

Fundació Joan Miró ✱  **Barcelona**

**FUNDACIÓ JOAN MIRÓ
ENVIRONMENTAL STATEMENT 2014**

This statement is based on data from 2014.



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At the Fundació Joan Miró we are aware of the importance of protecting the environment. This awareness prompted our decision to commit to continuous improvement geared towards achieving sustainable development.

In view of this, we have renewed our environmental management system (EMS) certification, which offers us the tools required to carry out an environmental assessment that ensures the continuous improvement of processes stemming from the museum's activities, based on the commitment and motivation of each and every individual who forms part of it. It involves everybody: from the Fundació's staff to external suppliers and collaborators, as well as visitors-users.

This environmental management system allows us to assess the environmental impacts of our operation. Once we know what they are, we can work towards continuous improvement in our day-to-day work, with the aim of minimising these impacts and setting up self-control mechanisms leading to the optimisation of the entire system, and guaranteeing its efficiency.

Dolors Ricart
General Manager, Fundació Joan Miró

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OUR ENVIRONMENTAL POLICY

True to its values and aware of its responsibilities regarding the protection of nature, the Fundació Joan Miró (Centre d'Estudis d'Art Contemporani) aims to become exemplary as an environmentally friendly organisation. Accordingly, it has implemented an environmental management system based on the European EMAS regulation and international standard ISO 14001 in all of its facilities and activities, thus formalising its commitment to sustainable development.

This policy is based on the day-to-day involvement of all our employees and collaborators. Each one is committed to the implementation of this policy and to the values that stem from it. Moreover, it is the framework for defining and reviewing the ongoing improvement objectives in relation to Fundació Joan Miró's environmental performance.

The principles of the Fundació Joan Miró's environmental policy are to:

Systematically integrate environmental protection in all of our activities

In keeping with our desire to carry out our work in a manner that is as environmentally friendly as possible, we commit to using all available technical improvements and practices relative to environmental protection, as well as complying with the regulations in force and other requirements that the organisation has agreed to, thus strengthening its commitment to continuous improvement.

Prevent

In accordance with our objectives regarding management of the impacts stemming from our activities, we commit to implementing all necessary technical and human resources to prevent contamination that could arise from our operations.

Promote our values and disseminate good practices

We will disseminate information regarding our environmental impacts in a clear and transparent manner, promoting dialogue and sharing proposals with interested parties (local residents, administrations, suppliers, staff).

Act in a responsible manner

Aware of the serious nature of the problem of environmental pollution and its impact, which we are directly responsible for, we commit to implementing all possible measures to manage and control it.

8 March 2010



Jaume Freixa i Janariz

President



Rosa Maria Malet Ibern

Director

THE FUNDACIÓ JOAN MIRÓ

The Fundació Joan Miró opened to the public on 10 June 1975, but its origins go back to the first major Joan Miró exhibition at the former Hospital de la Santa Creu in 1968. On that occasion, several leading figures from the cultural and art world realised that there was a historic opportunity to create a space that would become a benchmark and a point of reference for understanding Miró's work. But in keeping with the artist's wishes, it was agreed that the new centre would also facilitate knowledge and dissemination of contemporary art, in all its aspects.

At a time when the art and cultural scene was rather limited, the Fundació Joan Miró injected vitality by introducing a more dynamic museum concept, placing Miró's work alongside all kinds of artistic expressions. This principle is reflected in the subheading CEAC (Centre d'Estudis d'Art Contemporani / Centre for Contemporary Art Studies), which forms part of the Fundació's name. The Fundació was declared a Museum of National Interest in recognition of its heritage value.

The Fundació Joan Miró is a Catalan private foundation. Its representation, management, and administration, and the disposition its founding assets, are managed by a Board of Trustees, which was originally made up of a group of intellectuals, artists, and friends and relatives of Joan Miró. The Board currently consists of a maximum of twenty-five members, including representatives from the Catalan Government, the Spanish Ministry of Culture, Barcelona City Council, and the art and business worlds.

The Fundació is housed in a building designed by Josep Lluís Sert, architect and co-founder GATCPAC (Grup d'Arquitectes i Tècnics Catalans per al Progrés de l'Arquitectura Contemporània), who was also a close friend of Joan Miró. It was built on land provided by Barcelona City Council in Parc de Montjüic.

The Fundació is open to the public from Tuesday to Sunday throughout the year.

The organisational chart of our environmental management system is as follows:





OTHER RELEVANT DETAILS

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NACE: 9102 - Museums activities

CNAE: 9102 – Museum

Environmental Manager: Ramón González (Head of Maintenance and Security)

EMAS register: ES-CAT-000386

THE ENVIRONMENTAL MANAGEMENT SYSTEM

The Fundació's Environmental Management System (EMS) is based on international standard ISO 14001 and on the European EMAS regulation that companies can voluntarily adopt, becoming part of a European eco-management and audit scheme. It is a continuous improvement system that is incorporated into the Fundació's overall management.

Our environmental management system is based on our activities which focus on the conservation, preservation, and dissemination of Joan Miró's work through:

- The permanent exhibition of the collection
- Temporary exhibitions
- Cultural activities
- Educational programmes
- Archive and library service
- Management of visits to the museum
- Gift store and bookshop
- Management of the bar and restaurant services
- Venue hire

Based on our EMS policy, we analyse the environmental aspects involved in our activities (the use of paper, water, energy...) and those of our visitors and suppliers. We then set a series of objectives to reduce the impact of these activities and improve the quality of our services and visitor satisfaction. We also monitor the correct functioning of the system on a regular basis.

A Management Handbook sets out all our EMS guidelines, along with instructions on how to carry out each activity in order to integrate environmental management into our day-to-day work.

Compliance with the Key Legal Requirements

The Fundació Joan Miró ensures it is aware of the applicable environmental legislation and checks compliance. Our current legal compliance status is as follows:

- Environmental licence
The Fundació Joan Miró has the corresponding environmental licence issued by Barcelona City Council. The first periodic inspection will be take place in 2015.
Law 20/2009 on environmental monitoring and prevention (art. 73)
- Wastewater control
In January 2010, the metropolitan body issued a wastewater discharge permit for a five-year period. The permit is up for renewal in 2015. Tests are carried out on an annual basis to monitor wastewater quality. The 2014 test results were positive, and all parameters tested were below the maximum levels permitted.
Metropolitan regulations for wastewater discharge in Barcelona (art. 26)
- Waste Management
We store and manage our waste in accordance with the current legislation. The Fundació is registered with the Agència Catalana de Residus as a producer of industrial waste, under code P-12714.1. As it generates less than 10 tonnes of hazardous waste per year, it is not required to issue an annual waste declaration or to carry out a hazardous waste minimisation study.
The Fundació puts paper packaging into the market: the bags that are provided to gift shop customers. For this reason, it has joined an integrated packaging management system run by Ecoembes. It also issues an annual packaging declaration.

Law 22/2011, of 28 July, on contaminated soil and waste (art. 17)

Decree 93/1999, of 6 April, on waste management processes (arts. 4, 6 and 8)

Royal decree 782/1998, approving the regulation to develop and regulate Law 11/1997, on packaging and packaging waste (art. 15)

- **Facilities**

The Fundació's Safety and Maintenance Department is responsible for the preventive, corrective, and statutory maintenance of its facilities in accordance with current regulations. The Fundació has an automatic monitoring system for its climate-control, lighting, fire-detection, and energy production equipment.

Regarding statutory inspections of the electrical system, the low voltage inspection was carried out in 2014, and the high voltage inspection is scheduled for 2015. The Fundació works with certified companies that monitor and check the equipment and carry out the statutory inspections.

