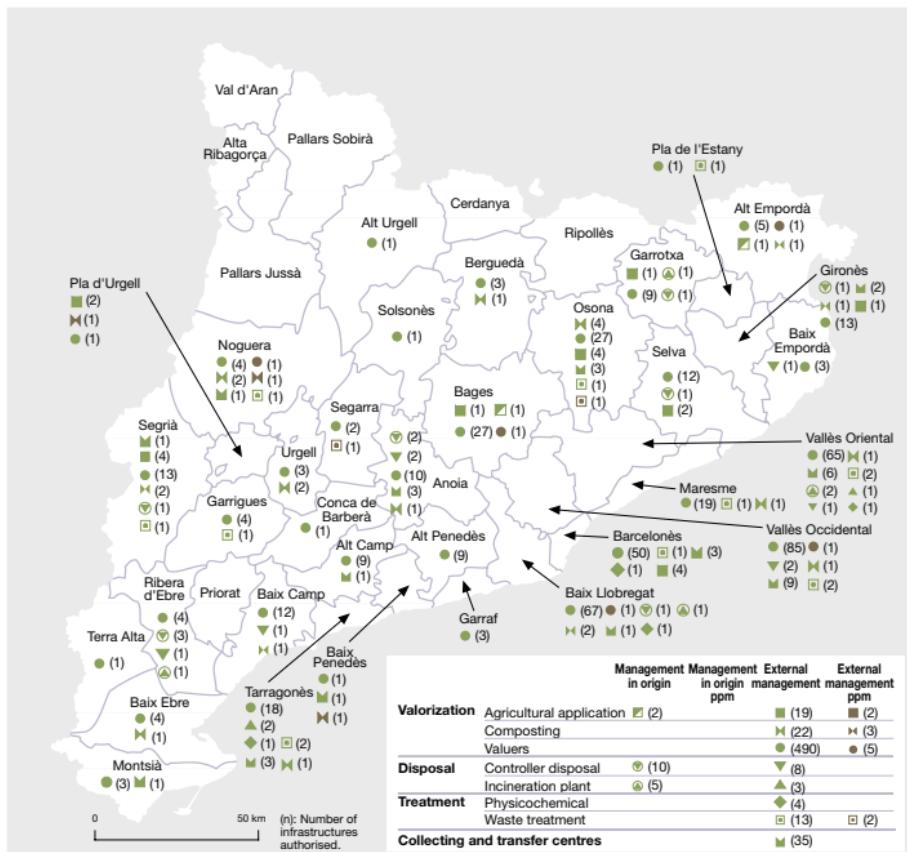
Treatment of declared industrial waste (tons)

Treatment	Special		Non-special		Total	
	2004	2005	2004	2005	2004	2005
Recovery	360.273	409.064	3.029.894	3.569.636	3.390.126	3.978.700
Sub-product	26.193	22.076	606.088	240.536	632.281	262.612
Storage	7.939	9.288	85.000	38.670	92.939	47.958
Physicochemical-biological plant	127.551	122.237	364.848	283.075	492.399	405.312
Controlled disposal	64.213	75.187	1.359.871	1.297.375	1.424.084	1.372.562
Incineration	112.068	133.793	50.251	137.180	162.319	270.973
Insufficient management	209	1.747	10.701	17.467	10.910	19.214
No specified management	5.423	23.887	20.780	17.354	26.204	41.241
Total	703.869	797.279	5.527.433	5.601.293	6.231.262	6.398.572

