

Barcelona, A City Committed to the Environment



BARCELONA ENVIRONMENTAL REPORT
2009



Ajuntament de Barcelona

Section 11.

ENVIRONMENTAL MANAGEMENT OF THE MUNICIPALLITY

**BARCELONA, WITH A CITY COUNCIL
COMMITTED TO THE ENVIRONMENT**



Section 11. ENVIRONMENTAL MANAGEMENT OF THE MUNICIPALITY

Body	Spheres of action	Validity	No. of workers
Environment Area (special department of the City Council)	Urban cleaning Street cleaning Urban solid waste collection Public lighting maintenance Utilisation of phreatic water Administrative activity Maintenance of the headquarters building	2003-2012	1,239 (March 2010)
	Maintenance management of public green areas and of the street trees of the city	2001-2010	
	Coordination of the integral management of the beaches	2003-2009 and renewed for the coming years	
Metropolitan Transports of Barcelona (TMB) (the City Council is the main contributor)	Management of the buses on the public way	Since 2000	7,707 (December 2008)
Sewers of Barcelona (CLABSA) (the City Council is the main contributor)	Management of the sewer system	2003-2010	122 (2010)
Barcelona Municipal Services (BSM*) (Owned by the City Council)	Montjuïc Division (daily operation of all the offices and activities of BSM at Montjuïc Park, and for the leisure facilities Palau Sant Jordi, Olympic Stadium, Barcelona Musical Theatre, Montjuïc Park and Forum Park)	2009	1,164 (2008)

Table 11.1. Municipal bodies with ISO 14001 (2009) environmental certification

* It also holds an ISO 9001 certification.

11.1. EVOLUTION OF MUNICIPAL ENVIRONMENTAL MANAGEMENT

One of the City Council's priority areas for action is the 'greening' of its own organisation – gearing it towards sustainability, in keeping with the message it is transmitting to the public.

For some time now, the City Council has been undertaking decisive actions to improve its internal environmental management. It is a clear point of reference in Spain and in the south of Europe in the introduction of social and environmental criteria into contracting. Sixteen percent of the European Union's GDP is generated through public contracting, which means that Public Administrations are economic agents that are capable of actively stimulating a more sustainable offer. It must also be borne in mind that the Barcelona City Council has more than 600 buildings and 12,000 employees.

The internal greening plan entitled Ajuntament + Sostenible (More Sustainable Municipality) forms a part of the Local Agenda 21 (see Section 12) and it is yet another example of the Council's commitment to the environment. This commitment is articulated through information, employee awareness and training and the incorporation of environmental criteria into everyday activities. The scope of action for the plan spans from product procurement to contracting ser-

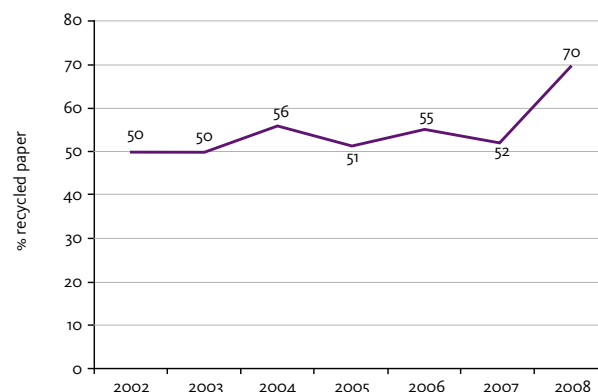
vices, property maintenance and public services, the contracting of construction works or building restoration and the greening of events and public acts.

11.1.1. Municipal departments with certified environmental management systems

Four municipal organisations have been awarded the ISO 14001 certificate (see Table 11.1).

11.1.2. Consumption of environment-friendly products

Some of the aspects that have been addressed in recent years with regard to the acquisition of environmentally-friendly products and services are given below:



Graph 11.1. Evolution of recycled paper use (2001-2009)

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PAPER, CERTIFIED BY DEFINITION

Certified paper was the first green product acquisition for internal use. Currently, all the paper bought by the City Council has a Blue Angel label and 70% of the paper consumed is recycled (see Graph 11.1).

