Fundació Joan Miró Barcelona

ENVIRONMENTAL DECLARATION 2015 OF THE FUNDACIÓ JOAN MIRÓ

The information in this declaration comes from 2015.

EMAS
VERIFIED ENVIRONMENTAL MANAGEMENT
ES-CAT-000386

Process advised by:

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We are aware of the importance of protecting the environment. This awareness is what motivated us to decide to commit to constant improvements in order achieve sustainable development.

Within this framework, we have renewed our environmental management system (EMS), which allows us to have the tools we need to conduct an environmental evaluation and thus ensure the continuous improvement of the processes derived from our museum activity through the commitment and motivation of every person who is part of this reality. This entails the involvement of everyone: from workers to suppliers and external partners, as well as the institution's visitors and users.

This environmental management system allows us to assess the environmental impacts associated with our activity. Being aware of them sparks a process of constant improvement in our day-to-day operations with the goal of minimising these impacts and establishing behaviours involving self-control which make it possible to optimise the functioning of the system's entire structure in order to guarantee its efficiency.

Dolors Ricart
Manager of the Fundació Joan Miró

OUR ENVIRONMENTAL POLICY

Faithful to its values and mindful of its responsibility to protect nature, the Fundació Joan Miró (Centre d'Estudis d'Art Contemporani) aims to be an example of an environmentally-respectful organisation. For this reason, it has implemented an environmental management system based on the European EMAS regulation and the ISO 14001 international standard in all of its facilities and activities, which translates into its commitment to sustainable development.

This policy is based on the day-to-day involvement of all our workers and partners. Each of them is committed to putting this policy with the values it embodies into practice. What is more, it is the reference framework for establishing and revising the continuous improvement objectives of the Fundació Joan Miró's environmental behaviour.

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

To systematically integrate environmental protection into all our activities

With the desire to carry out our activities in the most environmentally-respectful way possible, we pledge to use the best techniques and practices available in all our activities in environmental protection matters, in addition to complying with the regulations in force and any other requirements to which the institution adheres, always stressing our commitment to continuous improvement.

To prevent

In accordance with the demands we have set for ourselves in managing the impacts derived from our activities, we pledge to put into practice all the human and technical means needed to prevent any pollution that might derive from our activity.

To promote our values and to communicate good practices

We pledge to transparently communicate information on our environmental impacts by promoting dialogue and the exchange of ideas with our stakeholders (neighbours, public administrations, suppliers, workers).

To act responsibly

Aware of the serious problem caused by environmental pollution and its impact, for which we are directly responsible, we pledge to put into practice all the measures possible 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 the 10th of June 1975. Its origins date back to Joan Miró's first major exhibition in Barcelona, in 1968, at the former Hospital de la Santa Creu. At that moment, numerous personalities from the worlds of art and culture became cognizant of the historical opportunity to have a benchmark space for Miró's oeuvre in Barcelona. However, following the artist's desires, the new institution also had to make it possible for the public to learn about and disseminate the most recent art in all its many guises.

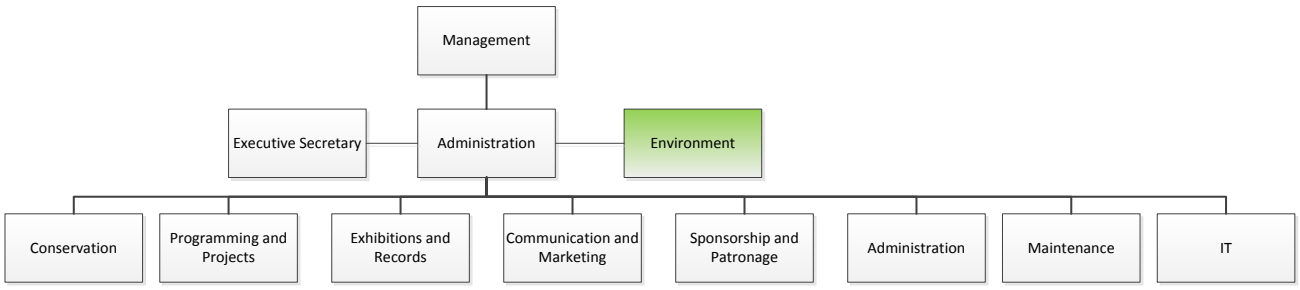
At a time when the art and cultural scene in Barcelona was somewhat meagre, the Fundació Joan Miró injected vitality with a new and more dynamic concept of museum, in which Miró's creations would live side by side with a wide range of artistic expressions. This is reflected in the CEAC (the abbreviation of Centre of Contemporary Art Studies) section. The foundation has been declared a museum of national interest because of the importance of its holdings.

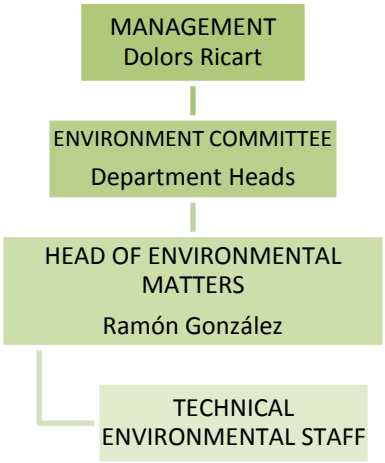
The Fundació Joan Miró is a private Catalan foundation. The representation, governance, administration and arrangement of its founding assets depend on a board which was originally made up of a group of intellectuals, artists, friends and family members of Joan Miró. However, it is currently comprised of at most 25 members, including representatives from the government of Catalonia, the Ministry of Culture, the Barcelona Town Hall and the art and business worlds.

The foundation's building was designed by Josep Lluís Sert, an architect who helped to cofound GATCPAC (the abbreviation of the Group of Catalan Architects and Technicians for Progress in Contemporary Architecture) and a close friend of Joan Miró. It was built on lands provided by the Barcelona Town Hall in the Parc de Montjuïc.

The foundation is open all year long from Tuesday to Sunday.

The responsibilities within our environmental management system are shown in the diagram below:





OTHER INFORMATION OF INTEREST

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National Classification of Economic Activities: 9102 - Museum activities
Head of Environmental Matters: Ramón González (Head of Maintenance and Security)
EMAS registration: ES-CAT-000386

THE ENVIRONMENTAL MANAGEMENT SYSTEM

The Foundation's environmental management system (EMS) is based on the international standard ISO 14001 and on the European EMAS regulation, which allows companies to voluntarily adhere to a community environmental management and audit system. This is a system of continuous improvement which is part of the foundation's overall management.

Our environmental management system entails conducting activities to conserve, preserve and disseminate the oeuvre of Joan Miró through:

- A permanent exhibition of the collection
- Temporary exhibitions
- Cultural events
- Educational programmes
- Archive and library services
- Management of museum tours
- Bookshop and shop services
- Management of restaurant activities (restaurant and café)
- Space rentals

Based on our management policy, we perform an analysis of the environmental aspects related to our activity (consumption of energy, paper, water, etc.) and that of our visitors and suppliers, and we establish goals to reduce the impact of the activity and improve the quality of the services and visitors' satisfaction. Likewise, we follow up to periodically check that the system is operating correctly.

We have a management manual which establishes all the guidelines of the environmental management system and indicates how the different activities should be conducted in order to integrate environmental management into our day-to-day operations.

Compliance with the main legal requirements

The Fundació Joan Miró keeps abreast of the environmental laws in force and the legal requirements applicable to it, and it ensures compliance with them. Below is a summary of the current status of legal compliance:

- **Environmental license**
  The environmental license for the activity was granted by the Barcelona Town Hall on 19/03/2009. The initial control was performed on 15/07/2015, the majority of the shortcomings have been resolved and now we are only awaiting the installation of two fire resistant doors. As soon as they can be installed, we will arrange a visit with ADDIENT in order to conclude the process.
  Law 20/2009 on environmental prevention and control (art. 73)

- **Control of wastewater**

In January 2010, the metropolitan entity granted the Foundation a permit to dump wastewater for a period of five years. This permit was renewed via the Responsible Declaration (dated 10/09/2015) and will remain valid as long as there are no significant changes in the way we dump wastewater or in the applicable regulations.
To control the quality of the water dumped, analyses are performed every year. The analysis performed in 2015 had a favourable result, given that all the parameters analysed were under the maximum permitted limits.
Metropolitan regulation of Barcelona on wastewater dumping (art. 26)

- **Waste management**

We store and manage our waste in accordance with the laws in place. The Foundation is registered with the Catalan Waste Agency as a producer of industrial waste, code P-12714.1. It is exempt from filing the annual waste

declaration and the study on minimising hazardous waste since it does not generate more than 10 tonnes of hazardous waste per year.