Royal decree 842/2002, of 2 August, approving the low-voltage electrotechnical regulation (arts. 20 and 21). (Complementary technical instruction – Low voltage 05 - 4.1 and 4.2)

Royal decree 3275/1982, on technical conditions and safety assurance in electrical power stations, substations, and transformer substations (arts. 12 and 13).

The Fundació has two lifts that are serviced annually, and one goods lift. The last statutory inspection of the lifts was carried out in 2014 with positive results for both. The mechanism of the goods lift was updated in 2015. The next inspection is scheduled for 2017.

Royal decree 88/2013, approving the MIE-AEM complementary technical instruction for "Lifts" in the regulation on elevation and maintenance devices approved by Royal decree 2291/1985 (arts. 5 and 11).

The climate-control equipment (air-conditioning and boilers) passed the initial statutory inspection in 2008, and the last regular inspection was carried out in 2014.

The next energy efficiency review will take place in 2016. The Fundació has an annual maintenance contract with an authorised company.

Royal decree 1027/2007, approving the regulation of thermal equipment in buildings (technical instruction 03, art. 26, arts. 30 and 31).

Instruction dated 6 April 2011, issued by the Department of Energy, Mines, and Industrial Safety (arts. 3 and 4).

Royal decree 919/2006, approving the technical regulation of the distribution and use of gaseous fuels and its complementary technical instructions (ITC-ICG 07, art. 4.1)

The equipment (classified as low-risk) is maintained and disinfected on an annual basis in accordance with the guidelines on legionella bacteria. An annual laboratory analysis is also carried out.

Royal decree 865/2003, of 4 July, specifying the health-hygiene criteria for the prevention and control of legionellosis (annex III)

Decree 352/2004, of 27 July, specifying the health-hygiene criteria for the prevention and control of legionellosis (art. 2)

Mercury Fountain, a work by Alexander Calder that has the particularity of including liquid mercury as part of the work, is on display at the Fundació. The Fundació strictly monitors the piece and hires a specialised company to clean it. Air quality tests are carried out on an annual basis to detect the presence of mercury.

In 2011, the Catalan government's Department of Territory and Sustainability accepted the Fundació's application for the non-applicability of Regulation 1102/2008 on mercury storage, insofar as the sculpture is considered an ornamental installation.

- **Industrial safety and emergencies**

The Fundació has a self-protection plan that was approved by Civil Protection in late 2014. A training course for emergency response officers is scheduled to take place in 2015, as is an information session for all staff. An emergency drill will subsequently be carried out to test its effectiveness.

Fire detection and protection devices have been installed throughout the museum. These devices are checked by a certified company that carries out all regulatory inspections.

Royal decree 1942/1993, of 5 November, approving the regulation on fire protection (arts. 13, 17, 18 and appendix II)

Decree 82/2010, approving the list of activities and centres that are required by law to adopt self-protection measures and describing the content of said measures.

- **Storage of hazardous materials**

The Fundació keeps safety data sheets for hazardous cleaning, maintenance, and restoration products.

Royal decree 379/2001, approving the regulation of chemical product storage (ITC-MIE-APQ-001: storage of inflammable liquids and fuels)

TRAINING AND AWARENESS-RAISING OF INTERESTED PARTIES

Training and environmental awareness-raising of employees is key to the success of the environmental management system. Several staff training and awareness-raising activities were carried out in 2014. Sessions on green purchasing and criteria for choosing suppliers were organised for employees of the Communication, Gift Store, and Bookshop departments, and information sessions on the carbon footprint were organised for all departments.

Maintenance personnel participated in a training session on driving forklifts.

The Environmental Manager is responsible for the environmental awareness of employees, by means of e-mail reminders regarding good practices, new environmental objectives, and other measures. The Environmental Statement is available to all staff.

During 2014, the Fundació organised several environmental communication activities for interested parties:

- Information on the Environmental Statement, which is published on the Fundació Joan Miró website.
- Dissemination of the Fundació's environmental commitment by printing the phrase "The Fundació Joan Miró is an environmentally-friendly organisation" on brochures, catalogues, and tickets.
- Communication of the environmental policy to suppliers.
- Dissemination of certifications on the screen at the entrance to the museum for all visitors
- "Discover the Paths of Montjüic" project, which promotes the relationship between the Fundació and residents of Poble-sec. As part of this project, an excursion to the mountain was organised departing from Poble-sec, with the participation of around thirty local residents.

In the course of 2014, there were no complaints related to the museum's environmental management.

IDENTIFICATION AND EVALUATION OF SIGNIFICANT ENVIRONMENTAL ASPECTS

Each year, the Fundació identifies the environmental aspects that are directly related to its activities and that of third parties that could influence its activities. An evaluation method is used to determine which aspects are significant, in order to reduce their impact. This mathematical method is based on three parameters –magnitude, frequency, and severity– for normal situations, and a further three –probability, capacity, and severity– for emergency situations. In 2014, the following environmental aspects were found to be significant and to require preventive and/or corrective measures:

ENVIRONMENTAL ASPECT	STATUS	ASPECT	ENVIRONMENTAL IMPACT
Use of natural gas in boilers	N	D	Depletion of natural resources
Use of mains water	N	D	Depletion of natural resources
Emissions of greenhouse gases from boilers	N	D	Effect on ozone layer
Total urban waste (scraps, cardboard, glass, packaging)	N	D+I	Environmental and soil pollution
Ordinary waste	N	D	Environmental and soil pollution
Use of chlorine	N	D	Environmental and soil pollution

ENVIRONMENTAL PROGRAMME

An environmental objectives plan was drafted in early 2014. This plan allows us to monitor the extent to which the initial objectives have been met.

OBJECTIVE 1. Reduce the electrical energy consumption by 1% in relation to 2013.		
NOT ACHIEVED		
GOALS	PERSON IN CHARGE	STATUS
ERCO (supplier) TEST: Outdoor lighting with LED lights in the courtyards	Head of Maintenance	Postponed
EDELED (supplier) TEST: Indoor lighting of offices with LED lights.	Head of Maintenance	Postponed
Outdoor lighting with timer.	Head of Maintenance	February 2014

Results: One of the three initial sub-objectives was met, while the other two were postponed due to budgetary constraints.

The objective of reducing electricity consumption could not be met. This may be due to a temporary exhibition that required humidity control, increasing electricity consumption beyond the usual levels.

Even so, electricity consumption remained quite stable, given that the MWh increased by 1.70% in relation to 2013, but decreased by 3.53% compared to the historical average (2010-2013). The MWh/visitor indicator increased by 15.55%,

OBJECTIVE 2. Reduce the use of natural gas by 1% in relation to 2013.		
ACHIEVED		
GOALS	PERSON IN CHARGE	STATUS
Improve gas meter readings.	Head of Maintenance	Discarded
Shutdown boiler 2 during the summer period.	Head of Maintenance	Postponed
Improve the efficiency of the boiler management programme.	Head of Maintenance	Done

Results: One of the three initial sub-objectives was discarded, given that a detailed study showed that it would not lead to any improvement. One of the two remaining goals is pending evaluation in 2015, and the other was satisfactorily achieved.

The goal of reducing gas consumption was achieved beyond expectations, given that consumption decreased by 19.38% in relation to 2013, and by 8.82% compared to the historical average (2010-2013). This substantial reduction can probably be principally attributed to the efficiency of the new steam generator that was installed, and to the shutdown of the steam generator between May and October 2014 when it was not required due to the environmental and weather conditions in the city in 2014, a warm year with few days of intense cold and stable humidity levels.