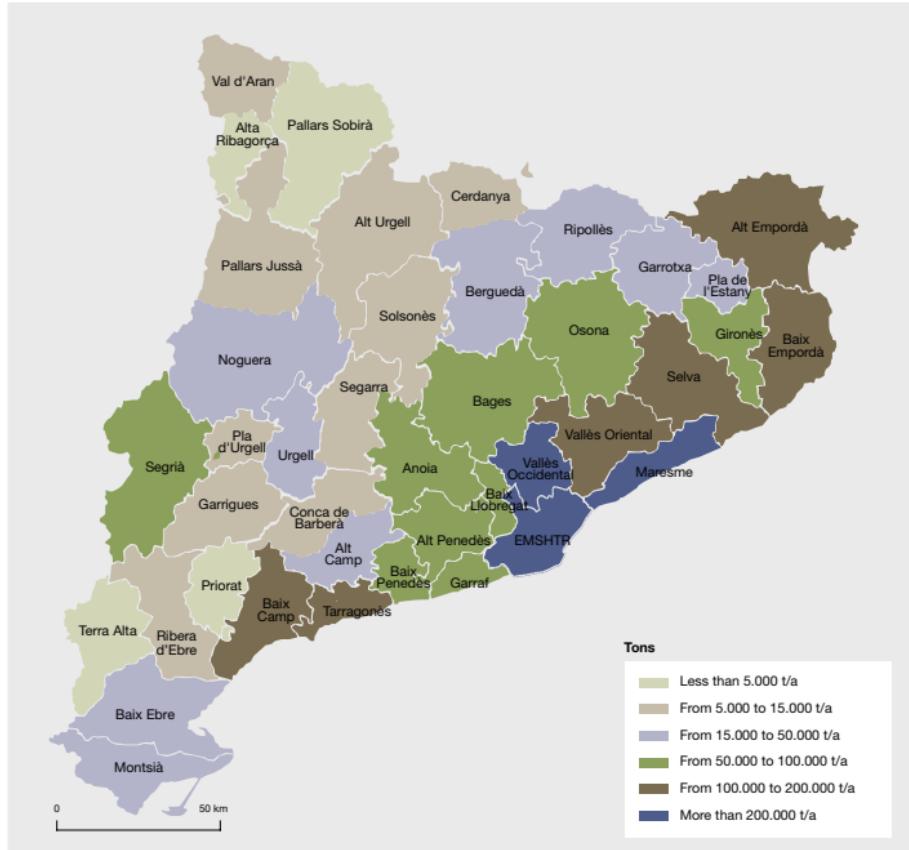
Municipal waste treatment infrastructures in 2005



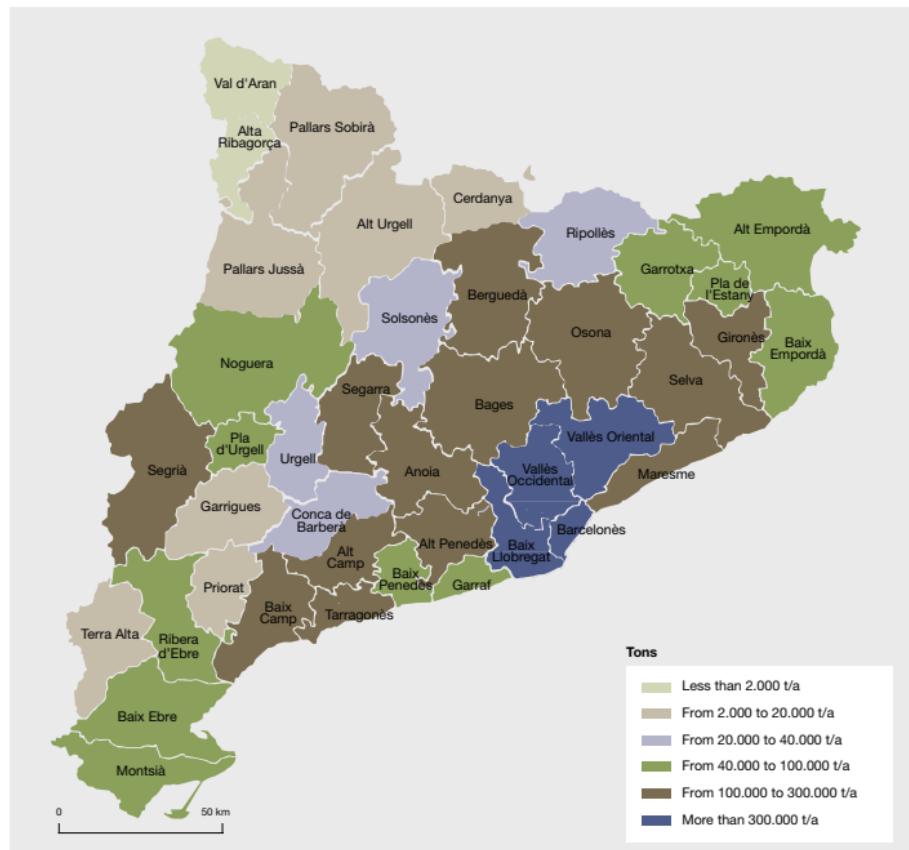
Industrial waste treatment infrastructures in 2005