The Foundation puts paper packaging on the market, namely the bags that it distributes in the museum shop. For this reason, it has joined an integrated packaging management system via Ecoembes and issues an annual packaging declaration.
Law 22/2011, dated 28 July 2011, on waste and polluted soil (art. 17)
Decree 93/1999, dated 6 April on waste management procedures (art. 4, 6 and 8)
Royal Decree 782/1998, which approves the regulation on the development and execution of law 11/199, on packaging and packaging waste (art. 15)

- **Installations**

The Foundation has a Maintenance and Security Department which carries out the preventative, corrective and regulatory maintenance of the installations in accordance with the laws and regulations. The Foundation has an automatic system to monitor the air conditioning and heating, lighting, fire detection and energy production installations.

With regard to the regulation inspections of the electrical system, the low tension inspection was carried out in 2014, and the high tension inspection was carried out in 2015. We have a maintenance contract with approved companies to carry out the control and review of the installations in question along with the regulation inspections.
Royal Decree 842/2002, dated 2 August 2002, which approves the low tension electrotechnical regulation (art. 20 and 21). (additional technical instruction - low tension 05 - 4.1 and 4.2)
Royal Decree 3275/1982, on technical conditions and safety guarantees in electrical plants, sub-plants and transformation centres (art. 12 and 13)

The Foundation has two lifts which are checked monthly, as well as a cargo lift. The latest regulation inspection of the lifts was carried out in 2014, with a favourable result for both. In 2015, the machinery and the controls on the cargo lift were modernised. The forthcoming inspection is scheduled for 2017.
Royal Decree 88/2013, which approves the additional technical instruction AEM 1 "Lifts" in the regulation on elevation and maintenance devices, approved by Royal Decree 2291/1985 (art. 5 and 11)

The heating and air conditioning installations (coolers and boiler) passed the initial regulation inspection (IPE – Periodic Inspection Energy Efficiency) in 2008 and the latest periodical inspection was carried out in 2012. Additionally, we have a maintenance company that performs the annual maintenance following the RITE – Buildings Thermal Installations Regulation.

The next energy efficiency review will be carried out in 2016. The Foundation has an annual maintenance contract with an authorised company.
Royal Decree 1027/2007, which approves the regulation on thermal installations in buildings (technical instruction-03, art. 26, art. 30 and 31)
Instruction dated 6 April 2011 from the Directorate General of Energy, Mines and Industrial Safety (art. 3 and 4)
Royal Decree 919/2006, which approves the technical regulation on the distribution and use of gaseous fuels and its additional technical instructions (ITC-ICG 07, art. 4.1)

Annual maintenance and disinfection of the affected installations (low risk) against legionnaires disease are carried out per the regulations, in addition to an annual control analysis.
Royal Decree 865/2003, dated 4 July 2003 which establishes the hygiene and sanitary criteria for the prevention and control of legionnaires disease (Appendix III)
Decree 352/2004, dated 27 July 2003 which establishes the hygiene and sanitary criteria for the prevention and control of legionnaires disease (art. 2)

The Alexander Calder work *Mercury Fountain* is displayed at the Foundation, which has the particularity that it operates with liquid mercury. The Foundation keeps exhaustive control of the installations and has a specialised company to clean it. Air analyses are performed every year to detect the presence of mercury.

In 2011, the Department of Territory and Sustainability responded favourably the Foundation's request that it not be affected by Regulation 1102/2008 on the storage of mercury because it is an ornamental installation.

- Industrial emergencies and safety
  The Foundation has a self-protection plan that was approved by Civil Protection in late 2014. In May of 2015, the heads of emergency were trained and an informative session for the entire Foundation staff was held. Subsequently, an emergency simulation was performed to verify its efficacy.

  Elements to detect and protect against fire are available throughout the entire Foundation. These elements are checked by an approved company, which carries out all the regulation checks.
  Royal Decree 1942/1993, dated 5 November 1993, which approves the regulation on fire protection installations (art. 13, 17, 18 and appendix II)
  Decree 82/2010, which approves the catalogue activities and centres obligated to adopt self-protection measures and stipulates the content of these measures

- Storage of hazardous products
  Safety information sheets are available for all the hazardous cleaning, maintenance and artwork restoration products.
  Royal Decree 379/2001, which approves the regulation on storing chemical products (ITC-MIE-APQ-001: storage of flammable and combustible liquids)

TRAINING AND AWARENESS-RAISING OF THE STAKEHOLDERS

The environmental training and awareness-raising of the Foundation staff is a key factor in the success of its environmental management system. In 2015, following in the footsteps of the training actions carried out in 2014 on green purchasing and criteria to use when choosing suppliers targeted at staff in the Communication Department, Shop and Bookshop, as well as informative sessions on the carbon footprint in all the Foundation's departments, the departments in question continue to work on improving this aspect by trying to increase the sale of local, ecological products.

The head of environmental matters is in charge of raising workers' environmental awareness through emails reminding them of good practices, new environmental objectives, etc. The Environmental Declaration is available to all workers.

In 2015, numerous environmental communication actions were conducted for the stakeholders:

- Information on the Environmental Declaration, which is published on the Foundation's website.
- Dissemination of the Foundation's environmental commitment by printing the phrase "The Fundació Joan Miró cares for the environment" on brochures, catalogues and tickets.
- Communication of the environmental policy with suppliers.
- Letting all visitors know about the certifications on the screen at the entrance to the museum.
- Project "Let's discover the trails of Montjuïc" through which we seek to foster the relationship between the Foundation and the residents of the Poble-sec neighbourhood. As part of this project, in December we organised a trek up the mountain starting in the neighbourhood, with the participation of around 30 people.

Throughout 2015, no complaints about the Foundation's environmental management were received.

IDENTIFICATION AND EVALUATION OF THE SIGNIFICANT ENVIRONMENTAL ASPECTS

Every year, the Foundation identifies all the environmental aspects that are directly related to its activity and those of third persons who may influence its activity. It uses an evaluation method to ascertain the significant ones and thus be able to lower their impact. This mathematical method is based on three parameters for normal situations, namely magnitude, frequency and severity, and three more for emergency situations, namely probability, capacity and severity.

In 2015, the environmental aspects evaluated regarded as significant, for which preventative and/or corrective measures were taken, were the following:

ENVIRONMENTAL ASPECT	STATUS	ASPECT	ENVIRONMENTAL IMPACT	ACTIONS
Consumption of water from the supply system	N	D	Exhaustion of natural resources	**Objective 01/2016**
Total urban waste (refuse, cardboard, glass, containers, organic)	N	D	Air and soil pollution	Increase due to improvement in waste sorting
Organic waste	N	D	Air and soil pollution	Increase due to improvement in waste sorting
Plastics	N	D+I	Air and soil pollution	Increase due to improvement in waste sorting
Glass	N	D	Air and soil pollution	Increase due to improvement in waste sorting
Waste from packaging that has contained hazardous substances	N	D	Air and soil pollution	Increase due to the cleaning of storage facilities
Waste from toners and ink cartridges	N	D	Air and soil pollution	A NON-COMPLIANCE is opened; the record has not been found and the information on the removals made is unavailable
Paper for publications	N	D	Exhaustion of natural resources	**Objective 2/2016**
Total paper consumption	N	D	Exhaustion of natural resources	Increase in consumption, more communications were issued given the increase in activity
Battery consumption	N	D	Exhaustion of natural resources	Exhaustion of the service life of rechargeable batteries, they have begun to be replaced
CO2 emissions derived from the transport of works of art	N	I	Air pollution	The transport of the works of art depends on the exhibitions that are held

ENVIRONMENTAL PROGRAMME

In early 2015, a programme of environmental objectives was developed. Tracking this programme shows the degree of compliance with the initially set objectives.

OBJECTIVE 1. To lower the consumption of office paper and toner by 1% compared to 2014 **ACHIEVED**		
GOALS	**PERSON IN CHARGE**	**PERFORMANCE**
PROOF: Introduction of a code for printing in the general printer of the offices on the ground floor.	Head of Maintenance	**Eliminated**
Analysis of paper consumption by department	Head of Maintenance	**Done**
Reduction in the use of paper in communications	Head of Maintenance	**Use of new technologies** **Online tickets** **Other actions**

Result: Objective achieved. During financial year 2015, the consumption of both paper and toner was lowered. The Foundation will continue to work and apply good practices to continue in this vein.

The degree to which this objective was achieved is:

- The reduction in paper consumption compared to 2014 rates was 5.88%
- The reduction in toner consumption compared to 2014 rates was 3.97%

Of the three goals established initially, we were able to implement two of them, but for the time being entering a code for general printing has been postponed, although we will study the possibility of implementing it in the future.

Despite the fact that the objective was achieved, the Foundation will continue to work to lower paper consumption, and for 2016 it will work on paper for communications.