CERTIFIED TIMBER

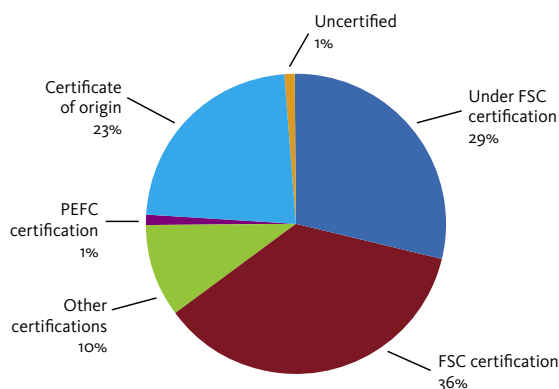
All the timber and timber by-products bought (for funeral services, street furniture, platforms for events, works, beach refreshment stands, etc. comes from legal felling. Seventy-six percent of the 4,673 m³ of timber that was procured from 2004-2008 held some kind of sustainable management

certification (or documents that accredit that it is in the process of certification). Approximately 25% of the timber that was procured presented a certificate of origin and only 1% was lacking certification (see Graph 11.2).

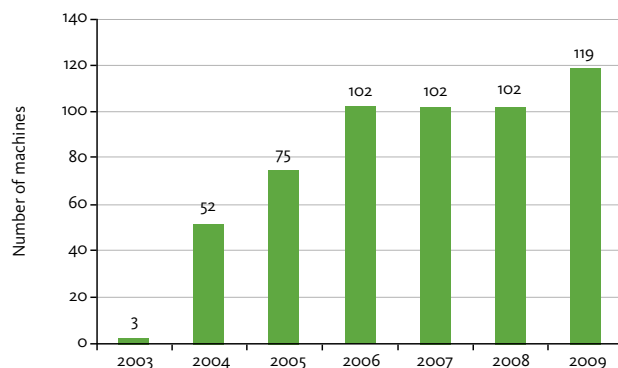
RESPONSIBLE TRADE

The number of vending machines selling fair trade coffee doubled between 2004 and 2009 (from 52 to 119). The objective is for all the machines in the various municipal offices to dispense this type of coffee (see Graph 11.3).

Thanks to a municipal contract specifications document, all public childcare facilities consume at



Graph 11.2. Certified timber typologies purchased by the Barcelona City Council (2008)



Graph 11.3. Evolution of fairtrade coffee machines (2003-2009)

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least 5% of food with an ecological agriculture certificate. Four of these centres reach 25-30% and one underwent a pilot test to reach 50%. Catalonia is the first autonomous community in Spain to agree on and promote recommendations on the location, publicity and content for food vending machines located in settings with small children and adolescents with the aim of improving their eating habits.

Another pioneering initiative in Spain was the incorporation of environmental clauses and ethics into the contracts for the procurement of park and garden maintenance workers' clothing (700 employees). Some of these suppliers also undergo external audits to confirm that they apply the ILO agreements. Currently, all clothing worn by park and garden employees carries an Oeko-Tex 100 European label.

EFFICIENT INFORMATION TECHNOLOGY AND COMMUNICATION

All computer hardware (6,800 computers, printers, fax machines and multi-functional equipment) holds an energy certification (http://www.bcn.es/agenda21/ayuntamientosostenible/doc_interns.htm).

In 1997, recycled toner for laser printers was brought in and just one year later represents 56% of the total, allowing for a financial saving of 40%.

SUSTAINABLE CLEANING

All the centralised municipal buildings are cleaned with ecologically certified products. In order to reduce water toxicity levels, disinfectants may only be used in sinks, healthcare facilities and childcare centres.

SAVING WATER

Fifty-two waterless urinals have been installed, which save 2-4 litres per flush. In 2007 a government measure was approved to encourage the rational use of water, reducing water consumption by 82,750 m³ per month. In 2010, 500 dual toilet discharge devices will be distributed, which will allow for 3-6 litres of water to be saved per flush.

