EUROPEAN COMMISSION

**Environmental Management System**

# 2014 Environmental Statement

# 2013 results

# Version 1.4

Final

FOREWORD

Over the last few years, the European Commission has sought to increase the coverage of EMAS, its environmental management system. During 2013 the Commission extended it to a further five buildings in Brussels and one additional building in Luxembourg. In so doing the Commission has progressed towards its objective of registering all its buildings at both locations under the system.

Following the inclusion in 2012 of the Joint Research Centre site at Petten in the Netherlands within the EMAS system, now being the first EMAS registered Commission site outside Brussels and Luxembourg, in 2013 other Joint Research Centre sites at Geel in Belgium and Sevilla in Spain also participated in the scheme and are expected to be registered in the short term.

As a result, the Commission buildings now participating in EMAS have a combined useful surface area that has increased by nearly one third in the last year to just under 1.170.000 $m^2$. Besides, while EMAS is implemented as a tool for managing environmental performance at individual sites, adding new sites made it possible in 2013 to pool together data about different sites and to identify encouraging trends towards reduced overall resource consumption across the Commission.

Although economic constraints remain severe, we will continue implementing EMAS in additional buildings at the existing sites of Brussels and Luxembourg as well as at new sites throughout the European Union.

I am convinced that, despite the continuing challenges posed by expanding our environmental system ever further, we can realise the significant benefits that improving the Commission's environmental performance can deliver.

Irene Souka

Director-General
President of the EMAS Steering Committee

# 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:

30 DIC. 2014

Signature and stamp:


Avelino Brito Marquina

Chief Executive Officer

## EXECUTIVE SUMMARY

The European Commission's Environmental Statement is prepared under the Eco Management and Audit System (EMAS). The Commission achieved its first registration for the Brussels site in 2005 which covered four services and eight buildings with a useful surface area of 206.166m$^2$ and 4.043 staff.

EMAS implementation has since expanded within Brussels, and also includes Luxembourg and the JRC sites. On the basis of reporting for 2013, the Commission will seek to increase from three to five the number of sites incorporated within its EMAS registration. This will include 59 of 61 buildings in Brussels[1], 4 of 14 buildings in Luxembourg, and the Joint Research Centre (JRC) sites[2]of Petten (Netherlands), Geel (Belgium), and Sevilla (Spain). While Luxembourg joined in 2011 and JRC Petten in 2012, JRCs Geel, and Sevilla started reporting in 2013. The registration will include buildings with a useful surface area totalling 1.168.068m$^2$ (accommodating 28.665 staff), and representing 89% of the EMAS sites.

EMAS is a rigorous system, requiring continuous improvement in environmental performance through the identification of environmental impacts, implementation of policy, setting objectives and monitoring performance, legal compliance, communication and training all verified through mandatory internal and external audit and certification delivered by public bodies. Indicators are defined in areas including energy and resource consumption, and waste generation. This report describes how each of the five sites have performed in the last year, taking into account longer term trends, and also brings the performance of different sites together to make conclusion on the Commission's performance as a whole.

The Brussels site has reported under EMAS since 2005, and its size relative to other sites heavily influences performance of the Commission overall. Brussels has achieved very significant reductions in resource consumption indicators since 2005, reducing per capita energy and water consumption (and $CO_2$ emissions[3]) by around 60% in its office buildings. Office paper consumption and non-hazardous waste generation has reduced by 45% and 30% respectively.

**Improved environmental performance for Brussels EMAS area office buildings**

| Parameter and unit | Actual value | | Reduction since 2005 | |
|---|---|---|---|---|
| | 2005 | 2013 | Overall % | % per year |
| Energy for buildings (KWh/p) | 19.057 | 7.659 | 60 | 7,5 |
| Water use (l/p) | 28.441 | 11.898 | 58 | 7,3 |
| Office paper (sheets/p/d) | 77,37 | 42,55 | 45 | 5,6 |
| $CO_2$ emission from buildings (kg/p) | 4.770 | 751 | 84 | 10,5 |
| Non hazardous waste (kg/p) | 300 | 210 | 30 | 3,8 |