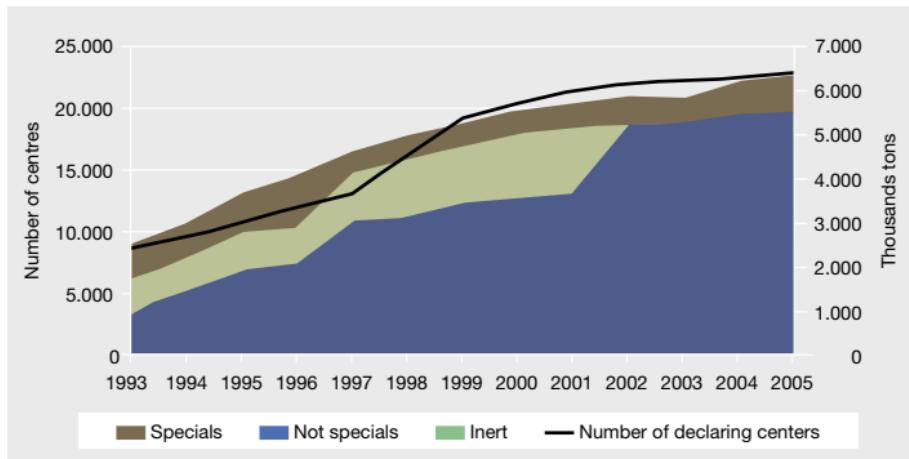
Municipal waste produced in 2005



Industrial waste declared in 2005



Evolution of the number of declaring centres and declared industrial waste



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-special (149) or special in some cases (61).

Industrial waste declaration in economic sectors

Sub-sector CCAE ⁽¹⁾	Sector	Tons		
		2003	2004	2005
10	Extraction and accumulation of anthracite, hard coal, lignite and peat	18.583	14,14 ⁽²⁾	11
15	Food and drink industry	1.306.053	1.188.730	1.164.769
17	Textiles industry	124.203	122.827	111.403
19	Hide preparation, tanning and finishing; fur manufacture, leather goods, saddlery and shoe shop	50.743	38.868	34.432
20	Wood and cork industry, except furniture, basketwork and esparto workshop	188.233	165.696	140.637
21	Paper industry	381.554	407.288	401.609
22	Publishing, graphic arts and reproduction of registered supports	117.742	139.372	136.883
24	Chemicals industry	631.886	642.348	667.904
25	Manufacture of rubber and plastic products	122.653	133.054	142.686
26	Manufacture of other non-metallic mineral products	257.895	301.867	374.770
27	Metallurgy	395.371	458.856	596.733
28	Manufacture of metallic products except machinery and equipment	354.844	372.185	336.782
29	Machinery and mechanical equipment construction industries	71.430	75.200	81.620
31	Manufacture of machinery and electrical material	65.620	65.114	65.148
34	Manufacture of motor vehicles, trailers and semi-trailers	317.024	319.956	317.177
36	Manufacture of furniture; other manufacturing industry	75.602	65.901	64.405
37	Recycling	161.488	181.603	209.113
40	Production and distribution of electrical energy, gas, steam and hot water	101.245	138.066	97.941
90	Public sanitation activities	1.031.764	1.297.244	1.238.275
	Other	91.195	117.127	216.275
Total		5.865.126	6.231.302	6.398.573

⁽¹⁾ Catalan Classification of Economic Activities.

⁽²⁾ Group 10 is smaller because there is waste produced by the company Unión Minera del Bajo Segre, which has not been taken into account, as it is considered water.