11.1.3. Energy consumption of municipal buildings

No information is available regarding the evolution of energy consumption in municipal buildings. However, this information is available for 2008, when

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Type name	Description	Number of buildings
HEADQUARTERS	City police force and fire service	70
PARKING	Outdoor and underground car parks	7
STUDY CENTRE	CEIPS + IES + EEI + EBM + School (photography, music, ...)	559
SOCIO-CULTURAL CENTRE	Meeting areas and social activities: libraries, markets, foundations, help for..., cemeteries, residents' associations, groups, civic centres, homes for the elderly, youth centres.	476
CULTURAL CENTRE	Specialised cultural centres: monuments, museums, exhibition rooms, theatres.	26
SPORTS FACILITY	sports centres, municipal sports complexes and outdoor sports facilities, petanque courts, hiking centres.	200
ADMINISTRATIVE OFFICES	Municipal administration buildings.	262
OTHERS		140
SERVICES	Parks, squares, fountains, pumps, drains, public areas, public WCs, kennels, green points, selective waste collection facilities, warehouses.	154
SINGULAR	Zoo, Olympic stadium, Palau Sant Jordi, Parc de Recerca Biomèdica, Tibidabo.	5
HEALTH	ASPB, day centres, primary care centres, hospitals, drug addiction centres, etc.	34
HOUSING	Municipal housing and student residences.	48
	TOTAL	1.981

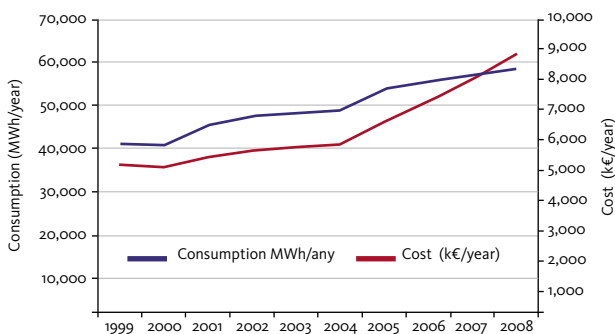
Table 11.2. Types of buildings managed by the City Council of Barcelona.

municipal facilities consumed 42.74 KWh/m² of electricity. In that same year, natural gas consumption in these buildings stood at 50.90 kWh/m² (see Graphs 11.4 and 11.5). It must be remembered that these data are based on billing and that in 2008 there were 853 supply policies distributed between 636 installations.

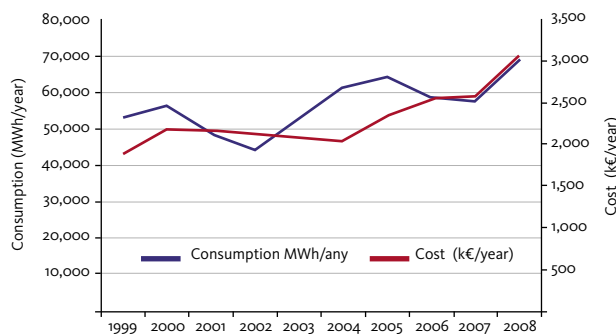
It is also important to point out that the City Council manages around 2,000 buildings, including some that are managed 100% by the council and others that are managed as a consortium. These buildings do not correspond to a single type but rather they can be classified as shown in the following table (see Table 11.2)

Owing to the different uses given to said buildings, the hours during which they are in operation vary considerably. Based on estimated reference values for the hours during which the administrative building types given in the above table are in operation, it can be concluded that the average weekly operating time of the municipal buildings is approximately 58 hours.

The temperature settings also depend on the use given to the building (a nursery is different from an office building). The City Council recommends that temperatures should be set at no higher than 21°C in winter and no lower than 24°C in summer. The



Graph 11.4. Evolution of the electricity consumption at the municipal buildings of Barcelona. The blue line shows the consumption in MWh/year and the red line shows the cost in k€/year.



Graph 11.5. Evolution of the natural gas consumption at the municipal buildings of Barcelona. The blue line shows the consumption in MWh/year and the red line shows the cost in k€/year.