OBJECTIVE 2. To lower electrical energy consumption by 1% compared to 2014 **ACHIEVED**		
GOALS	**PERSON IN CHARGE**	**PERFORMANCE**
To adjust the times when the heating and air conditioning units are in operation while ensuring the preservation of the works of art	Head of Maintenance	**Done**
Gradually replacing, as needed, the current light bulbs for others that use LED technology.	Head of Maintenance	**In each exhibition**
Good environmental practices in the offices (turning off computers during breaks, use of natural lighting in offices, etc.).	Head of Maintenance	**Done** **Ongoing**

Result: Even though energy consumption has risen 2.10% according to the existing indicator in the programme of objectives (MWh/visitor), in absolute values real energy consumption has dropped **4.58%** according to figures from the R-Asp-01_01 record.

Energy consumption for heating and air conditioning is associated not with the number of visitors but with the weather conditions. Therefore, this objective is considered achieved. However, the Foundation will continue to work to control consumption in order to avoid increases and to adopt corrective measures.

OBJECTIVE 3. To lower water consumption by 1% compared to 2014. **NOT ACHIEVED**		
GOALS	**PERSON IN CHARGE**	**PERFORMANCE**
Control of the programming of the timing of the pump that recirculates water in the pond: it has been reprogrammed to ensure that a drop in the water level in the pond does not lead to a massive inflow of water.	Head of Maintenance	**Done**
Control between daily and weekly total water consumption (detecting leaks).	Head of Maintenance	**Implemented**
Good environmental practices in offices (rational use of natural resources, etc.).	Head of Maintenance	**Done Ongoing**
Good environmental practices in services for the public.	Head of Maintenance	**Postponed**

Result: Of the four goals that were initially established, one is still pending for 2016 as it was ultimately not carried out.

We were unable to achieve this objective because in financial year 2015 there were two water leaks, so the system to detect possible leaks in advance was improved by installing meters that allow us to take daily readings. This goal will be maintained for financial year 2016.

Bearing in mind these incidents, water consumption was 47.44% higher than in 2014.

No.	ACTIONS	Person in charge	Resources	Date exec.
1	Inclusion of environmental information on the paper used in publications and brochures	Head of Maintenance and Head of Communication	€0	December 2015
Done. Information is included on the paper, such as FSC, PEFC, whether it is recycled paper, etc.				
2	Improvement in the use of paper in the Department of Communication.	Head of Maintenance Head of Communication	€0	December 2015
Done. To use recycled FSC, PEFC, etc. paper whenever possible.				
3	Installation of partial metres for water consumption with programmable alarm if there is excess consumption.	Head of Maintenance	€0	December 2015
Done. Metres have been installed which allow for daily readings and can detect possible water leaks.				
4	Evaluation of the suppliers of paper-based products in the shop and bookshop using green purchasing criteria.	Head of Maintenance	€0	December 2015
Done. The suppliers were evaluated and we know the products' degree of environmental incidence; however, at times the FJM is limited and there is no ability to choose given suppliers.				
5	Changing the membranes in the osmosis system.	Head of Maintenance	€0	December 2015
Done. This action allows for a 15% reduction in the production of water for consumption and from the generation of steam in the galleries. If there is no leak during 2016, this reduction should be visible in 2016.				

6	Introduction of environmental criteria in the selection of bookshop and shop suppliers	Heads of the bookshop and shop	0 €	December 2015
Done. To the extent possible, paper is purchased with guarantees that the raw material comes from rationally used sources.				

In summary, we can say that we have achieved 67% of the objectives set at the beginning of 2015 (two-thirds of the objectives set) and six of the planned improvement actions were carried out, even though further work is needed on some of the actions.

INDICATORS OF ENVIRONMENTAL BEHAVIOUR

The Foundation monitors its environmental behaviour through the use of basic indicators related to the following aspects:

- Energy efficiency
- Water
- Waste
- Efficient use of materials
- Emissions
- Biodiversity

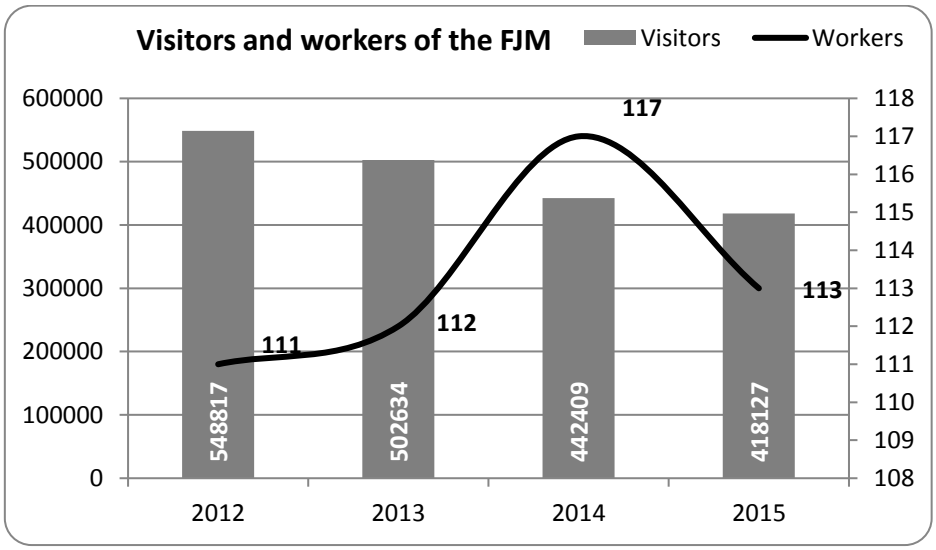
Bearing in mind the activity performed at the Foundation, the most appropriate indicators are the ones which are calculated based on the number of visitors, except for a few aspects related to the number of employees, such as paper consumption.

The indicators are calculated based on the following 2014 figures:

- Visitors: 418,127 people
- Workers: 113 people

Until 2013, we also bore in mind the parameters of average humidity and temperature, but in 2014 we decided to stop considering them since they did not provide any significant information that was useful in analysing the Foundation's environmental behaviour.

Regarding the evolution in the number of visitors, it has dropped in recent years. Regarding workers, their numbers have also declined compared to 2015. These figures are shown in the following graph:



ENERGY EFFICIENCY

The Foundation consumes three kinds of energy: electricity, natural gas and gasoil.

This consumption is important, because conservation of the works at the museum is essential, and they must be kept in very strict temperature and moisture conditions. The galleries have to be humidified and dehumidified, and their temperature must be raised or lowered, which requires us to use equipment like air conditioners and steam machines.

Gas is primarily consumed to operate the boilers for the heating and air conditioning, and the consumption of gasoil is reserved for the generators, which are only put into operation for maintenance and in the event of a cut-off in the electrical supply.

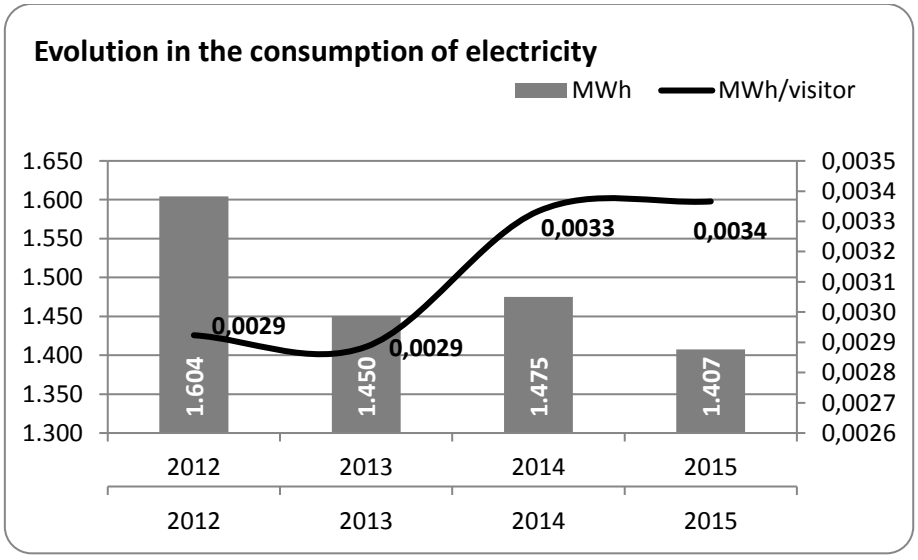
There is no installation that uses energy from renewable sources. Despite this, we should say that in line with its environmental commitment, and with the goal of encouraging the use of renewable energies, all the electrical energy consumed by the Fundació Joan Miró in 2015 came exclusively from renewable energy sources, and the Foundation has certification of this from the corresponding utility company.

Consumption of electrical energy

The evolution in electricity consumption at the Foundation over the past few years is the following:

	2011	2012	2013	2014	2015
MWh	1,503	1,604	1,450	1,475	1,407
Evolution	-3.53%	+6.72%	-9.60%	+1.70%	-4.58
MWh/visitor	0.0026	0.0029	0.0029	0.0033	0.0034
Evolution	-7.14%	+11.54%	-1.30%	+13.79%	+0.96%

These values are illustrated in the graph below:



In financial year 2015, the consumption of electricity rose 0.96% compared to 2014, bearing in mind the indicator of MWh/visitor. In contrast, the consumption in absolute numbers dropped 4.58%, and it decreased 6.79% compared to the historical mean (2012-2014). This variation was a consequence of the actions carried out under Objective 2/2015.