Biodiversity

PEIN development status with regard to the definitive area demarcation

	Situation on 31.12.2000			Situation on 31.12.2005		
	Number of areas	Area Hectares	% ⁽¹⁾	Number of areas	Area Hectares	% ⁽¹⁾
Areas with definitive limits	119 (50 being processed)	524.048	80,9	122 (6 being processed)	590.459	91,1
a) Areas delimited by special plan	107 (50 being processed)	418.504	64,6	105 (6 being processed)	386.452	59,6
b) Areas delimited by NASP plan	12 (4 NWR)	105.544	16,3	17 (4 NWS)	204.007	31,5
Natura 2000 Network				8 ecological types ⁽²⁾	1.040.155	29,83 ⁽³⁾

⁽¹⁾ Percentage on the final situation of PEIN: 648,065 hectares.

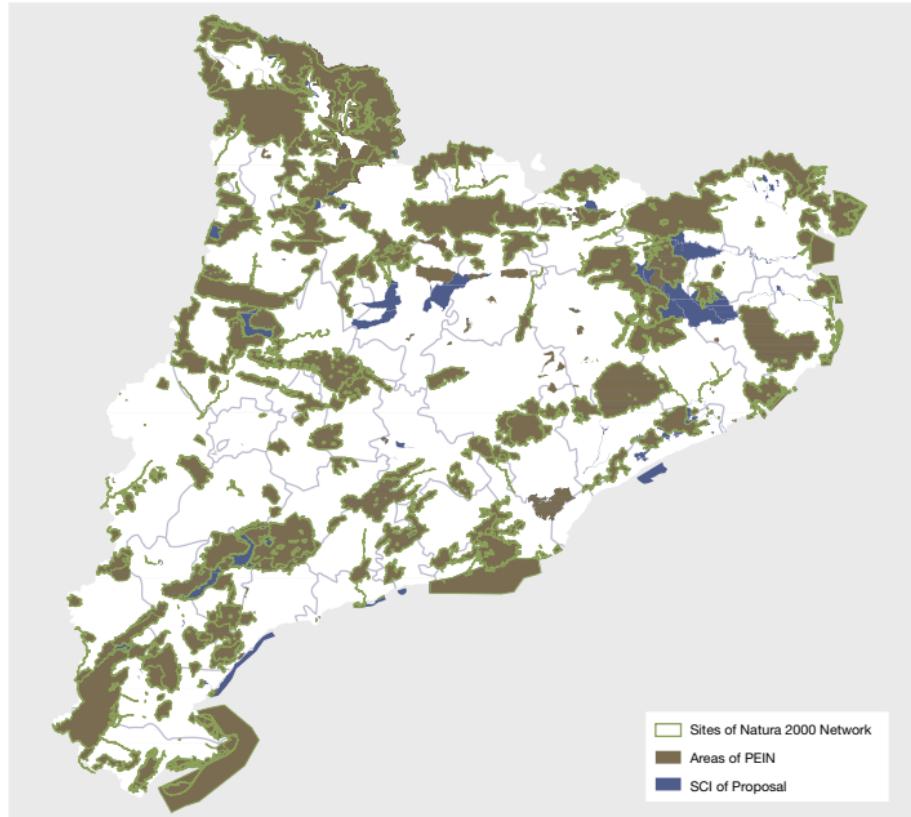
⁽²⁾ Pyrenean sites - Pre-Pyrenean sites - Agricultural plain - Inland mountain - Inland water - Littoral mountain - Littoral marshes and marine areas.

⁽³⁾ Over the whole territory.

NASP: Natural Area of Special Protection.

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

Plan for Areas of Natural Interest (PEIN) 2005 and Natura 2000



Parks of Catalonia. 2005

	Year of creation	Terrestrial ha ⁽¹⁾	Marine ha	Observ. (protection areas, etc.)	Visitors ⁽²⁾
National Parks					
Aigüestortes i Estany de Sant Maurici	1955	14.119		26.733	281.237
Natural Parks					
El Cadi-Moixeró	1983	39.671			430.000
Volcanic Region of de la Garrotxa	1982	12.007			600.000
Aiguamolls de l'Empordà	1983	4.729			42.313
Delta de l'Ebre	1983	7.313	489		968.000
Montserrat	1987	3.630		4.039	2.242.000
El Montseny	1987	17.372		12.748	-
Sant Llorenç del Munt i Serra de l'Obac	1987	9.638		4.056	-
Cap de Creus	1998	10.813	3.073		435.000
Els Ports	2001	35.051			84.000
El Montsant	2002	9.192			44.000
L'Alt Pirineu	2003	69.850			-
Natural Site of National Interest					
Pedraforca	1982	1.671			-
Poblet	1984	3.408			185.000
L'Albera	1986	4.108			41.000
Pinya de Rosa	2003	50			-
Nature Reserve					
Delta del Llobregat	1987	297		201	95.000
Marine Reserve					
Illes Medes	1990		511		218.000
Masia Blanca (i zona d'amortiment)	2000		448		-
Areas protected by urban legislation					
Collserola	1987	6.535			-
Garraf	1986	12.377			-
Montnegre-Corredor	1989	15.010			-
Montesquiu	1986	547			-
Olèrdola	1992	609			-