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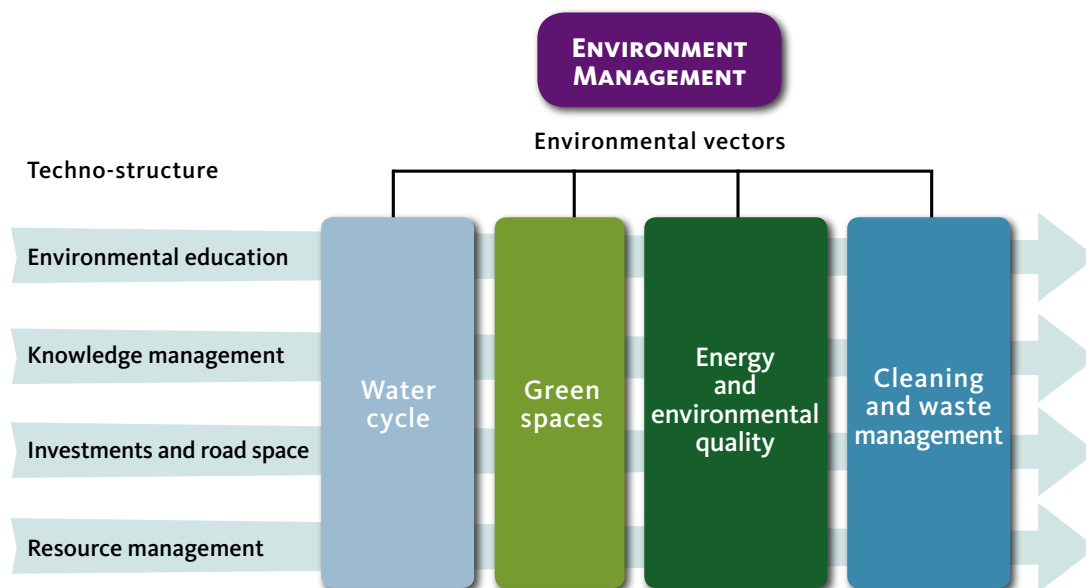


Figure 11.1. New organisation of the Environment Area, in which the environmental vectors (water cycle, green areas, energy and environmental quality, and cleaning and waste management) are integrated with the transverse directions or Technostructure (environmental education, knowledge management, road space and investments, resource management).

reference in relation to summer is given by an directive issued by the Mayor's Office (July 2005) on the rational and efficient use of air conditioning in summer, which specifies 24°C as the indoor comfort temperature in summer.

No municipal buildings hold an energy certificate. Most municipal buildings were built a considerable time ago before mandatory compliance with energy certification standards. All new buildings currently under construction in the city must have a minimum energy classification of B. To comply with the EU Directive on Building Energy Efficiency, the following instruments are in place:

- The Technical Building Code (in Spanish, CTE), regarding building parameters: RD 314/2006, dated 28/3/2006.
- The amendments to the Regulation on Heating Installations in Buildings (RITE), regarding the efficiency of heating installations: RD 1027/2007, dated 29/08/2007.
- The application of an Energy Certificate: RD 47/2007, dated 31/01/2007.
- Other regional or local legislation, such as the Eco-efficiency Decree, solar bylaws, etc.

The first project contemplated in the recently-drafted Energy Saving and Improvement Plan in Municipal Buildings (PEMEEM in Spanish) is to monitor energy consumption in buildings with regard to their surface area.

11.2. MEASURES TAKEN IN RECENT YEARS TO IMPROVE THE CITY COUNCIL'S ENVIRONMENTAL MANAGEMENT

11.2.1. Deployment of an environmental management policy

A NEW ORGANISATIONAL MODEL

To optimize its organization and guarantee the coherence of its actions, the new structure of the City Council's Environment Department hinges on four vectors and is reinforced in four transversal directions (see Figure 11.1).

As the first organization to sign up to the Public Commitment to Sustainability – Agenda 21, the City Council has assimilated its own action plan, which has two main lines of action:

- **Greening the Municipal Action Programme (PAM)**, which specifies the actions to be carried out in the city every four years.