OBJECTIVE 3. Reduce water usage by 1% in relation to 2013.		ACHIEVED	
GOALS	PERSON IN CHARGE	STATUS	
Install a new pulse counter to control water usage	Head of Maintenance	Postponed	
Find out the usage attributable to maintenance of the Institut Municipal de Parcs i Jardins	Head of Maintenance	Postponed	
Study the possibility of shutting down the pond out of season	Head of Maintenance	Done	

Results: Two of the three initial sub-objectives were postponed until 2015, as they could not be implemented in 2014 due to budgetary constraints or technical issues. As for the pond, even though Management has decided that it should operate throughout the year because it is a key aspect of the Fundació's public image, in 2014 it was out of order during three months due to technical problems.

The Fundació achieved the objective of reducing water usage, with a decrease of 3.51% in relation to 2013. Even so, water usage is an environmental problem requiring specific measures, given that it has increased by 7.75% compared to the historical average (2010-2013). The reduction achieved this year in relation to the previous year is thought to be directly related to the shutdown of the pond.

IMPROVEMENT MEASURES	PERSON IN CHARGE	STATUS
Start to include environmental information on paper used in publications and brochures.	Head of Maintenance Head of Communication	Ongoing
<i>Done.</i> A protocol has been initiated with the Department of Communication, and is expected to develop over time.		
Contact CESPÀ and the municipal waste collection agency to discuss changing the current rubbish containers (closed containers with a press mechanism).	Head of Maintenance	May 2014
<i>Done.</i> In accordance with Barcelona City Council, the Fundació uses the municipal bins located on the public thoroughfare for collection of municipal solid waste.		
Get rid of paint with toxins and use biodegradable organic material in Espai Taller for the schools education programme. Introduce digital dossiers in the education programme; reduce paper usage.	Head of Maintenance	Ongoing
<i>Done.</i> Systems for management, separation, and reuse of tools are being implemented.		
Study the possibility of hiring a waste manager to prepare a social programme for selective waste separation and collection.	Head of Maintenance	July 2014
<i>Done.</i> A foundation that works on social issues has been hired for special waste collection.		
Evaluate green purchasing suppliers for paper products in the Gift Store and Bookshop, to reduce paper consumption.	Head of Maintenance	Ongoing
<i>Done.</i> The process of evaluating the information obtained about the main providers began in 2014. This is an improvement measure that will be carried out on an ongoing basis.		

Summing up, we have achieved 66.67% of the objectives set in early 2014 (two of the three objectives) and we have implemented the five planned improvement measures, even though three of these are to be implemented on an ongoing basis.

ENVIRONMENTAL PERFORMANCE INDICATORS

The Fundació uses a set of basic indicators to monitor environmental performance in regard to:

- Energy efficiency
- Water
- Waste
- Efficiency in the use of materials
- Emissions
- Biodiversity

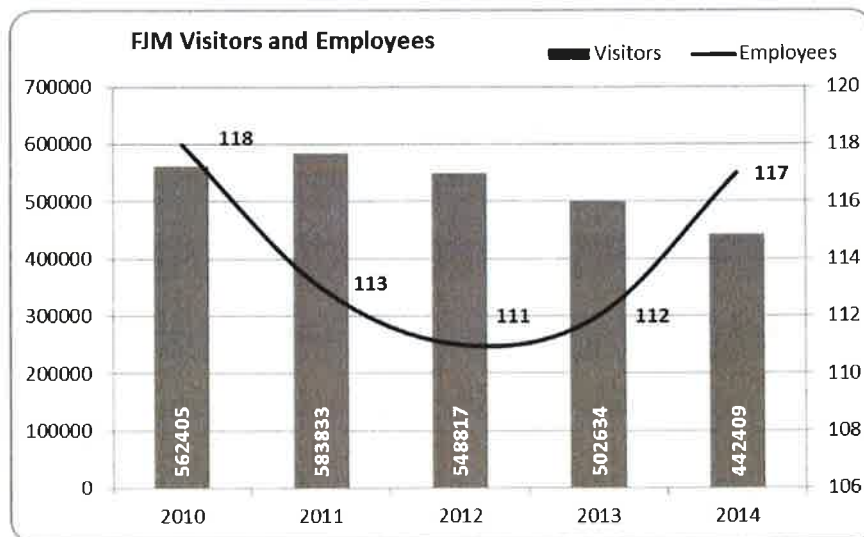
As a museum, the most appropriate indicators for the Fundació are based on visitor numbers, except in the case of some aspects that are linked to the number of employees, such as paper consumption.

The indicators were calculated on the basis of the following denominators for 2014:

- Visitors: 442,409
- Employees: 117

Up until 2013, average humidity and temperature were also measured, but we stopped taking these parameters into account in 2014 because we consider that they are not significant in the analysis of the Fundació's environmental performance.

The number of visitors has decreased over the last few years. However, the number of employees increased in 2014 following a period of cutbacks. This information is illustrated in the following chart:



ENERGY EFFICIENCY

The Fundació uses three types of energy sources: electricity, natural gas, and diesel.

The Fundació's consumption is considerable, given that one of its essential activities is the conservation of artworks, which must be kept under very strict temperature and humidity conditions. The exhibition rooms need to be humidified or dehumidified, and temperatures have to be lowered or raised, making it necessary to use machinery such as air-conditioners and steam generators, for example.

Gas is basically used by the boilers for climate-control purposes, and diesel is only used for the generator, which is only turned on for maintenance purposes and in the event of a shutdown or failure in the power supply.

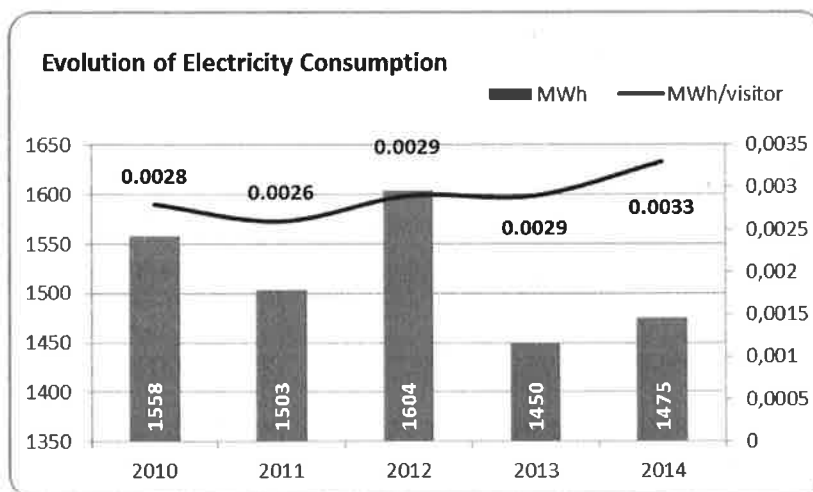
The Fundació does not have any equipment that generates renewable energy. However, in accordance with its environmental commitment and its objective of promoting the use of renewable energy, all electricity used at the Fundació Joan Miró in 2014 came exclusively from renewable energy sources, as certified by the electricity provider.

Electrical Energy Consumption

The evolution of the water consumption indicator over the past five years has been as follows:

	2010	2011	2012	2013	2014
MWh	1,558	1,503	1,604	1,450	1,475
Evolution	---	-3.53%	+6.72%	-9.60%	+1.70%
MWh/visitor	0.0028	0.0026	0.0029	0.0029	0.0033
Evolution	---	-7.14%	+11.54%	-1.30%	+15.55%

These values are illustrated in the following chart:



In 2014, electricity consumption increased by 1.70% in relation to 2013, but dropped 3.53% compared to the historical average (2010-2013). This difference is due to very high electricity consumption in 2012 that raised the overall average consumption for the period.