Given that the environmental aspect is very important in the FJM's environmental behaviour, and that in 2015 the objective was achieved in terms of absolute energy consumption, we decided to maintain consumption at current levels and to conduct operational controls to detect any deviations.

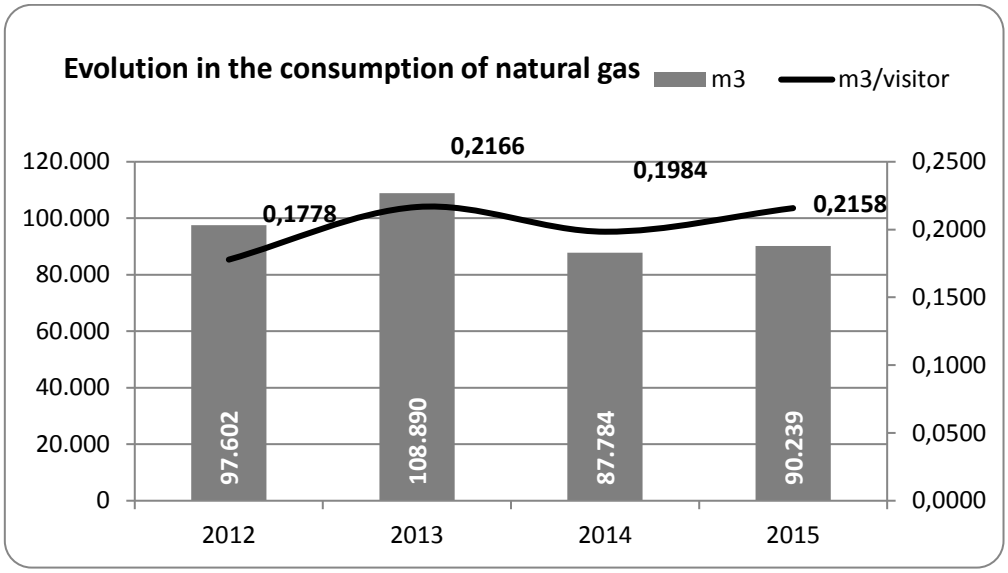
It should be borne in mind that the acquisition of 100% green energy was maintained in 2015.

Consumption of natural gas

The evolution of the indicator on natural gas consumption over the years is the following:

	2011	2012	2013	2014	2015
m^3	94,756	97,602	108,890	87,784	90,239
Evolution	+2.58%	+3.00%	+11.56%	-19.38%	+2.80%
m^3/visitor	0.1623	0.1778	0.2166	0.1984	0.2158
Evolution	-1.16%	+9.55%	+21.82%	-8.40%	+8.77

These absolute values are illustrated in the graph below:



In 2015, the consumption of natural gas rose 2.8% in terms of absolute consumption and 8.77% in the m^3/visitor indicator, if we compare it with the **past three years** (2012-2014):

- Absolute consumption: 8.01% drop
- m^3/visitor indicator: 9.2% increase

The evaluation of these figures reflects the fact that gas consumption is primarily determined by external weather factors (for both heating and to generate steam to keep the museum's galleries at the right temperature and moisture conditions), thus the graph depicts an increase / reduction.

In 2014, the FJM installed a new steam generator which improved consumption and comparisons with financial years 2013-2014.

We should bear in mind that natural gas is primarily consumed for heating and air conditioning (boilers) and steam generators.

During financial year 2016, we want to conduct tests that will allow us to lower the consumption of electrical energy and gas by stopping the units at night as long as the external weather conditions show levels that ensure the maintenance of the museum pieces.

Consumption of gasoil

Gasoil is only consumed by the generators, which are solely put into operation when maintenance is being performed on the high-tension system and in the event of an emergency when the FML is left without its electrical supply.

In 2015, 253 litres of gasoil was ordered.

Total energy consumption

The Foundation's total energy consumption encompasses electrical energy, natural gas and gasoil. In order to determine the environmental impact of its total consumption, since we cannot simply add together electrical kilowatts and thermal kilowatts, we have transformed the consumption of each of these energy sources into a common unit: MWh.

Energy source	Consumption	Conversion factor[1]	Consumption in MW
Electricity	1,407 MWh	---	1,407
Natural gas	90,239 m^3	910 m^3 = 12.44 MWh	1,233
Gasoil	253 litres	1,181 litres = 13.02 MWh	2.79

In 2015, the Foundation's total energy consumption was 2,643 MWh, which was practically the same as in 2014 (a 1.23% drop), when total consumption was 2,675 MWh. This means an average of 0.00632 MWh/visitor.

The Foundation's building, a work by the architect Sert, is listed as an Asset of National Cultural Interest in the category of Historical Monument. Therefore, we are not allowed to make changes in the architecture and it is forbidden to install devices to generate renewable energy since this would mean major changes in the building's appearance.

Water

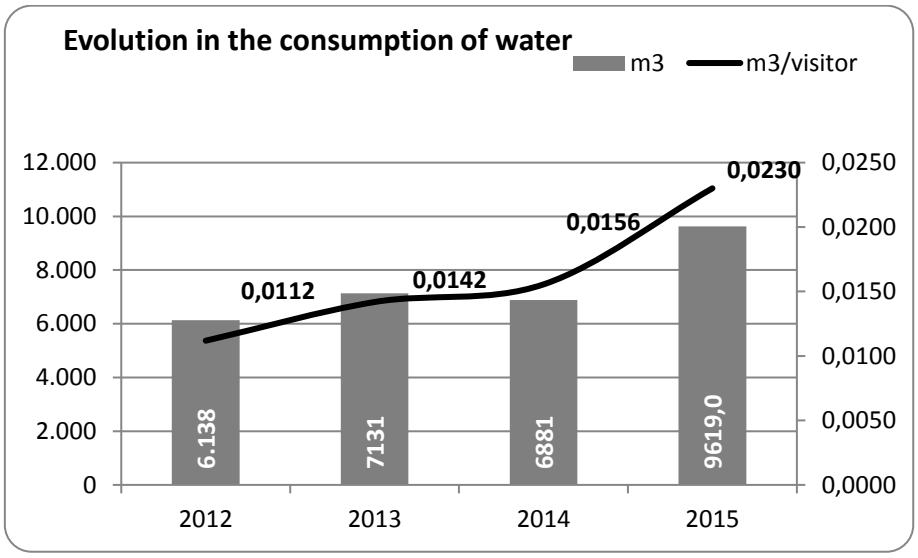
The Foundation's water consumption is divided by the way it is used. There is water treated by osmosis for the humidification of the works of art and human consumption, decalcified water for machines and installations, and finally water for watering the inner landscaped courtyards.

The evolution in the indicator on water consumption over recent years is the following:

	2011	2012	2013	2014	2015
m^3	**6,771**	**6,138**	**7,131**	**6,881**	**9,619**
Evolution	**+22.99%**	**-9.35%**	**+16.18%**	**-3.51%**	**+39.79%**
m^3/visitor	**0.0116**	**0.0112**	**0.0142**	**0.0156**	**0.023**
Evolution	**+18.37%**	**-3.45%**	**+26.78%**	**+9.86%**	**+47.91%**

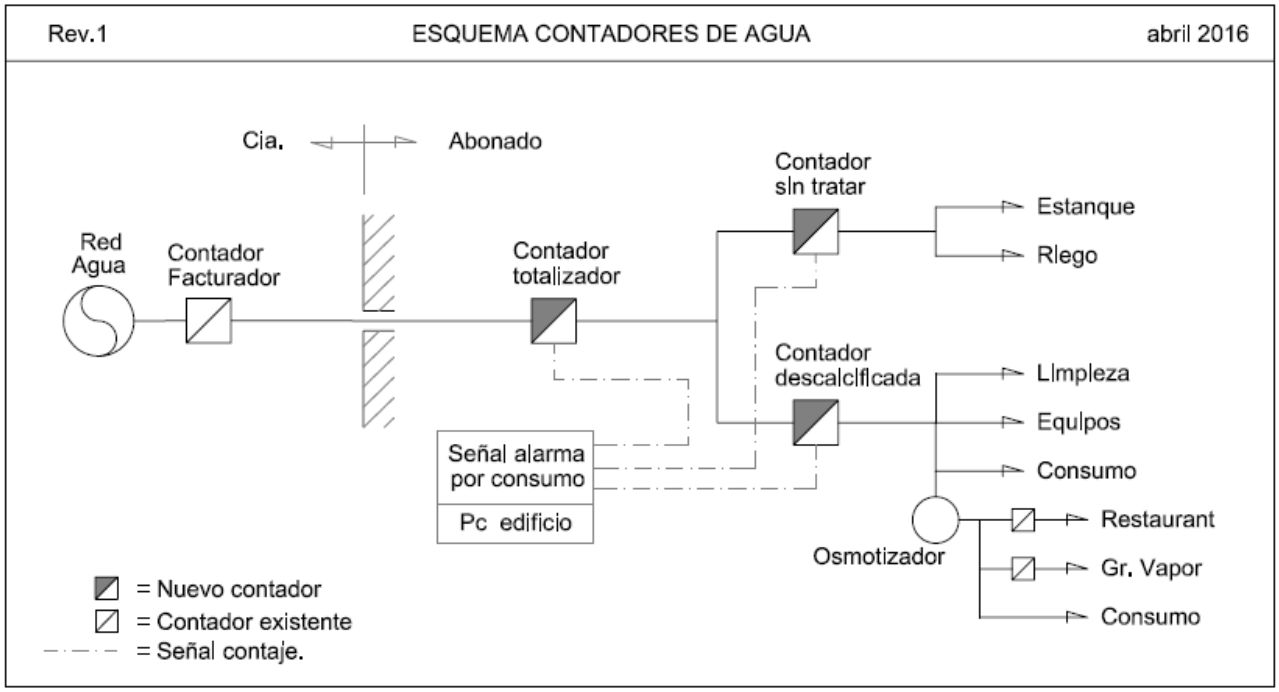
[1] **The conversions were made using the figures from the IDAE (Institute for Energy Diversification and Savings) as the source.**