Luxembourg has also recorded reduced consumption of most indicators especially in the period 2012-3. Year to year performance is also recorded under EMAS, together with the reaching (or not) of targets that are usually set annually. Among the sites, thirteen of the twenty targets set in 2013 for 2013 performance in relation to the above parameters were met. These included four of

[1] Buildings managed by OIB, a figure that is subject to change and not including some Executive Agencies

[2] An EC site in this document is a geographical settlement per country, under a common infrastructure management, it is different from the notion of site in the EMAS regulation. The most important sites of the Commission are: Brussels, Luxemburg, Ispra (Italy), Geel (Belgium), Petten (Netherlands), Karlsruhe (Germany); Sevilla (Spain), Grange (Ireland).

[3] $CO_2$ emissions reduction exceeds that of energy consumption as electricity has been purchased from 95% renewable sources since 2009

the six targets for buildings energy consumption, particularly noteworthy given that degree day data indicate 2013 to have been both colder, and hotter than 2012 at five sites.

The JRCs Geel and Petten require significantly more resources, particularly for energy and/or water consumption than the more administrative sites of Brussels and Luxembourg. JRC Geel has many laboratories and large experimental apparatus including multi megawatt Van De Graaff and Gelina nuclear accelerators while JRC Petten undertakes long duration fuel cell experiments. Despite higher energy consumption at these sites, their relatively small size in relation to Brussels and Luxembourg means that their impact on the overall Commission consumption is fairly small.

Annual carbon dioxide emissions associated with business travel for staff at EMAS sites has been estimated at 1.2 tonnes per person, comparable to that for emissions due to buildings energy consumption (1.3 tonnes). This is more than double the figure for commuting of Brussels staff.

The Commission's vehicle fleet in the EMAS area reduced from 198 to 157 in 2013 while they became more fuel efficient, and therefore generated less $CO_2$ per kilometre. The sites also reported on refrigerant losses, as this contributes to global warming and have demonstrated improved management by reducing losses over several years. Emissions from vehicles and refrigerant leaks are approximately the same order of magnitude but less than 5% of the $CO_2$ emissions due to buildings energy consumption.

Green procurement is being more actively practiced whether directly through the inclusion of specific criteria in procurement contracts or through purchasing "green" items in the office supply catalogues.

For the first time the Environmental Statement includes unit cost data used to evaluate per capita costs and savings. In 2013, the direct cost of coordinating EMAS, comprising staff time and the value of supporting contracts, was under 60 EUR/person in the EMAS area.

Savings in energy bills resulting from reduced energy consumption in buildings have been evaluated for Brussels using historical unit costs. In 2013 per capita costs were equivalent to 552 EUR/person, less than half their value in 2005. **Assuming similar costs for non EMAS areas, the estimated Commission annual energy bill would have reduced from around 25 Million EUR in 2005 to under 15 Million EUR in 2013, while staff numbers have risen by a quarter.** This represents a cumulative saving of 58 Million EUR over the same period.

**Buildings energy costs are by far the most expensive single resource cost**. In Brussels per capita buildings energy consumption in 2013 was more than ten times greater than that for water consumption (43 EUR), office paper supply (33 EUR) and for general waste disposal (34 EUR). Paper costs vary heavily depending on whether offset printing is included. Although disposal of controlled waste has a high unit cost the low quantities generated result in low per capita costs.

In 2014/2015, EMAS will continue to deliver improvements. This should include:

1. The remaining buildings in Brussels, managed by OIB, will be included in the scope along with a further building in Luxembourg, JRCs Karlsruhe (Germany) and Ispra (Italy) and DG SANCO's building in Ireland.
2. More detailed consideration of the impact of emissions from missions and commuting will be made, permitting a more complete picture of the carbon footprint.
3. The Commission will take a leading role in the Inter-institutional Group on Environmental Management.

**ANNEXES:**

# 1 INTRODUCTION

## 1.1 This Environmental Statement

The production and annual updating of an Environmental Statement is required under the Eco Management and Audit System (EMAS) Regulations. EMAS incorporates the environmental management system under which the Commission achieved its first accreditation in 2005. EMAS is site based, and its scope expanded in 2013 to cover six sites: Brussels, Luxembourg, JRC Petten (Netherlands), JRC Geel (Belgium), and JRC Sevilla (Spain).