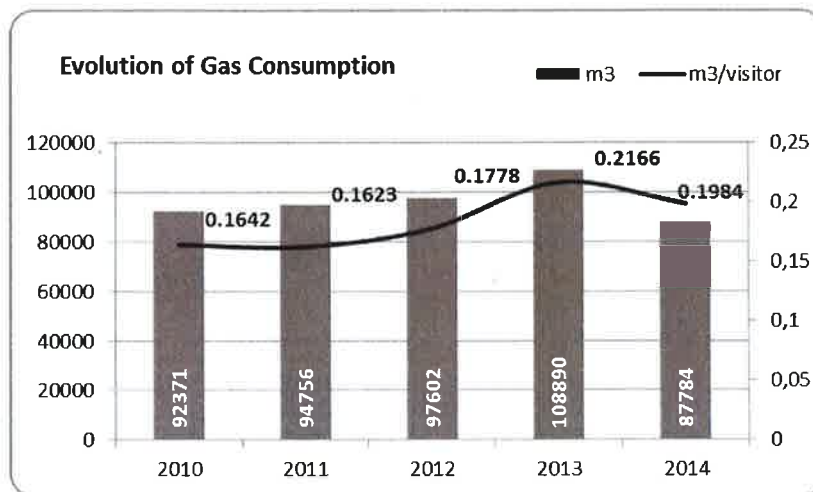
Due to this drop, the consumption-per-visitor indicator has increased in relation to the previous year (+15.55%) and also in relation to the historical average (+19.57%). It is important to bear in mind that some of the energy reduction measures scheduled this year had to be postponed, and that one of the temporary exhibitions required humidity control that increased this consumption. On the other hand, the reduction in visitor numbers compared to 2013 also had a negative impact on the indicator.

Natural Gas Consumption

The evolution of the water consumption indicator over the past five years has been as follows:

	2010	2011	2012	2013	2014
m ³	92,371	94,756	97,602	108,890	87,784
Evolution		+2.58%	+3.00%	+11.56%	-19.38%
m ³ /visitor	0.1642	0.1623	0.1778	0.2166	0.1984
Evolution		-1.16%	+9.55%	+21.82%	-8.40%

These absolute values are illustrated in the following graphic:



In 2014, natural gas consumption decreased significantly, with a reduction of 19.38% in relation to 2013, and 8.82% in comparison to the historical average (2010-2013). While the kWh/visitor indicator shows a decrease of 8.41% in relation to 2013, there is an upward trend of 10.08% compared to the historical average. The significant reduction in 2014 may be attributable to several factors:

- Improved efficiency of the new steam generator.
- Shutdown of the steam generator between May and October 2014, when it was not necessary to humidify the exhibition rooms.
- The overall weather conditions in the city, given that 2014 was a warm year with few days of intense cold and stable humidity levels.

Diesel Consumption

Diesel is only used for the generator, which is only switched on for high voltage maintenance and if the Fundació is cut off from the electricity supply in the case of emergency.

It was not necessary to load diesel in 2014.

Total Energy Consumption

The Fundació's total energy consumption includes electricity, natural gas, and diesel consumption. As it is not possible to add electrical kilowatts and thermal kilowatts, the consumption of each of these energy sources was converted to a common unit, MWh, in order to assess the environmental impact of overall energy consumption.

Energy source	Consumption	Conversion factor ¹	Consumption in MW
Electricity	1,475 MWh	---	1,475
Natural gas	87,784 m ³	910 m ³ = 12.44 MWh	1,200
Diesel	0 litres	1,181 litres = 13.02 MWh	0

The Fundació's total energy consumption in 2014 was 2,675 MWh, which was a decrease of 8.98% in relation to 2013, when total consumption was 2,939 MWh. This gives the indicator a value of 0.006 MWh/visitor.

The Fundació building, designed by the architect Josep Lluís Sert, is listed as a Cultural Asset of National Interest, under the category of Historical Monument. As such, changes to the exterior architecture are not permitted and the Fundació cannot install equipment for generating renewable energy, as it would significantly alter the appearance of the building.

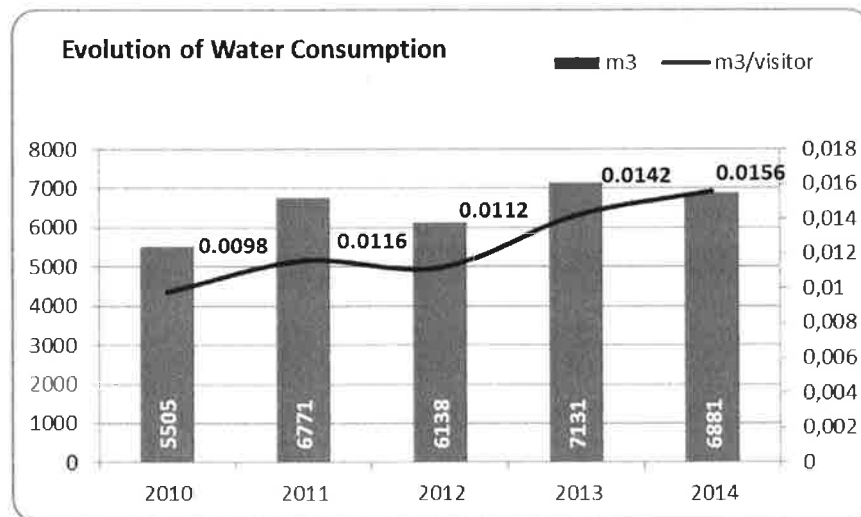
Water

The Fundació's water consumption can be divided according to usage: osmosis water for the humidification of artworks and for human consumption, softened water for the machines and equipment and, lastly, water for the landscaped inner courtyards.

The evolution of the water consumption indicator over the past five years has been as follows:

	2010	2011	2012	2013	2014
m ³	5,505	6,771	6,138	7,131	6,881
	---	+22.99%	-9.35%	+16.18%	-3.51%
m ³ /visitor	0.0098	0.0116	0.0112	0.0142	0.0156
Evolution	---	+18.37%	-3.45%	+26.78%	+9.63%

These values are illustrated in the following chart:



In 2014, water consumption dropped by 3.51% in relation to 2013, but it increased by 7.75% compared to the historical average (2010-2013). This difference in performance is due to the reduction in visitor numbers. As such, the consumption-per-visitor indicator has gone up in relation to the previous year (9.63%), and also in relation to the

¹ Conversions were carried out using data from the IDAE (Instituto para la Diversificación y Ahorro de la Energía).

historical average (33.06%). It should be noted the Fundació's pond did not operate for three months in 2014, and that this may have contributed to the reduced consumption.

Partial water counters are due to be installed in 2015 as an improvement measure. These will provide more information about the consumption of the different types, which can help us to design tools to reduce overall consumption.

Waste

The Foundation generates non-hazardous urban waste: paper and cardboard, lightweight packaging, glass, organic matter, scraps, wood, etc., both in the set-up and dismantling of exhibitions and for visitor-related activities. It also generates hazardous waste as a result of maintenance and restoration tasks: mineral oils, fluorescents, contaminated packaging, etc. Office work at the Fundació generates waste such as batteries, toners, ink cartridges, etc. All of the waste generated is stored and managed by authorised companies (in the case of hazardous waste and of the waste generated in the set-up and dismantling of exhibitions) or disposed of through the municipal rubbish collection service (in the case of urban waste).

The following table shows the evolution of waste generation (2014 and 2013):

Waste (t)	2014	2013	Evolution
Fluorescents	0.01	0.01	-9%
Toners and cartridges	0.05	0.04	22%
Batteries	0.02	0.05	-57%
Solvents	0	0.07	-100%
Electrical equipment	0.63	0.16	294%
Contaminated rags and absorbent materials	0.08	0.16	-50%
Industrial batteries	0	0.23	-
Scrap metal	0.83	0.24	246%
Paint residue	0.08	0.26	-69%
Contaminated packaging	0.07	0.31	-77%
Electrical cables	1	0.63	59%
CD + DVD	0.04	-	-
Plastics	1.02	1.728	-41%
Wood	2.76	0	-
Organic matter	1.49	-	-
Glass	0.58	-	-
Paper and cardboard	6.19	18.36	-66%
Scraps	5.25	20.52	-74%

The following types of waste have gone up:

- Toner and cartridges used in office and administration tasks.
- Electrical equipment, due to the updating of IT equipment and the discarding of small electrical devices.
- Scrap metal: waste that was generated on a one-off basis due to building work (renovation of the auditorium) and maintenance tasks in general, and as such is not applicable.
- Electrical cabling: attributable to the building work carried out in the course of 2014.