These values are illustrated in the graph below:



In 2015, water consumption rose 39.79% compared to 2014. This difference was the result of the two water leaks which were detected when the water metres were read in March and April 2015.

Water metres were installed which allow readings to be taken on a daily or monthly basis without having to wait for the utility company's invoices. This improvement will allow us to detect leaks quickly and to increase our response capacity. We expect to get the information on consumption identified in the graph below:



Waste

The Foundation generates non-hazardous waste similar to regular urban waste, including paper and cardboard, light containers, glass, organic matter, refuse, wood, etc., both when assembling and disassembling exhibitions and for the activities for visitors. It also generates hazardous waste in maintenance and restoration work, including mineral oils, fluorescent bulbs, polluted containers, etc. In its office work, the waste generated includes batteries, toner, ink cartridges, etc. All the waste generated is stored and handled via authorised companies (in the case of hazardous waste and waste generated when assembling and disassembling exhibitions) or the municipal collection service (in the case of waste similar to regular urban waste).

The table below shows the evolution in the generation of waste (2015 and 2014):

Waste (t)	2014	2015	Evolution
Fluorescents	0.01	0,0048	-9%
Toners and cartridges	0.05	0,027	22%
Batteries	0.02	0,005	-57%
Solvents	0	0	-100%
Electrical equipment	0.63	0	294%
Contaminated rags and absorbent materials	0.08	0,095	-50%
Industrial batteries	0	0	-
Scrap metal	0.83	1,6	246%
Paint residue	0.08	0	-69%
Polluted containers	0.07	0,153	-77%
Electrical cables	1	2,8	59%
Plastics	1.02	2,32	-41%
Wood	2.76	0,61	-
Organic	1.49	4,82	-
Glass	0.58	1,15	-
Paper and cardboard	6.19	5,04	-66%
Refuse	5.25	3,62	-74%

We can see that the kinds of waste that have increased are the following:

- Electrical equipment: In 2014 the computers were updated and small electrical appliances were replaced, which did not occur in 2015
- Polluted containers: generated when cleaning storage facilities
- Scrap metal: This is occasional waste generated because of construction activity (change in electrical box).
- Electrical wiring: This can also be attributed to the construction project (change in electrical box).
- Organic: This increased as a consequence of the improvement in our waste sorting (regular waste dropped)
- Glass: This increased as a result of the improvement in our waste sorting

Regarding the remaining waste, the Foundation generated less of all kinds. We should stress the major improvement brought about by the change in the internal waste management model: special waste is managed via a new external manager hired in 2014, and the other waste is weighed internally and then brought to the controls and deposited in the dumpsters set up on public roads for this purpose by the Town Hall. We should also stress that in 2014 we started to sort the waste to separate out the organic matter generated in the café/restaurant. As can be seen, organic waste rose compared to 2014, while ordinary waste dropped (improved sorting).

Regarding the kind of waste generated, of the 22.24 tonnes collected, 16.98 tonnes, or 76.32%, corresponds to sorted waste which is comparable to regular urban waste, and can be broken down by:

- Paper and cardboard
- Glass
- Plastic
- Organic matter
- Refuse

The remainder, which accounts for 23.68%, corresponds to waste generated by building maintenance.

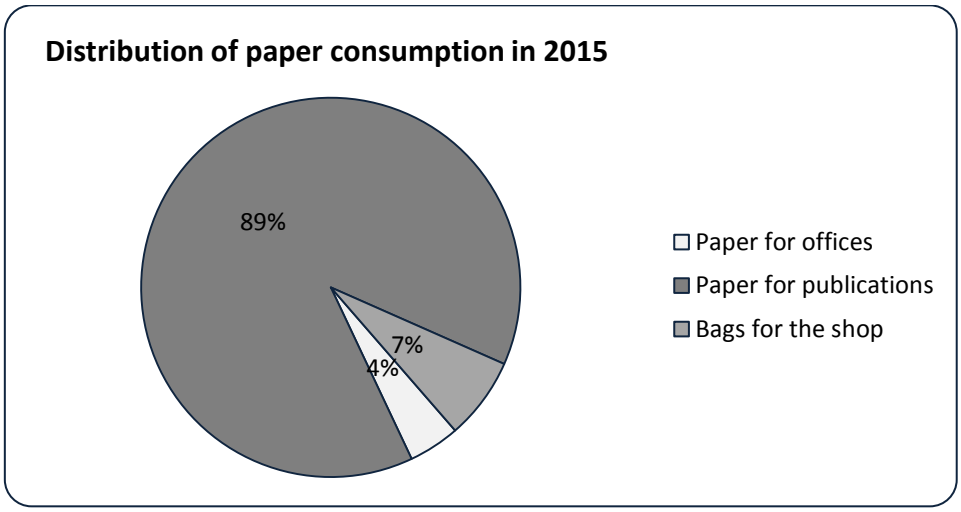
Efficiency in the consumption of materials

Consumption of office supplies, publications and shop

The museum's paper consumption is divided as follows:

- Consumption of paper in offices
- Consumption of paper bags in the shop and bookshop
- Consumption of in the museum's communication activities

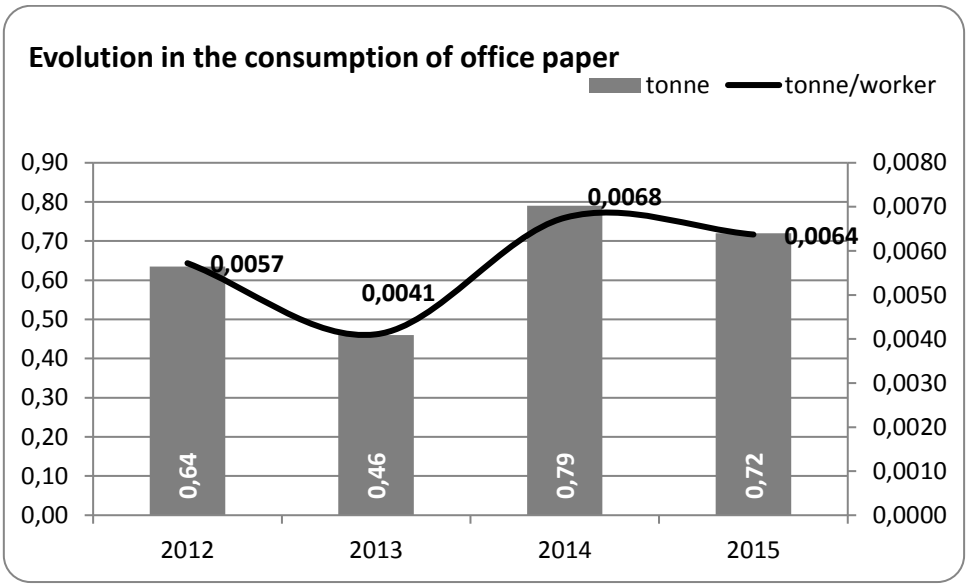
In 2015, the distribution of paper by kind of consumption is shown in the graph below:



Consumption of paper is monitored, and we keep a record of purchase and waste.