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Figure 11.2. Some of the actions carried out by the City Council: publication of the + Sustainable City Council guide, fairtrade coffee dispensing machines, trays for reuse of paper, publication of the Green Office Guide, street furniture made from certified timber, eco litter bins.

- **The More Sustainable Municipality plan**, with actions in the Council itself.

Given the relevance of the Agenda 21 process in Barcelona, a full chapter has been dedicated to it (see Section 12).

THE BARCELONA CITY COUNCIL, THE FIRST TO DO ITS HOMEWORK

In 2001 the Green Office Programme (2001-2005) was approved, designed to set an example by promoting green procurement and applying good environmental practices to the City Council's internal operations:

After this positive experience, in 2006 the More Sustainable Municipality Plan was implemented in order to extend this initiative to all municipal activities: from 'office' to 'City Council', because it also includes contracting services, supplies and works, and from 'green' to 'sustainable' because it brings in ethical and social criteria.

Other city councils have emulated these actions, converting Barcelona into a point of reference in Spain and in the south of Europe due to its introduction of social and environmental criteria into contracting.

DISSEMINATION AMONG WORKERS

The City Council encourages its workers to adopt good environmental practices (see Figure 11.2) with

guidelines, communication campaigns and other actions such as:

- An electronic newsletter "INFO A+S"
- More Sustainable Municipality website.
- On demand training in operational areas for the plan.
- Distribution of eco paper bins to promote paper recycling and trays for reusing paper that has only been used on one side.
- Printing off a sticker encourage workers to photocopy on both sides of the sheet.
- Distribution of ceramic coffee cups for fair trade coffee.
- The 'Stop shivering' campaign, promoting the rational use of air conditioning.
- Leaflet on recycling printer toner.

11.2.2. Increased consumption of environment-friendly products

GREENING MUNICIPAL SERVICES AND PUBLIC CONTRACTING

In 2001, a government measure was approved to introduce environmental parameters into municipal activities. In 2006, another measure was approved

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on greening contracts, requiring environmental criteria to be included in the general and specific administrative bid clauses for the City Council, prior to the Spanish transposition of Directive 2004/17/EC.

100% of the municipal contracts include required environmental criteria and 37% include at least some optional environmental criteria, which is equivalent to 79% of the contracted volume.

In 2006, the City Council received the award for the best example of good practices at the Green Public Procurement seminar in Avilés, organized by the European Commission, Bakeaz and ICLEI.

After a measure was put in place in 2009 by the government regarding responsible procurement, social aspects have been incorporated into contracting.

PRODUCT GREENING

- Instructions on optimising the use of recycled paper (2002). Currently eight offices use recycled paper only.
- Mayoral Decree that is a pioneering initiative in Spain responsible timber procurement (2004). The City Council is on the WWF/ADENA 'Cities in Support of the Forests' Observatory's green list. It has also published the 'Become a Friend of the Forests' guide, drawn up by Greenpeace. Within the framework of the initiative 'Cities Twinned

By Forests', in 2007 the City Council signed a cooperation protocol with Santa Cruz de la Sierra (Bolivia)

- Promotion of highly energy efficient computer equipment, with Energy Star or TCO certification.

SERVICE GREENING

- Bids to clean municipal buildings must include environmental criteria that become a determining factor in selecting the winning bidder (for example, with Nordic Swan or European label).
- In 2009, a decree was approved to reduce the environmental and social impact of civil works. Currently in the design phase, works of a value equal to or greater than €450,000 are required to present an environmental report and a management plan. Guides have been prepared to help with this process.
- Environmental improvements to festivals, conferences, sports events and other events organised by the City Council.
- Institutional declaration (2002) to encourage the use of fair trade products in services and municipal offices, such as in catering services, bars and school dining halls.

NETWORKING

Barcelona is a member of various networks designed to swap experiences and good practices

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and to promote local environment policies. The city is competing for the vice presidency for the ICLEI's 'Procura+' campaign and is an active member of EcoProcura, the Network of Cities and Towns for Sustainability (Barcelona Provincial Council), Eurocities and the Catalan network for Ethical Public Procurement. It also forms part of international networks such as UCLG, C40, MedCités, etc.