All other types of waste were reduced. The implementation of a new internal management model was a great improvement in this sense. Since 2014, the Fundació uses scales to monitor and control waste. This provides information on the true amount of waste generated, particularly in the case of urban waste, which was previously only estimated. This is one of the main reasons behind the significant reduction of this type of waste, as can be seen in the case of scraps, paper and cardboard waste.

In 2014 the Fundació also began to separate the organic matter generated in the cafeteria-restaurant for collection.

As for types of waste, 14.58 of the 20.06 tonnes generated (72.68% of total waste) can be classed as urban waste, consisting of:

- Paper and cardboard
- Glass
- Plastics
- Organic matter
- Scraps

The remainder (27.32% of the total) is waste arising from maintenance of the building.

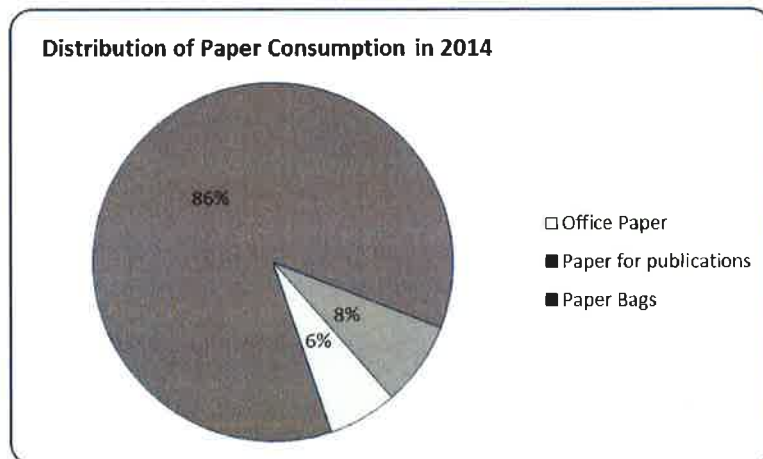
Efficiency in the Use of Materials

Use of Office Products, Publications, and Gift Store

The use of paper in the museum is divided into:

- Use of paper in the offices
- Use of paper bags in the Gift Store and Bookshop
- Use of paper in the museum's communication activities

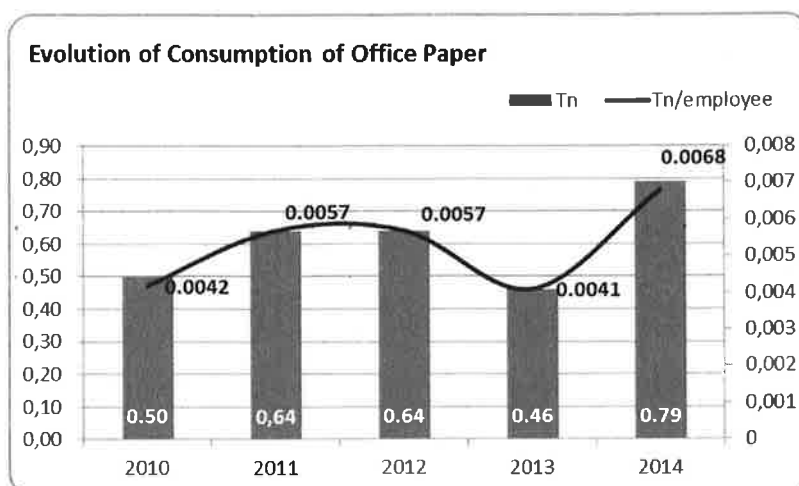
In 2014, the distribution according to type of use was as follows:



The Fundació monitors paper consumption and keeps purchase and waste records.

The following chart shows the evolution of the consumption of the different types of paper:

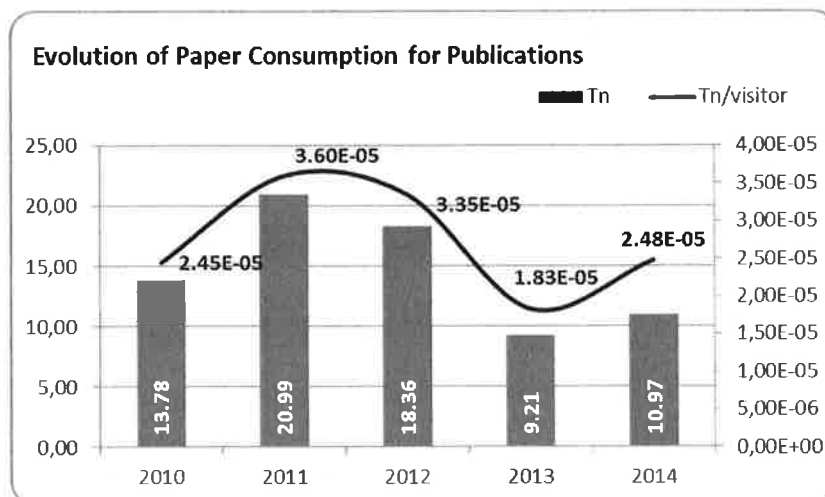
OFFICE PAPER



There was a significant increase in the use of paper in the Fundació's offices in 2014, with an increase of 71.74% in relation to 2013 and 41.39% compared to the historical average. The tonnes/employee indicator followed a similar trend, increasing by 64.4% in relation to 2013 and 36.9% compared to the historical average. Although there has been a considerable increase, this indicator was not considered important in the table of environmental measures because the paper used for this purpose is acquired using green purchasing criteria.

While the replacement of existing printers with multifunction printers in 2013 had a very positive effect last year, the performance of the indicator this year suggests the existence of a factor (as yet unidentified) that is having a negative effect. For this reason, we have decided that reducing the consumption of office paper will be one of our improvement objectives for 2015.

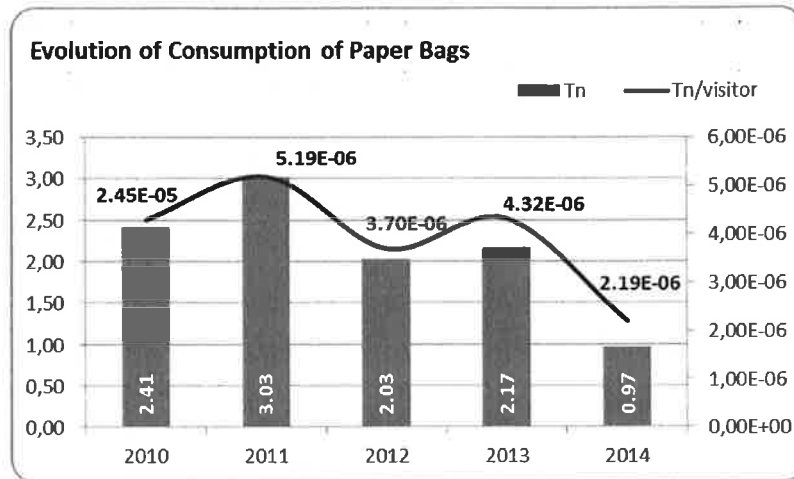
PAPER FOR PUBLICATIONS



The amount of paper used for publications in 2014 increased by 19.11% in relation to 2013. On the other hand, the historical average decreased by 29.61%, given that the Communication Department has worked on the reduction of printed material in the 2012-2014 period. This tendency is also reflected in the tonnes/visitor indicator, which increased by 35.3% in relation to 2013, but decreased by 11.6% compared to the historical average.