Below is a graph showing the evolution in the consumption of each kind of paper consumed:

OFFICE PAPER



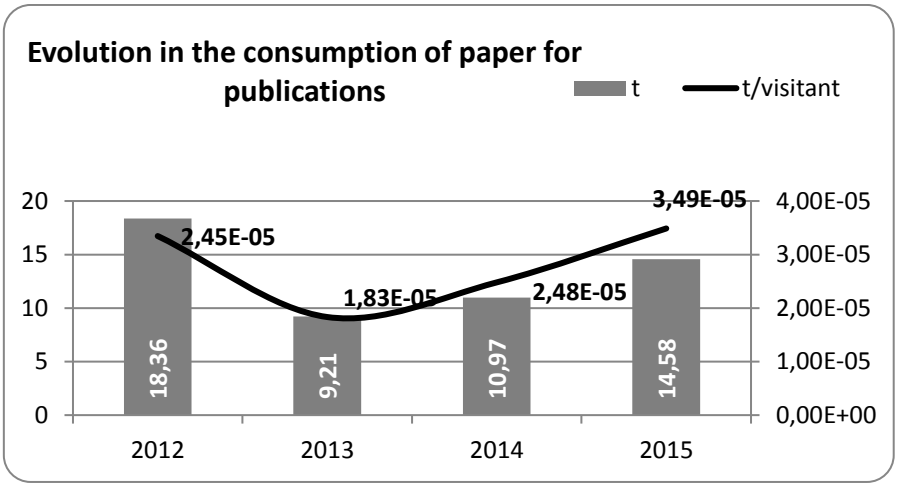
The paper consumed in offices has dropped considerably from 2014, by 8.86%. However, it was 14.59% over the historical mean.

The indicator of tonnes per worker has shown the same trend, dropping 6% compared to 2014 and rising 15.3% compared to the historical mean (2012-2014).

This decrease compared to the previous financial year was the outcome of the actions carried out in line with the existing objective. Additionally, improvements were also made in the ticket sales system which influenced this decline, such as:

- Implementation of museum ticket sales online
- Implementation of the electronic invitation system

PAPER FOR PUBLICATIONS



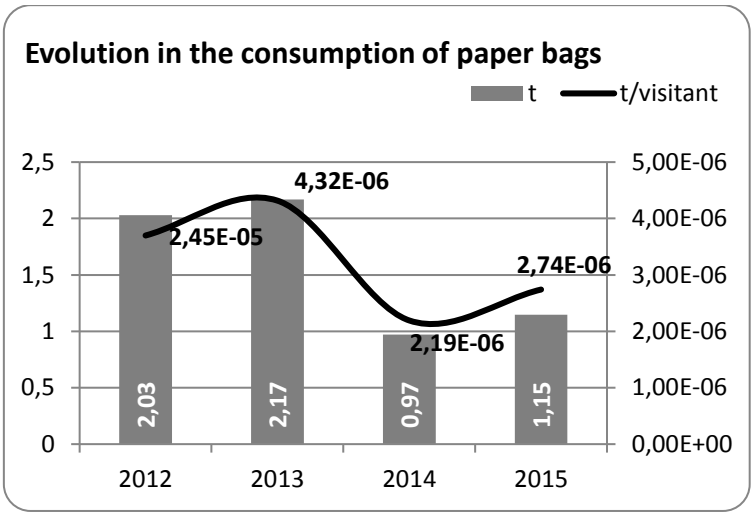
Regarding paper used for publications, in 2015 it increased by 32.91% compared to 2014. However, it only rose 13.49% compared to the historical mean (2012-2014).

Even though between 2012 and 2014we started a working process with the Department of Communication to decrease the amount of printed matter, we still find that the indicator on tonnes per visitor has risen 41% compared to 2014, and 36.6% compared to the historical mean (2012-2014).

Generally speaking, the FJM has carried out a responsible procurement protocol for paper and its by-products with the intention of lowering the environmental impact caused by the consumption of paper, both for consumption in offices and in publications and other printed matter. Within this protocol, we consider the kind of paper, the suppliers, the printers, the inks and other factors.

Given this significant increase, this aspect will be an objective for 2016.

PAPER BAGS



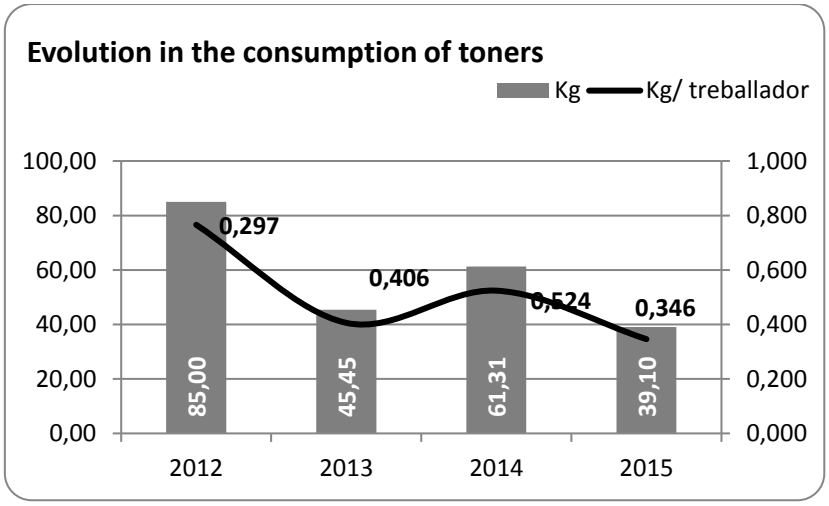
Regarding the consumption of paper bags in the shop, we noticed an 18.14% increase compared to 2014 and a drop of 33.5% compared to the historical mean (2012-2014).

Regarding the indicator of tonnes per visitor, we found the same behaviour, with a 25% rise compared to 2014 and a 19.5% drop compared to the historical mean (2012-2014).

This consumption is directly related to the level of sales in the shop and the number of visitors. Even though the number of visitors dropped in 2015, the sales in the shop may have increased.

TONERS AND INK CARTRIDGES

The evolution in the consumption of toners (which also includes the consumption of ink cartridges) in the Foundation's offices is shown in the graph below:



As can be seen in the graph, the figures on the consumption of toners have dropped compared to 2014. This consumption is associated with a goal for the year 2015. There was a 36.23% drop compared to 2014 and a 38.83% decrease compared to the historical mean.

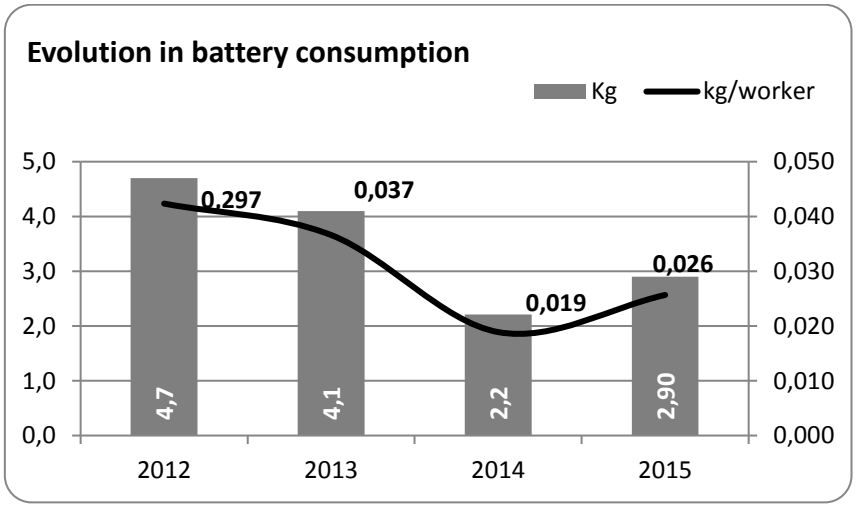
This may be associated with the fact that the FJM staff have improved their environmental behaviour by printing less at their workplace.

In recent years, monitoring and recording purchases of both office paper and toners have been merged into a single channel, so the figures are quite reliable.

BATTERIES

Regarding the consumption of batteries, we should mention the efforts made in previous periods in the offices and organisation of exhibitions to lower the consumption of non-rechargeable batteries, which have gradually been replaced by rechargeable batteries.

Despite the decrease between financial years 2013 and 2014, there seems to have been an increase in the consumption of batteries at the FJM, as shown in the graph below:



As can be seen in the graph, battery consumption experienced a significant decrease of 46.1% compared to 2013 and a 71.67% drop compared to the historical mean. The evolution in the kilos per worker indicator has been similar, with consumption down 48.4% compared to 2013 and 72.4% compared to the historical mean.

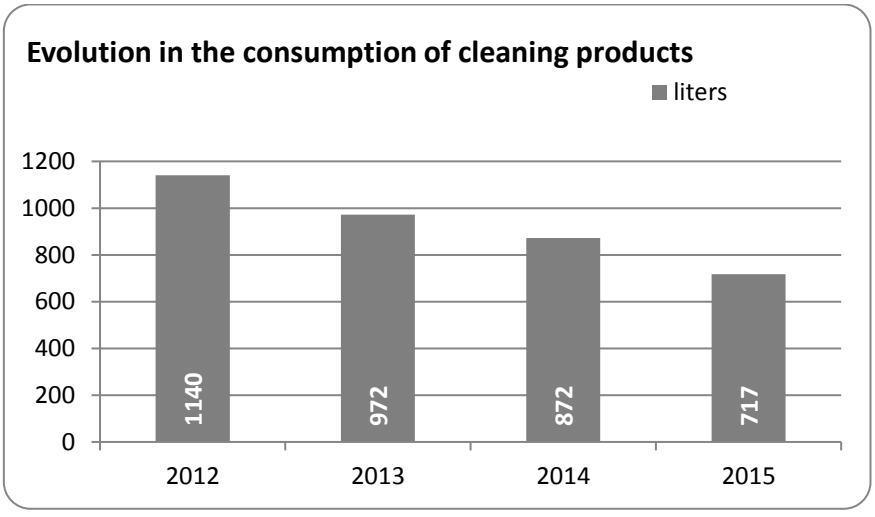
This increase is the outcome of the renovation of the rechargeable batteries purchased in previous years, which have run out.