11.2.3. Increasing the energy efficiency of municipal buildings.

Measures have been adopted to increase energy efficiency in municipal buildings. Barcelona Energy Improvement Plan 2002-2010; promotion of solar thermal power through the Solar Thermal Ordinance (1999); an international pioneer, incorporating photovoltaic energy into municipal buildings, etc. (see Section 1).

In 2009, an agreement was signed with a company to carry out eco audits in pilot buildings together with an agreement with the Autonomous University of Barcelona for students to carry out eco audits in civic centers.

A pilot scheme has been carried out on a building managed by the Public Health Agency of Barcelona: the Peracamps Building. Since 2009, this building has been subject to an all-round energy analysis, together with an improvement feasibility study, which will stand as a reference for the analysis levels in

other buildings. The analysis is being carried out in 4 phases:

1. Preparation of a list of points for review in the building (now completed).
2. Thermographic analysis (now completed).
3. Energy analysis (now completed).
4. Analysis of the building's energy performance (pending).
5. Building energy certification (pending).

Finally, a variety of different measures are being promoted within the framework of the More Sustainable Municipality Plan, and a series of good practices are being applied that have increased overall municipal building efficiency.

- Existing lights have been replaced by high-efficiency lights. This initiative has saved 350,000 kWh per year.
- Solar thermal installations in schools and sports facilities. In 2005 there were 52 installations producing 3,545,000 kWh per year.
- Photovoltaic installations on the roofs of public buildings. In 2008, 40 buildings were equipped with these installations, which generate 2,000,000 kWh per year.

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11.3. GOALS AND MEASURES FOR THE FUTURE

Beyond the scope of the work performed to date by the City Council to improve the environmental management of its own services, the City Council is planning a large number of initiatives in order to actively continue setting an example through its actions.

11.3.1. Energy Savings and Improvement to Municipal buildings Plan 2010-2020

Energy consumption in buildings and installations represents approximately 10% of the total energy consumption associated with municipal activities and public transport. For this reason, PEMEEM is one of the mainstays in the municipal programme for the Energy, Climate Change and Environmental Quality Plan for Barcelona (PEQC) (see Section 1).

The PEMEEM plans to reduce energy consumption by 10% in municipal facilities between 2008 and 2020, which will lead to a saving of 2,355 tCO₂eq/year. It includes the following strategic lines:

1. To approve a government measure on energy savings and efficiency (currently at the approval phase) that will act as a transversal tool to implement the plan.
2. Create an energy saving round table and the figure of an energy manager for municipal facilities.
3. Draft a protocol for municipal building and hand-over.
4. Draft a protocol for the communication, awareness raising and dissemination of good practices.

5. Implement monitoring and energy management systems.
6. Implement energy efficiency and saving measures in municipal facilities.
7. Implement highly-efficient heat generation systems.
8. Implement renewable energy measures.
9. Spread the implementation of energy services companies in municipal facilities.
10. Encourage the procurement of green energy through the 'Procura+' campaign.

Initially, three separate action plans are foreseen. The first one will have specific measures that are already identified and valued both with respect to savings potential and the associated economic investments.

Depending on the results for the first plan, which mainly includes building monitoring measures in order to gain exact information on energy consumption in municipal buildings; the following action plans will be designed, each estimated to last around 4 years:

- Action Plan 1 (2010 and 2011): investments have been budgeted to a sum of €7,767,536 including savings and efficiency measures that concentrate on the 22 buildings with the highest consumption rates, in order to achieve energy savings of 18.06% a year with respect to current consumption, 2.40% of all municipal buildings and will prevent the emission of more than 530 tonnes of CO₂eq per year. Specifically, it plans for

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measures to improve interior lighting and heating installation efficiency, as well as restoring the thermal envelope and implementing monitoring activities.

- Action Plan 2 (2012-2016): at present, this plan has a budget of €2,402,569.
- Action Plan 3 (2017-2020): this plan has a budget of €1,800,000.