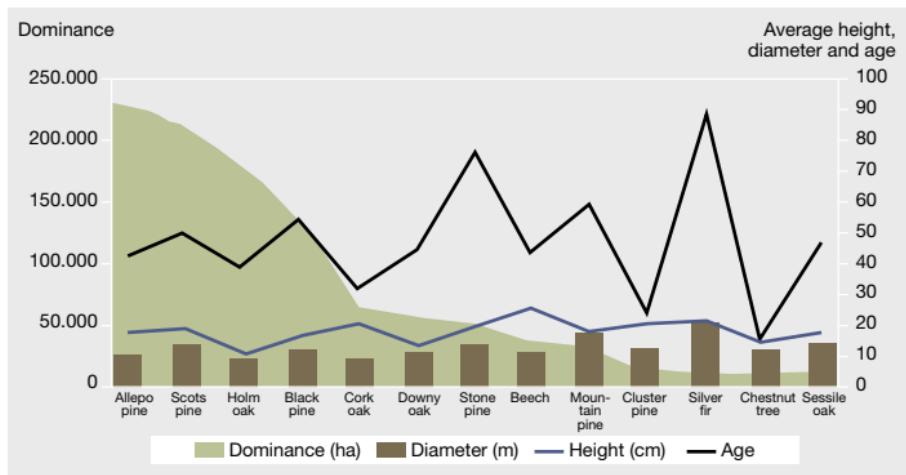
⁽¹⁾ Some ENPE areas can be included in other protection classifications, such as nature reserves.

⁽²⁾ Estimated figures.

Evolution of some species of Catalan fauna

Species	2000	2001	2002	2003	2004	2005
Great white egret	1	6	7	8	9	9
Bonelli's eagle	63	66	66	66	67	66
Dupont's lark	25	20	10-12	4-6	7	0-1
Marsh harrier	34	35	40	45	35	48
Bittern	1	1	1	4-5		3
Glossy ibis	12	21	23	26	51	62
Montagu's harrier	50	73	70	66	88	70
Greater flamingo	1.600	251	1677	1.355	1.650	0
Audouin's gull	10.558	11.666	10.122	10.356	10.717	13.849
Lesser grey shrike	14	18	19	17	18-19	17-19
Bearded vulture	20	21	21	22	24	25
Vulture	-	-	-	-	-	-
Sandwich tern	931	1.666	1.893	2.127	2.786	2.659
Lesser crested tern	1	1	1	2	2	1
Common tern	3.085	3.393	4.221	4.734	5.452	5.341
Little tern	244	294	314	332	384	393
Lesser kestrel	42	67	74	94	79	102
Capercaillie (males)						512-521
Shag	-	-	18	-	-	29-33
Brown bear	6	7	8 a 9	9 a 10	10 a 12	11 a 13
Storm petrel	-	0	0	0	0	3 a 4

Main tree species in Catalonia



Source: Forest and Ecological Inventory of Catalonia, 1988-1998. CREAF.

Open cast mining according to its degree of restoration. 2004

Degree of restoration	Dossier		Surface areas	
	Number	%	Hectares	%
Authorised open cast mining which has not yet commenced	343	13	1.003	8,2
Open cast mining with no restoration commenced	965	38	4.854	39,5
Open cast mining with integrated restoration	414	16	3.945	32,1
Restored open cast mining in guarantee period	200	8	1.313	10,7
Restored open cast mining with a returned deposit or of DPH ⁽¹⁾	625	25	1.172	9,5
Total	2.547	100	12.287	100,0

⁽¹⁾ Public Water Resources.