The remainder of this chapter provides essential information on the EC activities and its environmental management system. Chapter two provides an overview of the results reported across all sites which are presented in Chapters three to eight. Data tables for each site are included in the appendices.

## 1.2 European Commission

The European Commission[4] is the executive arm of the European Union. Alongside the European Parliament and the Council of the European Union, it is one of three main institutions that govern the Union. Following the enlargement of 1st July 2013, the Commission's activities were steered by 28 Commissioners, assisted by some 35 000 civil servants and other staff working in 33 directorates-general (DGs), 11 services/offices and departments all over the world. Each Commissioner takes responsibility for a particular area of policy and heads one or more entities that are generally known as DGs.

The Commission's primary role is to propose and enact legislation, and to act as 'Guardian of the Treaties', which involves responsibility for initiating infringement proceedings at the European Court of Justice against Member States and others whom it considers to be in breach of the EU Treaties and other Community law. The Commission also negotiates international agreements on behalf of the EU in close cooperation with the Council of the European Union.

The Commission's headquarters are in Brussels (Belgium), but it also has offices in Luxembourg, Ispra (Italy), Grange (Ireland) and many other places, agencies in a number of Member States and representations in all EU countries. On 1st December 2009, the Treaty of Lisbon entered into force giving the Commission the institutional tools needed for the various enlargements and for meeting the challenges of an EU of 27 Member States (Croatia became the 28th Member State in 2013).

The EMAS III Regulation[5] pertaining to the Eco-Management and Audit Scheme also came into force in 2009, replacing the 2001 Regulation and improving EMAS by making it easier to administer for example by enabling multiple sites in different countries to be included under one over arching registration. The Commission's EMAS registration is coordinated from Brussels.

4 A glossary of terms is provided in the annex.

5 Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC.

## 1.3 European Union policies

The Commission takes environmental issues into account when drafting and revising EU policies, through the impact assessment system. It provides financial support for environmental projects via the LIFE programme and has policies on combating global warming and on energy and transport.

The impact assessment system and its application to the myriad of EU policies are not considered in this document[6], but you can find information on these on the Commission's EUROPA website. The following pages are among those dedicated to particular policies and important initiatives:

**Table 1.1 – Summary of important Commission policies and initiatives**

| No | Policy or initiative | Address |
|---|---|---|
| 1 | Impact assessment system | http://ec.europa.eu/governance/impact/index_en.htm |
| 2 | EU environment policy and evaluation | http://ec.europa.eu/environment/index_en.htm |
| 3 | LIFE+ programme | http://ec.europa.eu/environment/life/index.htm |
| 4 | Global warming policy | http://ec.europa.eu/climateaction/index_fr.htm |
| 5 | Energy policy | http://ec.europa.eu/energy/index_en.htm |
| 6 | Transport policy | http://ec.europa.eu/transport/index_en.htm |

The environmental aspects of EU policies for Member States are therefore addressed by the impact assessment system that applies to each legislative initiative. The EMAS management system is not the appropriate tool for managing these policies. It is oriented towards the Commission's own operational activities.

## 1.4 Environmental management at the Commission and EMAS

A chronology of main developments of implementing EMAS in the Commission is as follows:

| Year | Action |
|---|---|
| 2001 | The Commission launches a pilot exercise to apply EMAS (Regulation (EC) No 761/2001) to the activities and buildings of a number of its departments. |
| 2005 | The Commission obtains the first EMAS registration for the activities of four Commission departments in Brussels, and covering eight buildings (based on data from 2002-4). |
| 2005-9 | More buildings were added to EMAS scope in Brussels. |

6 In view of the information available on www.europa.eu, European Union policies are not described in detail in the environmental statement. This makes it possible to reduce the size of the document while referring the reader to sites which are more comprehensive and which are regularly updated.

2009 EMAS III Regulation[3] comes into force enabling the Commission to register sites in different Member States under one authority and with a single reference number.