The Fundació has developed a general protocol for the responsible purchasing of paper and its derivatives, with a view to reducing the environmental impact of paper usage in the offices and in publications and printed material. This protocol takes into account the type of paper, suppliers, printers, inks, etc.

PAPER BAGS



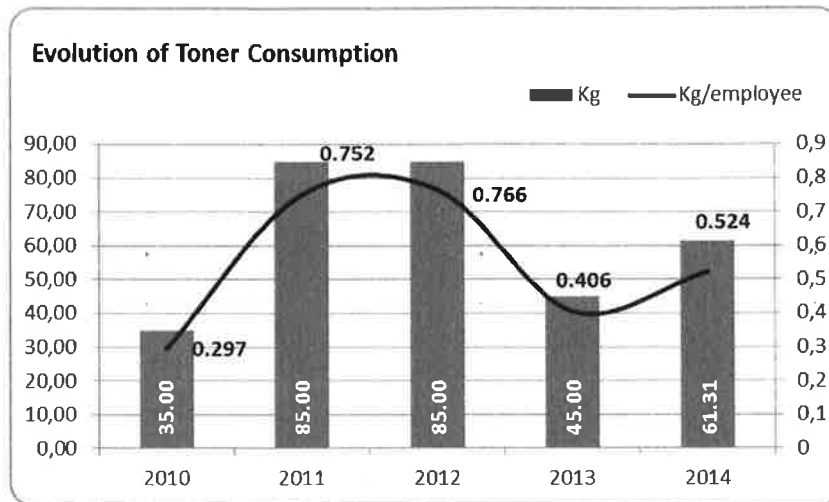
There has been a significant reduction in the use of paper bags in the Gift Store and Bookshop, with a drop of 55.3% in relation to 2013, and 59.75% compared to the historical average. The tonnes/visitor indicator showed the same trend, with a reduction of 49.2% in relation to 2013 and 49.9% compared to the historical average.

As the chart illustrates, this performance ties in with the purchasing policy for bags, according to which one large order is placed approximately every two years so as to reduce costs.

Even so, the use of paper bags is also directly linked to sales in the Gift Store and Bookshop and to visitor numbers, so this reduction is also partly due to a decrease in both those factors. At the same time, efforts were made to reduce the number and the size of bags handed out with purchases.

TONERS AND INK CARTRIDGES

The evolution of toner consumption (including ink cartridges) in the Fundació’s offices is illustrated in the following chart:

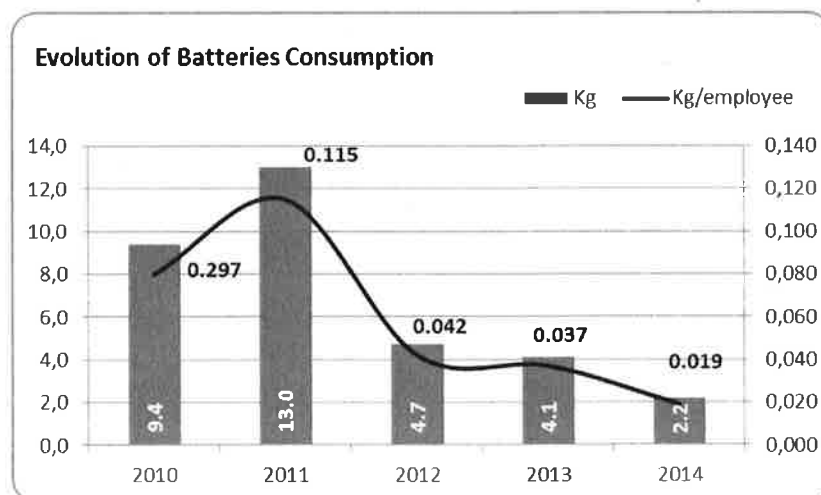


As the chart shows, toner consumption has behaved similarly to paper consumption in the offices. The use of toners and ink cartridges increased by 34.90% in relation to 2013, but decreased by 2.08% compared to the historical average. The kilos/employee indicator has followed the same pattern as the number of number kilos consumed, increasing by 29.10% in relation to 2013 and decreasing by 5.60% compared to the historical average.

These findings do not clearly show that replacing printers with multifunction equipment had a strong positive impact on toner consumption. As such, the Fundació will work towards reducing toner consumption, along with office paper consumption, in 2015.

BATTERIES

In regard to battery consumption, we have to bear in mind the efforts that have been made in past periods to reduce the consumption of non-rechargeable batteries, which have been gradually replaced with rechargeable batteries in the offices and exhibitions. The evolution of the use of batteries in the Fundació is illustrated in the following chart:



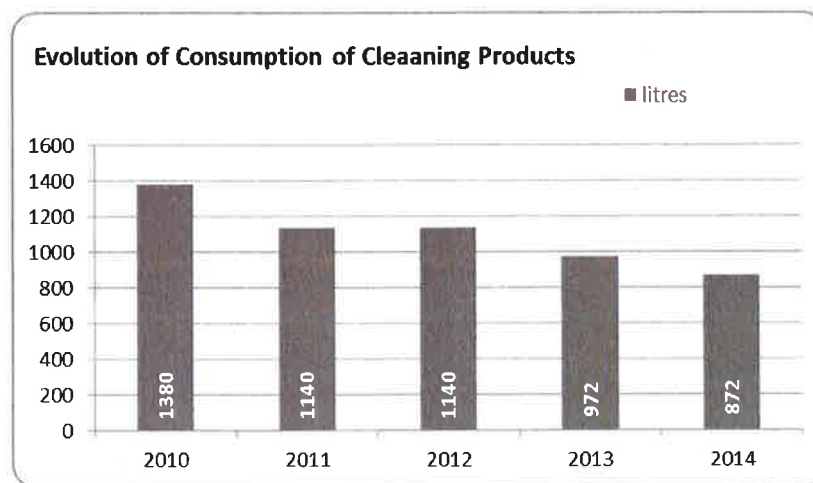
As the chart shows, the consumption of batteries has decreased substantially, by 46.10% in relation to 2013, and 81.67% compared to the historical average. The kilos/employee indicator has followed a similar pattern, with a decrease of 48.40% in relation to 2013, and 72.4% compared to the historical average.

Cleaning Products

The Fundació monitors the consumption of cleaning products, and keeps the corresponding safety data sheets. The products used on a regular basis are:

- Stain remover
- Descaling agent
- Floor polish
- Bleach
- Ammoniacal products
- Window cleaning fluid
- Dishwashing liquid

The evolution of the total number of litres consumed is illustrated in the following chart:



The consumption of cleaning products has gradually decreased over the last few years. Specifically, in 2014 it decreased by 10.29% in relation to 2013, and by 24.70% compared to the historical average.