Cleaning products

We monitor consumption of the products used for cleaning and keep a safety file for each of them. The products used regularly include:

- Stain remover
- Descaling products
- Floor polisher
- Bleach
- Ammonia products
- Glass cleaner
- Dish detergent

Their evolution in total litres consumed is shown in the table below:



In financial year 2015, we kept up the trend by lowering our use of cleaning products by 17.78% compared to the previous year and by 27.92% compared to the historical mean (2012-2014).

This is related to the number of visitors that the FJM welcomes, since the cleaning needs increase if there is an increase in the number of visitors.

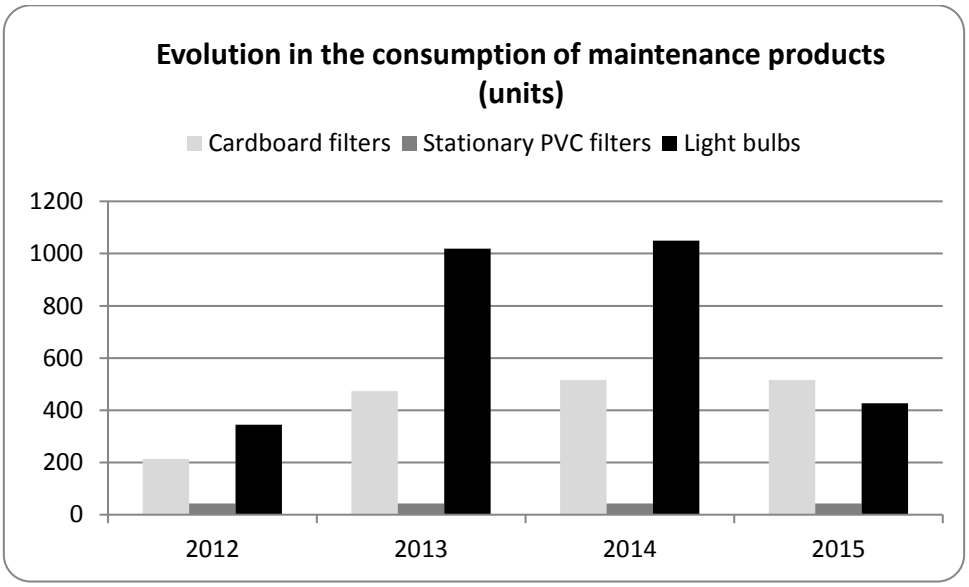
This factor can also be altered by the existence of stock from one year to the next. However, the FJM's policy is to have the minimum stock needed to guarantee the cleaning process.

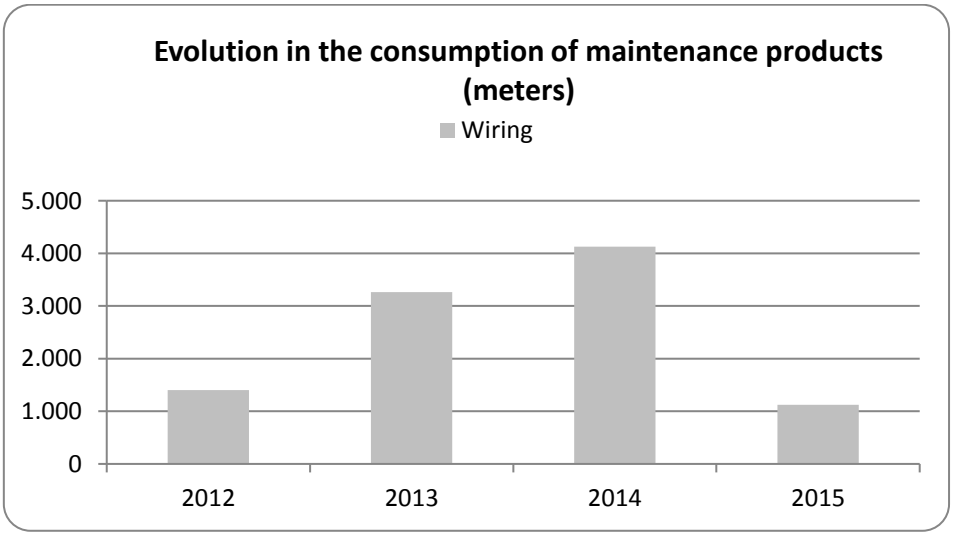
Consumption of maintenance products

Products which may have an impact on the environment are used to maintain the facilities. The Foundation monitors consumption and the kinds of products:

- Material for heating and air conditioning units: cardboard filters, PVC filters, cardboard rolls
- Material for treating water: chlorine and pH regulator
- Electrical supplies: light bulbs and wiring

The monitoring of the consumption of maintenance products shows uneven behaviour depending on the kind of material. Specifically, cardboard filters, light bulbs, cardboard rolls and wiring show a more or less considerable increase, while the consumption of stationary PVC filters remained stable (43 units/year) and the consumption of chlorine dropped. This behaviour is shown in the graphs below:





The consumption of these products is strictly related to building maintenance tasks and the set-up of temporary exhibitions, so there are no plans to apply any objective or action to improve the use of these products.

Consumption of restoration products

The consumption of products needed for the exhibitions and the restoration of the Foundation's artworks is quite variable and depends largely on the activities conducted each year, as well as on the procurement policies which are followed in terms of the amount purchased and the purchase price.

Despite this, we should note that these products are consumed in very small amounts and in 2015 no purchases were made.

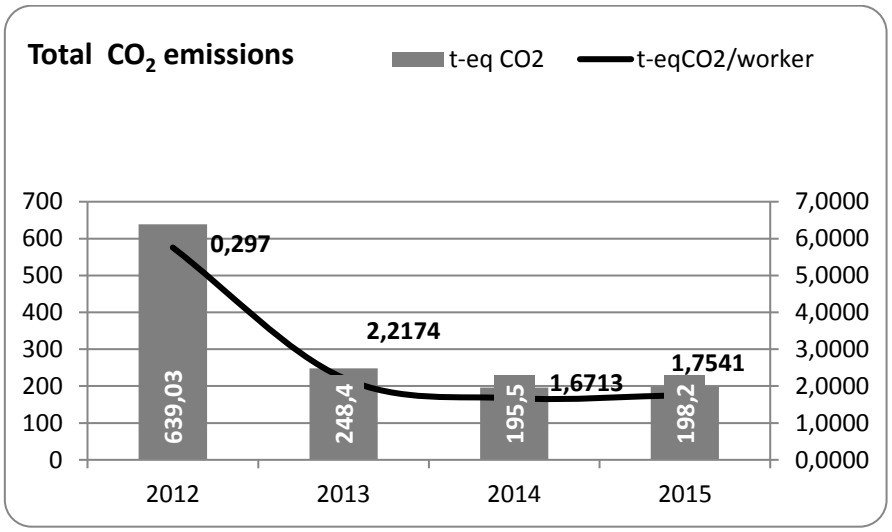
Emissions

Air emissions

Air emissions come from the consumption of natural gas and gasoil and from the generation of waste. Therefore, these are considered direct emissions form the Foundation's activity. The consumption of gasoil is quite sporadic and totally seasonal.

When speaking about greenhouse gases, we refer to CO_2 equivalent (CO_2 eq), which includes the six greenhouses gases contained in the Kyoto Protocol: carbon dioxide (CO_2), methane (CH_4), nitrogen oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF_6). To calculate them, we used the conversion factors from the calculator provided by the Catalan Office of Climate Change.

The graph below shows total CO_2 emissions generated by the consumption of natural gas and waste (regular, paper and cardboard and plastics):



Since all the electricity that the FJM consumes is green, there are no emissions associated with its consumption. Therefore, with regard to these emissions we should highlight the fact that in 2015 they rose 1.36% compared to 2014 and 45.09% compared to the historical mean (2012-2014). The indicator of equivalent tonnes of CO2 per worker has also behaved similarly, with a 4.95% increase over 2014, and a 45.45% drop compared to the historical mean (2012-2014).