Four-year action plans 2 and 3 will be designed by the Energy Savings Round Table according to the results obtained in Action Plan 1. The investments will be aimed at improving the municipal building installations in terms of energy efficiency. They will also focus on implementing renewable energy production systems (photovoltaic, solar thermal, etc.) and highly efficient HVAC systems (cogeneration and district heating and cooling networks).

11.3.2. More Sustainable Municipality convention

Within the framework of the More Sustainable Municipality Plan, an institutional act is planned for 18 March 2010 as a turning point that will propose objectives for the 2010 horizon (the aim is for 50% of municipal procurement and contracting to incorporate optional environmental criteria), to revise

the actions that have been taken to date, to agree to objectives and actions for the future, to promote the involvement and commitment of the organization overall and to make the programme more visible to everyone.

It is forecast that three-hundred people will take part, 120 of whom also formed part of the various council employee commissions dedicated to five priority areas of the More Sustainable Municipality Plan.

- Construction, works, building restoration.
- Savings and environmental resource efficiency in public buildings.
- Coordination of the More Sustainable Municipality Plan with other municipal programmes and actions.
- Social dimension of More Sustainable Municipality.
- A More Sustainable Municipality in day-to-day activities

Over the next few years, work will continue on monitoring contracts, ongoing improvements to tender conditions, incorporating improvements into contract renewals and specific energy saving

1. After the holding of the convention, it was resolved for the year 2010 to achieve that 100% of the paper consumed at all the buildings of the City Council should be recycled, to improve the waste collection and cleaning contract specification of the municipal buildings, incorporating recycled bins and industrial paper dispensers (toilet and hand basin) and to incorporate ecological paints and varnishes in the maintenance tasks of the municipal buildings. For the period 2016-2020, to extend the use and purchase of sustainable office material and develop a practical manual for purchasing managers on sustainable criteria for the purchase of office material.

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campaigns, water and waste management and prevention and office material through posters, cards, pamphlets and stickers.

11.3.3. Barcelona, a springboard for innovation

Barcelona is the scenario for various pilot tests that will subsequently be implemented both in Barcelona and other European cities, such as the installation of a district heating and cooling system in a Mediterranean context, pneumatic waste collection, etc.

Barcelona has made these innovation processes official through the 'Urban Lab' project, in which new technologies applied to urban services are tested, evaluated and promoted. District 22@ is used as a concentration area for these activities, as it offers the most advanced state-of-the-art infra-

structure and communication systems. Barcelona is also participating in the international SMART-SPP Project, whose aim is to develop, test and revise criteria for contracting innovative, energy efficient technologies as well as designing instruments that are useful to the Administration in managing the associated risks through specific instruments like tracking CO₂ emissions and life cycle costing. In Barcelona, researchers are working with LED technology to provide lighting for public spaces, electric vehicles for municipal services and charging points for electric vehicles.

Barcelona centralises all of its demo projects and initiatives to encourage the use of electric cars through its LIVE Office – Logistics for Introducing Electric Vehicles in Barcelona and the Movele Plan (a state-run programme that promotes the use of electric vehicles) (*see Section 2*).



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11.4. HISTORICAL AND GEOGRAPHICAL CONTEXT

Barcelona, a city with a delocalised, compartmentalised city council.

The size of the city (1,615,000 inhabitants) and the large number of departments and divisions that form the management structure for the City Council make coordination a complex issue. Moreover, the desire to maintain the historical building that is the present headquarters for the City Council due to its symbolic value, has made it difficult to group all of the departments under a single roof. Their location in different buildings spread out all over the city (more than 600) also makes inter-departmental communication a challenge.

Barcelona, a city that needs to optimise its administrative tasks

Barcelona City Council manages its public contracting in a decentralized fashion. This makes it difficult to manage and to make changes and improvements, because too many representatives are involved in all the required procedures. Apart from this, the City Council has not put into place procedures for all its processes, which results in a certain degree of inefficiency.

Barcelona, a city that needs a cultural change from an administrative point of view

The average age of City Council employees is between 46 and 47. Bringing in cultural changes and new ways of working is a challenge, because the majority of the administrative personnel at the City Council have been working there for many years, and they resist changes to their work methods and organisation.