Number of declarations of environmental impact issued in 2005 ⁽¹⁾

Actions	2000	2002	2003	2004	2005
Harbours	3	1	0	1	3
Linear infrastructures	34	22	18	33	6
Basins	0	0	0	1	1
Industrial activities	13	64	50	48	78
Soil use transformation	4	5	10	15	4
Affecting PEIN areas	24	3	9	12	5
Total	78	95	87	107	97

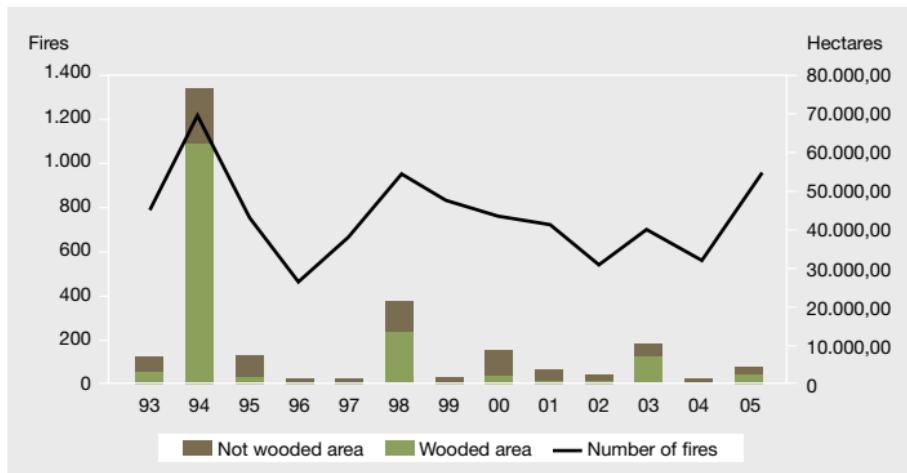
⁽¹⁾ According to date of Environmental Report.

Hunting and fishing areas. 2005

	Number of areas	Area in hectares
Authorised hunting/fishing		
National hunting reserves	7	235.047
Controlled hunting zones	14	82.790
Controlled fishing zones	323	1.533 ⁽¹⁾
Protected areas		
Wildlife preserves	77	10.338
Hunting preserves	2	389
Fishing preserves	212	-

⁽¹⁾ Area in km.

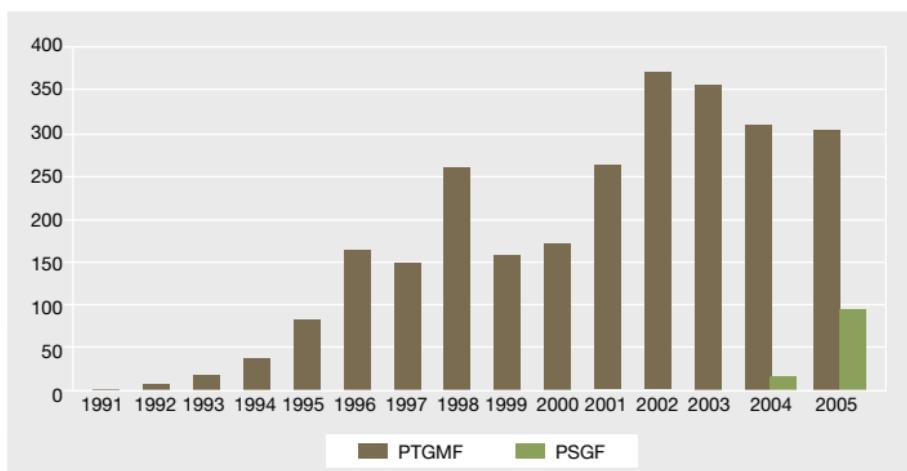
Evolution of number of fires and affected area