During the third quarter of 2014, a new project was carried out in which we estimated the FJM's carbon footprint. Two new environmental aspects were defined:

- Emissions derived from the transport of workers to the FJM
- Emissions derived from the transport of works of art for the temporary exhibitions

These environmental aspects are included in the table of environmental aspects and are part of the usual environmental system management in order to fine-tune the tentative estimate.

In 2015, the established criteria and calculations were maintained, even though we tried to work towards calculating the CO_2 footprint in order to quantify other sources of emissions as well.

Regarding the FJM's shop, in 2015 the CO_2 emissions caused by the carriers of products were lowered indirectly, as they agreed to reduce the number of deliveries of orders to two days a week (they used to deliver goods on a daily basis). There is no quantification of this reduction.

Noise

Noise is not a meaningful aspect at the Foundation. In 2011, a sonometry was carried out as part of the environmental license programme and the results situated it within the limits established by the regulations: 70 dB(A) during the daytime and 60 dB(A) at night, as stipulated by the Urban Environment Ordinance of Barcelona. Given that in 2014 there was no significant change in the Foundation's activity and that no complaints were received, a new sonometry was not carried out.

No complaints about noise were received in 2015.

Light emissions

Regarding light emissions, there were no significant changes in 2014. There are plans to install an exterior lighting system on the building in 2015, which will only be used for special events. This system will abide by the regulations in force on light pollution at night.

Wastewater dumping

Every year the Foundation commissions an analysis of its wastewater. The analysis for 2015 was carried out during the month of March and resulted in the following values:

Parameters	Analytical Values	Top values metropolitan regul.
PH (interval)	8.29	6-10 pH
MIS (matter in suspension)	40	750 mg/l MES
DBO_5- Biological Oxygen Demand	30	750 mg/l O2
DQO – Chemical Oxygen Demand	96	1500 mg/l O2
Oils and fats	5	250 mg/l
Chloride	192	2500 mg/l
Conductivity	1446	6000 µS/cm
Sulphur dioxide	<5.0	15 mg/l
Sulphates	113	1000 mg/l
Total sulphurs	0.16	1 mg/l
Dissolved sulphurs	<0.01	0.30 mg/l
Total phosphorus	1.3	50 mg/l
Nitrate	9.0	100 mg/l NO3
Ammonia	9.2	60 mg/l NH4
Kjeldhal Nitrogen	11.2	90 mg/l N

Parameters	Analytical Values	Top values metropolitan regul.
Mercury	<0.0030	0.1 µg/l
Aluminium	<1	20 mg/l
Total Organic Carbon	12	450 mg/l

The tests show that the parameters are all under the maximum allowed limits. In addition to these parameters, we also analysed the presence of mercury and aluminium as a preventative measure against the potential pollution of wastewater by the Foundation's *Mercury Fountain*.

Biodiversity

The Fundació Joan Miró is located on Montjuïc mountain. Even though it is not a protected area, it does have natural interest because of its value and the presence of plant and animal species of significant interest. The museum's facilities occupy an area of 10,915 m^2.

The Foundation has landscaped gardens. The organisation in charge of these green zones is Parks and Gardens of the Barcelona Town Hall. The gardens are watered once a week via a sprinkler system. No phytosanitary products are used to treat the plants.

Table of indicators

Aspect	Indicator	2014	2015	Evolution
Consumption of electrical energy	MWh/visitor	0.0033	0.0034	3.03%
Consumption of natural gas	MWh/visitor	0.1984	0.0029	-98.51%
Consumption of gasoil	MWh/visitor	0	0.0007	---
Total energy consumption	MWh/visitor	0.006	0.0064	6.63%
Consumption of water	m3/visitor	0.0156	0.0230	47.47%
Generation of waste	t/ visitor	0.00005	0.00005	9.25%
Fluorescent bulbs	kg/worker	0.075	1.1E-05	-99.98%
Batteries	kg/worker	1.98E-01	4.42E-05	-99.98%
Toners and ink cartridges	kg/worker	0.427	0.239	-44.04%
Solvents	kg/worker	0	0	---
Electrical equipment	kg/worker	5.37	0	-100.00%
Polluted cloths and absorbent paper	kg/worker	0.684	0.841	18.75%
Batteries	kg/worker	0	0	---
Leftover paint	kg/worker	0.684	0	-100.00%
Polluted packaging	kg/worker	0.598	1.35	126.31%
Scrap metal	t/worker	7.08E-03	1.44E-02	103.74%
Electrical wiring	t/worker	8.54E-03	2.43E-02	184.97%
CDs + DVDs	t/worker	0	0	---
Wood	t/worker	6.24E-06	1.45889E-06	-76.62%
Mixed construction waste	t/worker	0	0	---
Paper and cardboard	t/visitor	1.40E-05	1.21E-05	-13.90%
Plastics	t/visitor	2.30E-06	5.55E-06	141.14%
Refuse	t/visitor	1.19E-05	8.66E-06	-27.23%
Hazardous waste	kg/worker	8.034	7.759	-3.42%
Non-hazardous waste	t/visitor	0.00004	3.81941E-05	-4.51%
Paper consumption	t/visitor	2.88E-05	3.93E-05	36.60%
In offices	t/worker	0.0068	0.0064	-6.30%
For publications	t/visitor	2.48E-05	3.49E-05	40.60%

Aspect	Indicator	2014	2015	Evolution
Shop bags	t/visitor	2.19E-06	2.74E-06	25.15%
Consumption of toners	kg/worker	0.524	0.346	-33.97%
Consumption of batteries	kg/worker	0.019	0.026	35.07%
Consumption of liquid cleaning products	litres/m2 area	0.119	0.098	-17.59%
Consumption of toilet paper	units/visitor	0.0071	0.0073	2.27%
Consumption of paper towels (restrooms)	units/visitor	0.007	0.0063	-9.80%
Consumption of maintenance material				
Cardboard filters	units/worker	4.41	4.57	3.55%
PVC filters	units/worker	0.368	0.38	3.41%
Light bulbs	units/worker	8.974	3.779	-57.89%
Chlorine	kg/worker	1.02E-06	7.17E-07	-29.46%
Wiring	metres/worker	35.28	9.94	-71.83%
Consumption of material for exhibitions				
Cardboard rolls	t/worker	0.0045	0.0053	16.81%
Plastic film	t/worker	0.534	0	-100.00%
Paint	t/worker	0.0067	0.0095	41.33%
Enamel, varnish, solvents, etc.	t/worker	0.5120	0.2513	-50.91%
CO2 emissions	t CO2 / visitor			
CO2 emissions from electricity	t CO2/ visitor	0	0	---
CO2 emissions from gas consumption	t CO2/ visitor	4.28E-04	4.64E-04	8.46%
CO2 emissions from the generation of waste	t CO2/ visitor	1.35E-05	9.85E-06	-27.01%
CO2 emissions from the transport of workers	t CO2/ worker	0.446	0.462	3.65%
CO2 emissions from the transport of works of art	t CO2/ visitor	1.14E-05	3.91E-05	243.01%
Biodiversity	m^2 built	10,915	10,915	0.00%

Alexander Calder's *Mercury Fountain*

Since 1975, the Fundació Joan Miró's collection has included a work by the artist Alexander Calder entitled *Mercury Fountain*. It has the unique feature of being made from painted iron and aluminium, and it uses mercury as the liquid that circulates in a closed circuit to set the work into motion.

Aware of the importance of conducting exhaustive controls of the state of the fountain, the Foundation has implemented a series of actions and protocols to ensure the safety of both the installation and of people, along with respect for the environment. Among other actions, it has analysed the risks to people and checked the mercury levels in the environment, and maintenance action protocols have been drawn up in the event of an incident, along with medical vigilance protocols and waste control protocols.

Emergency situations

Throughout 2015, there were no incidents, accidents and/or emergency situations that gave rise to an environmental impact.

Regarding carrying out emergency simulations, in December 2014 the Civil Protection approved the Emergency Plan. The workers of the Foundation were notified of and trained in the Emergency Plan throughout the first half of 2015. Later, a simulation will be held (planned for 2016).

NEXT VALIDATION

This declaration corresponds to the second follow-up of the EMAS certificate.

This environmental declaration is valid for 1 year after the validation date. It was drawn up and approved by:

Ramón González
Head of Environmental Affairs

Dolors Ricart
Manager

DECLARACIÓ AMBIENTAL VALIDADA PER

AENOR Asociación Española de Normalización y Certificación

D'ACORD AMB EL REGLAMENT (CE) NÚM. 1221/2009

NÚM. D'ACREDITACIÓ COM A VERIFICADOR AMBIENTAL ES-V-0001

Data de validació:

Avelino BRITO MARQUINA
Director General d'AENOR

ENVIRONMENTAL DECLARATION VALIDATED BY

AENOR Spanish Normalisation and Certification Association

IN ACCORDANCE WITH REGULATION (EC) NO. 1221/2009

ACCREDITATION NO. AS ENVIRONMENTAL VERIFIER ES-V-0001

Validation date:

Avelino BRITO MARQUINA

General Manager of AENOR