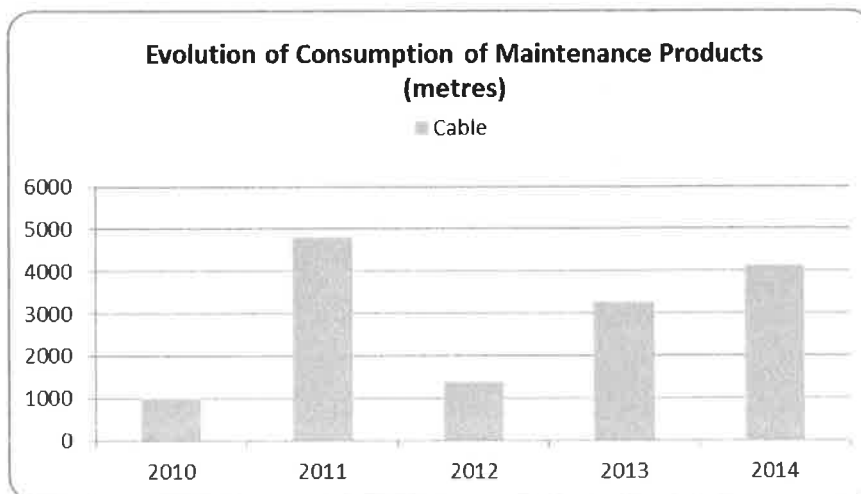
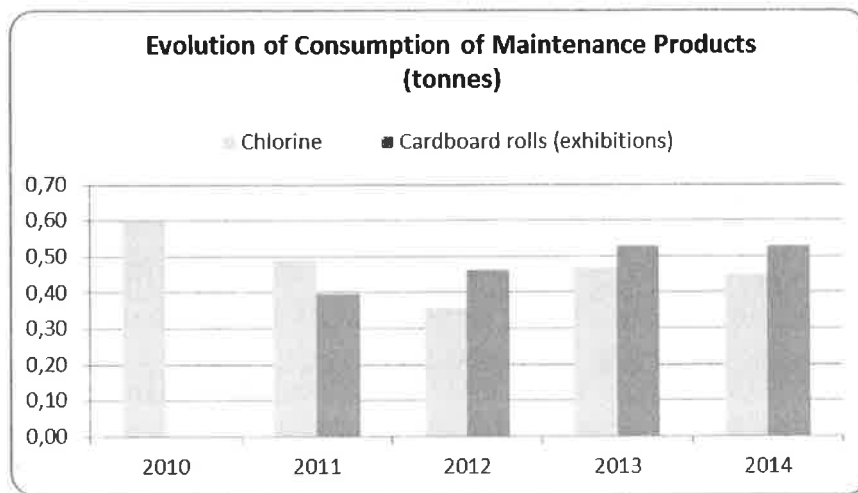
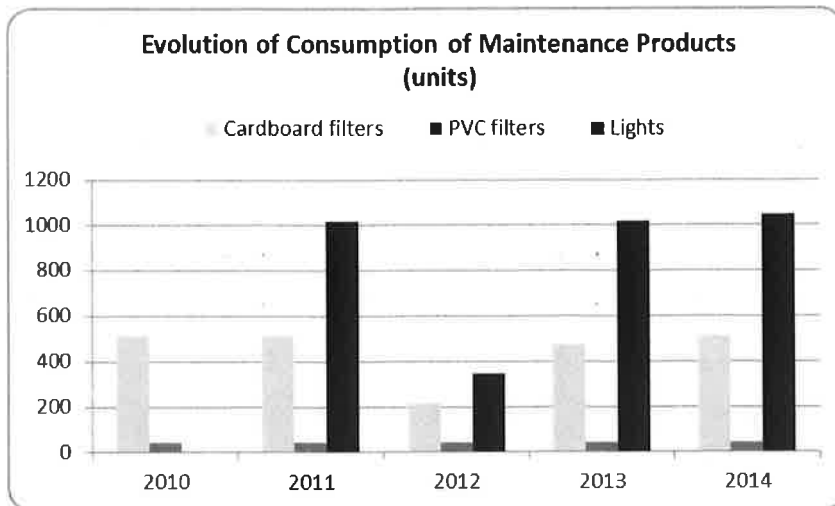
The products used in 2014 are more environmentally friendly than those used in previous years.

Consumption of Maintenance Products

Maintenance of the Fundació premises requires the use of products that may have an impact on the environment. The Fundació monitors the consumption and type of product:

- Items for climate-control equipment: cardboard filters, PVC filters, cardboard rolls
- Material for water treatment: chlorine and pH regulator
- Electrical material: lights and cables

The monitoring of maintenance products showed differences in the performance of different materials. The use of cardboard filters, lamps, cardboard rolls, and cabling increased to some extent, while the use of fixed PVC filters remained stable and chlorine consumption decreased. These findings are summarised in the following charts:



It should be noted that there had been a significant increase in the consumption of lights the previous year, largely due their use in temporary exhibitions, and also due to the gradual replacement of traditional lights with LEDs that consume less electricity and have a longer shelf life.

The use of these products is strictly limited to building maintenance tasks and to the setting-up of temporary exhibitions, so there is no scope for improvement measures or objectives.

Consumption of Restoration Products

The consumption of specific products for restoration of the works owned by the Fundació and displayed in the exhibitions varies greatly, and mainly depends on the activities organised each year, and also on purchasing policies used to decide the amount and cost of purchases.

Nonetheless, the amounts consumed are very small, and no purchases were made in 2014.

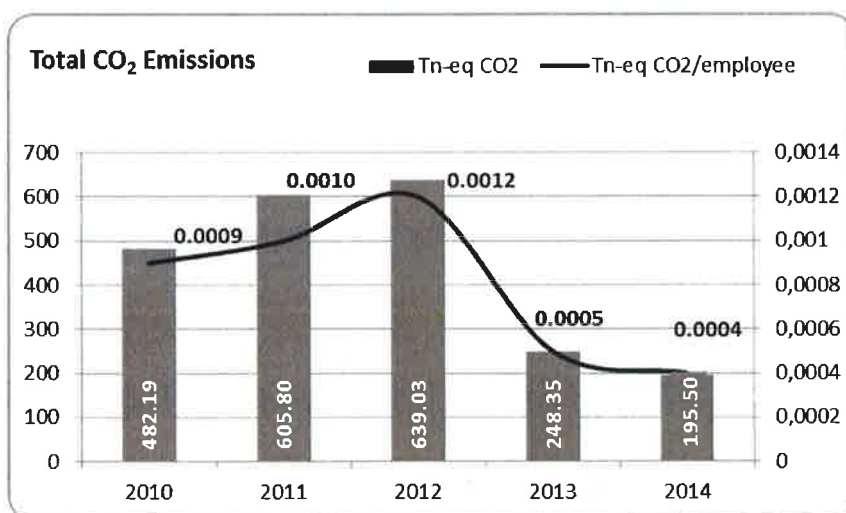
Emissions

Air Emissions

Air emissions arise from the use of natural gas and diesel and from waste generation. As such, they are directly linked to the museum's activities. Diesel consumption is sporadic and strictly seasonal.

Greenhouse emissions are measured in CO₂ equivalent (CO₂ eq), and include the six greenhouse gases specified in the Kyoto Protocol: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF₆). The calculation is based on the conversion factors used by the calculator of the Oficina Catalana de Canvi Climàtic.

The following chart shows total CO₂ emissions generated by natural gas consumption and waste generation (ordinary waste, paper and cardboard, plastics):



Given that all the electricity consumed at the Fundació is green energy, no emissions are generated. Thus, in 2014 these emissions decreased by 21.26% in relation to 2013, and by 60.40% compared to the historical average. The indicator for tonnes of CO₂ equivalent/employee performed similarly, with a decrease of 24.60% in relation to 2013 and 61.60% compared to the historical average.

Along these lines, in 2014 the Fundació launched a new project to estimate its carbon footprint. The process includes organising meetings with each department to identify possible sources of direct and indirect emissions, and studying how to quantify them. This study has enabled an initial estimate of the following emissions:

- Emissions arising from the means of transport that employees use to reach the Fundació
- Emissions arising from the shipping of artworks for temporary exhibitions

The Fundació has included these new environmental indicators in the table of environmental aspects and will integrate them into its environmental management system, in order to increase the accuracy of the first estimate. The Fundació plans to continue to calculate its CO₂ footprint in an effort to quantify other sources of emissions.