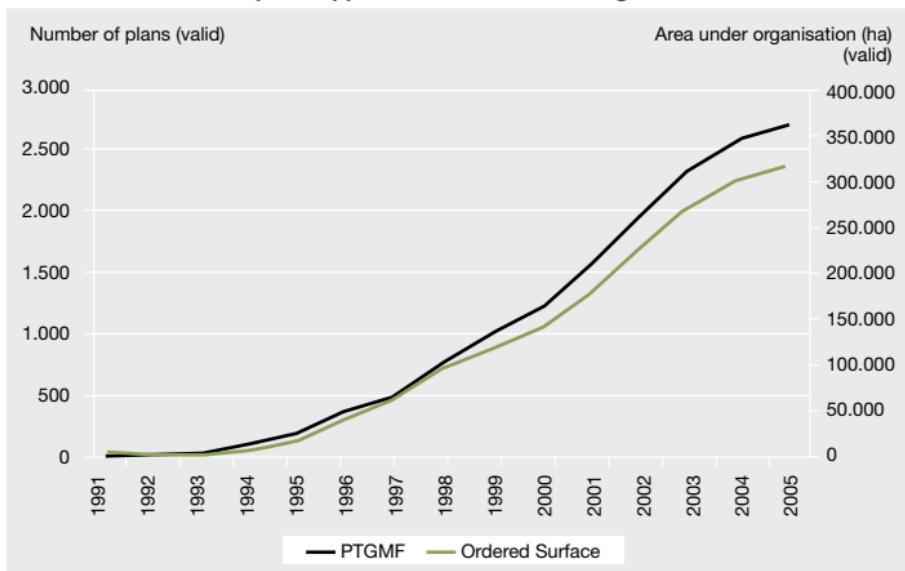
Evolution of the Technical Forest Management and Development Plan (PTGMF) and Simple Forest Management Plan (PSGF). 2005

Year	PTGMF valid	Area under organisation with PTGMF (ha) valid	Number of PTGMF approved per year	Area under organisation with PTGMF (ha) per year
2000	1.049	165.915,5	169	28.541,1
2001	1.310	207.153,3	261	41.237,8
2002	1.681	261.720,1	371	54.782,2
2003	2.037	312.508,0	356	50.787,8
2004	2.268	343.959,0	308	43.658,5
2005	2.396	358.688,0	303	36.944,1
Year	PSGF valid	Area under organisation with PSGF (ha) valid	Number of PSGF approved per year	Area under organisation with PSGF (ha) per year
2004	17	250,2	17	250,2
2005	112	1.306	94	1.050,8
Total PTGMF and PSGF 2005	2.508	359.994,0	397	37.994,9