Barcelona, a city whose citizens are becoming more and more aware of the issues

The level of environmental awareness for Barcelona residents is very low, and this is why the City Council has been working intensely on this issue. The results of the latest Habits and Values Survey on the Environment and Sustainability however, prove that progress is being made in this area. This survey was carried out between December 2008 and January 2009 and it shows that residents now are now more environmentally aware and are better informed about sustainability, especially with regards to saving water and separating waste.

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11.5. FOR FURTHER INFORMATION...

Webs:

More Sustainable Municipality:

<http://www.bcn.es/agenda21/ayuntamientosostenible/english/index.htm>

Fàbrica del Sol:

<http://www.bcn.es/agenda21/crbs/index.htm>

Agenda 21 de Barcelona:

http://www.bcn.cat/agenda21/english/index_eng.htm

Agenda 21 Escolar de Barcelona:

<http://www.bcn.cat/agenda21/a21escolar/>

Catalan Network for Ethical Public Procurement:

<http://comprapublica.wordpress.com/>

Barcelona Innova: Barcelona 2.0:

http://w3.bcn.es/Vo1/Serveis/SubPresentacio/Vo1SubPresentacioIniciCtl/o,2155,83057194_83070558_3_602876289,oo.html?accio=detall

Documents:

Pla Ajuntament + Sostenible, compromisos de futur.

Ayuntamiento de Barcelona, 18 de marzo de 2010.

http://www.convencioajuntamentsostenible.cat/pdf/compromisos_de_futur.pdf

Guide No. 5 on Environmental Education: L'Oficina Verda.

Ayuntamiento de Barcelona, 2001.

http://www.bcn.cat/agenda21/A21_text/guies/GreenOfficeGuide.pdf

Guía n.º 6 de Educación Ambiental: More Sustainable Celebrations.

Ayuntamiento de Barcelona,

http://www.bcn.cat/agenda21/A21_text/guies/sustainablecelguide.pdf

Guide No. 25 on Environmental Education: Oficina Verda per a empreses del sector d'oficines i despatxos (Green Office for companies in the office sector)

Barcelona City Council, 2004.

http://www.bcn.es/agenda21/ayuntamientosostenible/documents/guia_OVE.pdf

Guide No. 28 on Environmental Education: Fes-te amic dels boscos / Become a friend of the forests.

Barcelona City Council, 2005.

Guide No. 30 on Environmental Education: More Sustainable Municipality.

Barcelona City Council, 2006.

<http://www.bcn.cat/agenda21/publicacions/guiesdeducacio.htm>

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Barcelona City Council , 2008.

<http://w3.bcn.es/fitxers/ayuntamiento/memoriaactivitat2008cat.671.pdf>

Mayoral Decree: responsible timber procurement policy.

Barcelona City Council, 23 July 2004.

http://80.33.141.76/agenda21/docs_interns/fustadecret2004.pdf – Mayoral Decree: use of recycled paper. Barcelona City Council, 22 March 2002. http://80.33.141.76/agenda21/docs_interns/decretreciclat2002.pdf

Institutional Declaration to promote fair trade and ethical procurement.

Barcelona City Council, 22 November 2002.

http://80.33.141.76/agenda21/docs_interns/declaraciocj2002.pdf

Barcelona. A great opportunity. BALANCE after two years in office.

Barcelona City Council, 15 June 2009.

Barcelona tomorrow. A model of commitment to the planet.

Barcelona City Council, February 2008.

Bid documents on the homologation of computer equipment 2002.

Barcelona City Council.

http://www.bcn.es/agenda21/ayuntamientosostenible/doc_interns.htm

Energy Savings and Improvement Plan in Municipal Buildings 2009-2011.

Barcelona Energy Authority. Barcelona City Council, June 2009.

http://www.barcelonaenergia.cat/document/actuacions/Memoria_PMEB_2009_v2.pdf

Barcelona Works towards Sustainability.

Ayuntamiento de Barcelona, 2009.

<http://www.bcn.cat/agenda21/english/documents/AGENDA21.pdf>