There were no coolant gas leaks in the climate-control equipment in the course of 2014.

Noise

Noise is not a significant aspect for the Fundació. A sound level meter reading was carried out in 2011 as part of the process of obtaining an environmental licence. The results were within the parameters established by the regulations: 70 dB(A) in daylight hours 60 dB(A) at night, as set out in Barcelona's Urban Environmental By-Laws. Given that there were no significant changes to the Fundació's activities in 2014 and that no complaints were received, no further sound level meter readings were carried out.

There were no complaints due to noise in 2014.

Light Emissions

There were no major changes in terms of light emissions in 2014. The Fundació plans to install an outdoor lighting system in 2015, which will only be used for special events and will comply with current light pollution guidelines.

Wastewater Discharge

The Fundació commissions a study of its wastewater each year. The 2014 study was carried out in March, and the results were as follows:

Parameters	Values used	Municipal regulation Limit values
PH (interval)	7.90	6-10 pH
SM (Suspended Matter)	16	750 mg/l SM
DBO ₅	12	750 mg/l O ₂
DQO	75	1,500 mg/l O ₂
Oils and fats	19	250 mg/l
Chlorides	246	2,500 mg/l
Conductivity	1575	6,000 µS/cm
Sulphur dioxide	<5.0	15 mg/l
Sulphates	192	1,000 mg/l
Total sulphurs	0.05	1 mg/l
Dissolved sulphurs	<0.01	0.30 mg/l
Total phosphorus	0.8	50 mg/l
Nitrates	6.4	100 mg/l NO ₃
Ammonium	8.1	60 mg/l NH ₄
Kjeldhal nitrogen	8.3	90 mg/l N
Mercury	<0.0030	0.1 µg/l
Aluminium	<1	20 mg/l
Total organic carbon	15	450 mg/l

All parameters were found to be below the maximum allowable limits. The study also measured the presence of mercury and aluminium, as a means of prevention against possible contamination of wastewater by the *Mercury Fountain*.

Biodiversity

The Fundació Joan Miró is located in Montjuïc mountain. Although it is not a protected area, it has been named a space of natural interest due to its value and the presence of flora and fauna of great interest. The museum premises cover a surface area of 10,915 m².

Several landscaped areas form part of the Fundació. These green areas are maintained by the Parcs i Jardins department of Barcelona City Council. The plants are watered using a sprinkler system that is turned on once a week. No pesticides are used in the care of the plants.

Table of Indicators

Aspect	Indicator	2013	2014	Evolution
Electrical energy consumption	MWh/visitor	0.0029	0.0033	+15.55%
Natural gas consumption	MWh/visitor	0.2166	0.1984	-8.40
Diesel consumption	MWh/visitor	0	0	-
Total energy consumption	MWh/visitor	0.0058	0.0060	+3.45%
Water consumption	m ³ /visitor	0.0142	0.0156	+9.63%
Waste generation	t/visitor	0.00010	0.00005	
Fluorescents	kg/employee	0.103	0.075	-27.18%
Batteries	kg/employee	4.20E-1	1.98E-1	-52.75%
Toners and cartridges	kg/employee	0.366	0.427	+16.74%
Solvents	kg/employee	0.625	0	-
Electrical equipment	kg/employee	1.43	5.37	+275.73%
Contaminated rags and absorbent materials	kg/employee	1.43	0.684	-52.14
Industrial batteries	kg/employee	2.05	0	-100.00%
Paint residue	kg/employee	2.32	0.684	-70.55%
Contaminated packaging	kg/employee	2.77	0.598	-78.38%
Scrap metal	t/employee	2.14E-3	7.08E-3	+230.26%
Electrical cables	t/employee	5.63E-3	8.54E-3	+51.79%
CD + DVD	t/employee	3.16E-4	0	-
Wood	t/employee	0	6.24E-6	-
Mixed construction waste	t/employee	8.93E-2	0	-
Paper and cardboard	t/visitor	3.65E-5	1.40E-5	-61.70%
Plastics	t/visitor	3.44E-6	2.30E-6	-33.20%
Scraps	t/visitor	4.08E-5	1.19E-5	-70.94%
Hazardous waste	kg/employee	11.514	8.036	-30.21%
Non-hazardous waste	t/visitor	0.0001	0.00004	-62.39%
Paper consumption	t/visitor	2.36E-5	2.88E-5	22.25%
In offices	t/employee	0.0041	0.0068	+64.40%
For publications	t/visitor	1.83E-5	2.48E-5	+35.32%
Gift store bags	t/visitor	4.32E-6	2.19E-6	-49.21%
Toner consumption	kg/employee	0.406	0.524	+29.13%
Battery consumption	kg/employee	0.037	0.019	-48.40%
Consumption of liquid cleaning products	litres/m ² surface	0.133	0.119	-10.29%
Toilet paper consumption	units/visitor	0.0066	0.0071	+7.44%
Hand towel consumption (WCs)	units/visitor	0.006	0.007	+8.04%

Aspect	Indicator	2013	2014	Evolution
Consumption of maintenance material				
Cardboard filters	units/employee	4.223	4.410	+4.43%
PVC filters	units/employee	0.384	0.368	-4.27%
Lights	units/employee	9.098	8.974	-1.36%
Chlorine	kg/employee	0.0042	0.0038	-8.35%
Cable	metres/employee	29.15	35.28	21.03
Paper consumption for exhibitions				
Cardboard rolls	t/employee	0.0047	0.0045	-4.27%
Plastic film	t/employee	0.369	0.534	+44.66%
Paint	t/employee	0.0103	0.0067	-34.66%
Enamels, varnish, solvents, etc.	t/employee	0.660	0.512	-22.46%
CO₂ emissions	t CO₂/visitor	4.94E-4	0.446	-
CO ₂ emissions from electricity	t CO ₂ /visitor	0	0	-
CO ₂ emissions from gas consumption	t CO ₂ /visitor	4.67E-4	4.28E-4	
CO ₂ emissions from waste generation	t CO ₂ /visitor	2.66E-5	1.35E-5	
CO ₂ emissions from employee transport	t CO ₂ /employee	-	0.446	-
CO ₂ emissions from transporting artworks	t CO ₂ /visitor	-	1.14E-5	-
Biodiversity	Built m²	10.915	10.915	-

Mercury Fountain by Alexander Calder

Alexander Calder's *Mercury Fountain* has been part of the collection of the Fundació Joan Miró since 1975. This work is made out of painted aluminium and iron, and uses mercury as the liquid medium that flows through a closed circuit, adding movement.

Aware of the importance of closely monitoring the condition of the fountain, the Fundació has implemented a series of measures and protocols to ensure that it respects the environment and to guarantee the safety of people and of the premises. The measures include a human risk analysis and tests to measure environmental mercury levels. The Fundació has drafted contingency protocols in the event of incidents in the maintenance process, as well as protocols for medical supervision and waste control.

Emergency Situations

No incidents, accidents, and/or emergency situations resulting in environmental impact took place in 2014.

As for emergency drills, Civil Defence approved the Self-Protection Plan (PAU) in December 2014. Communication and training in regard to the PAU is scheduled to take place in the first semester of 2015. The drill will be carried out subsequently.

NEXT VALIDATION

This is the first annual update of the EMAS Environmental Statement.

This Environmental Statement is valid for 1 year from the validation date. It has been prepared and approved by:



Ramón González
Environmental Manager



Dolors Ricart
General Manager

ENVIRONMENTAL STATEMENT VALIDATED BY

AENOR Asociación Española de
Normalización y Certificación

IN ACCORDANCE WITH REGULATION (CE) Nº 1221/2009

Registration number of accreditation: ES-V-0001

Date of validation: 2015-07-21

Signature and stamp:

Avelino Brito Marquina

Chief Executive Officer