Distribution of PTGMF and PSGF approved. 1991-2005

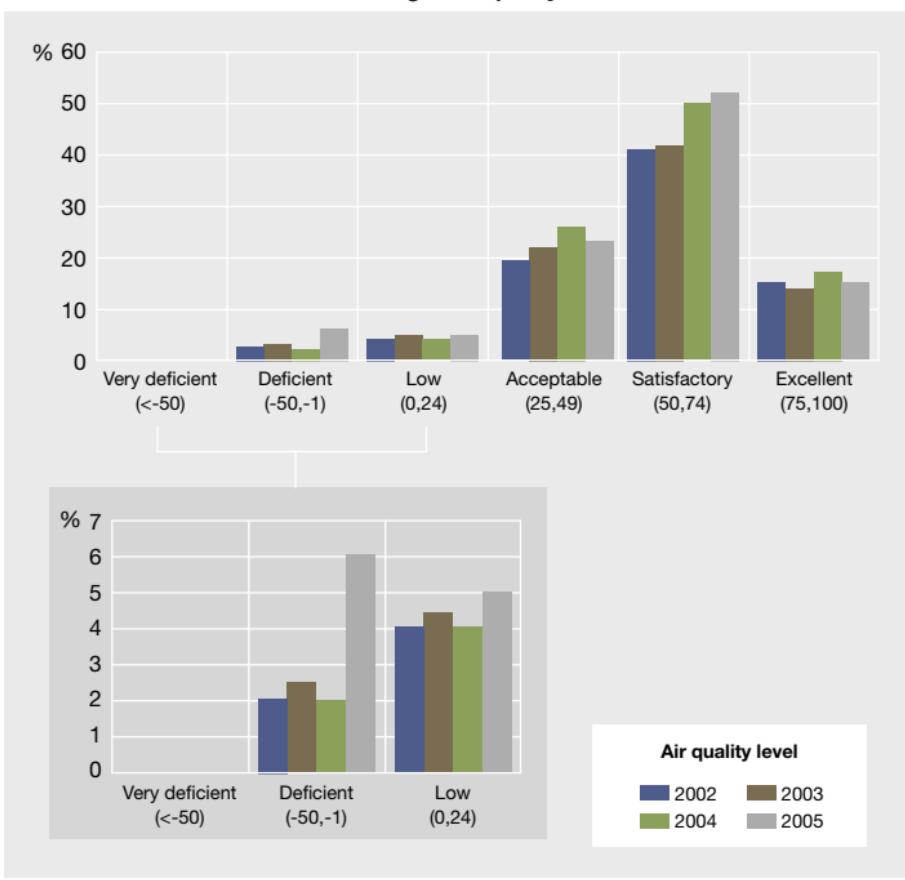


Evolution of number of plans approved and area under organisation



Atmosphere

Distribution of ICQA⁽¹⁾ values according to air quality level



⁽¹⁾ ICQA was calculated using levels of: carbon monoxide (CO), nitrogen dioxide (NO₂), sulphur dioxide (SO₂), ozone (O₃) and suspended particles PM10 and PST.

Control of ozone immission levels

	2000	2001	2002	2003	2004	2005
Total number of sensors	47	48	37	39	42	47
Stations exceeding population alert threshold ⁽¹⁾	0	0	1	0	0	1
Stations exceeding population information threshold ⁽²⁾	12	20	9	22	10	20
Time value exceeding population information threshold (units)	61	96	41	222	43	111
Average level ($\mu\text{g}/\text{m}^3$)	61	62	60	61	60	61
Maximum level ($\mu\text{g}/\text{m}^3$)	273	272	384	288	234	246

⁽¹⁾ 240 $\mu\text{g}/\text{m}^3$ in one hour (RD 1796/2003).

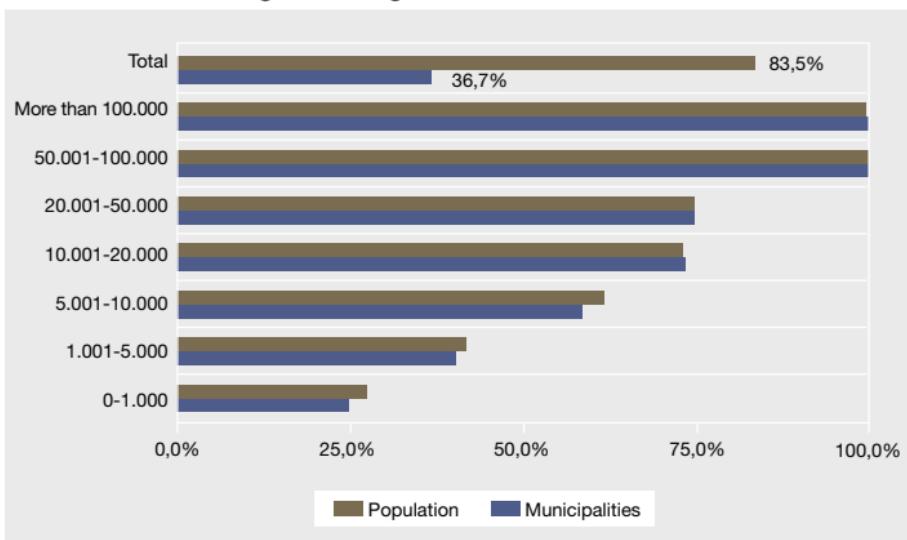
⁽²⁾ 180 $\mu\text{g}/\text{m}^3$ in one hour (RD 1796/2003).

Voluntary systems to protect the environment

Number of companies with voluntary systems to protect the environment System

System	2000	2001	2002	2003	2004	2005
Ecolabel	8	8	8	9	8	7
Emblem of environmental quality guarantee						
Products	803	806	806	819	808	848
Services	1	28	53	109	131	147
Eco-Management and Auditing System (EMAS)	59	110	130	148	147	159

Local bodies subscribing the Aalborg Charter. 2005



Percentages are calculated on the total of municipalities and/or population for each interval considered.

Sources:
Department of the Environment and Housing
Department of Territorial Policy and Public Works
Department of Employment and Industry
Institute of Statistics of Catalonia

Data at 31st December of the year given.

<http://medioambiente.gencat.net/cat/>

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