2009 The Commission decides to extend EMAS to all its departments in Brussels and Luxembourg with effect from 1 January 2010. New buildings are to be added annually in accordance with a schedule agreed with the IBGE.

2011 The Commission's registration was extended to include all its departments in Brussels.

2012 The Commission's registrations are further extended to include all its departments in Luxembourg and first two buildings (based on data reported for 2011).

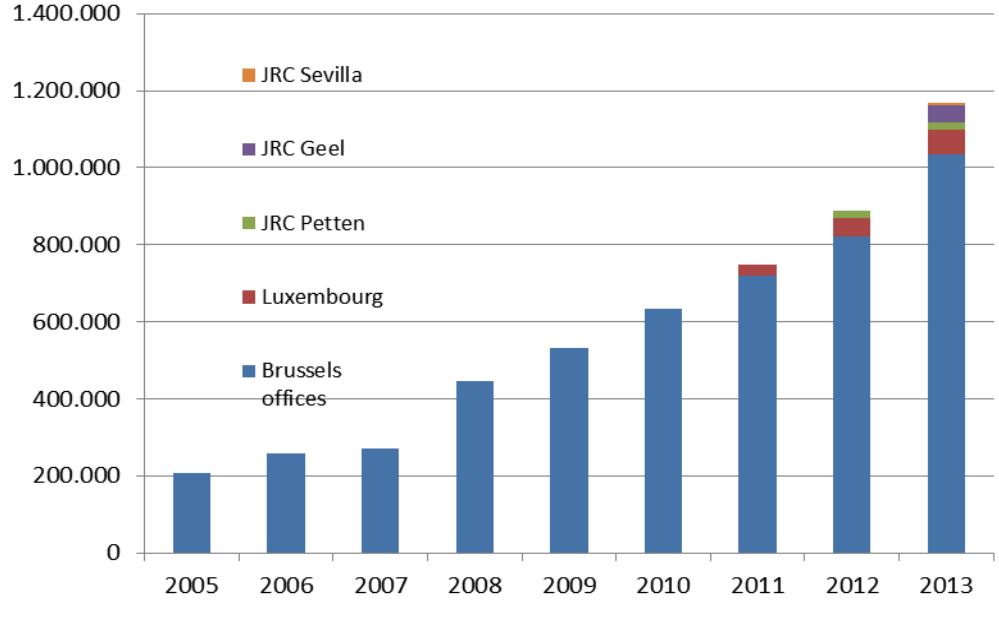
2013 The Commission decided to further extend the EMAS to the JRC sites in Europe and to Grange (Ireland).

JRC Petten included in EMAS registration (based on data reported for 2012). Data is reported in this Environmental Statement for JRC sites at Geel and Sevilla in anticipation of their inclusion in the EMAS registration in 2014.

Historically and for operational reasons, the Commission separated the EMAS registration of its staff activities (departments) and buildings. While the system's communication aspects can be relatively quickly addressed enabling all staff across the Commission to be included, each additional building must be inspected and certified by the national authorities. This is time consuming, and for this reason buildings at larger sites (Brussels and Luxembourg) have been added to EMAS each year according to resources available. Smaller sites, such as those of the JRC can be added whole.

Figure 1.1 shows how the "useful" surface area within the EMAS scope has evolved and reflects the progress made in incorporating new buildings.

**Figure 1.1: Evolution of EMAS floor space for certification ($m^2$)**



The Commission will be seeking certification of six sites with nearly 1.200.000 square metres of useful floor space. The number of staff working in the EMAS scope has risen from 4.033 in 2005 to 28.665 in 2013.

## 1.5 How EMAS works in the Commission

EMAS is implemented under a decision taken of the college of Commissioners, ensuring its legitimacy at the institution's highest level. DG HR chairs the **EMAS Steering Committee**[7] which meets twice yearly. It defines environmental policy, adopts the global action plan and sets the environmental objectives.

Day to day EMAS coordination is assured by a team based in Brussels at DG HR, (HR COORD). The team is led by the **EMAS Management Representative** who is responsible to management for EMAS implementation, and is the contact point for external organisations such as IGBE (Brussels Environment). Owing to the Commission's size, HR COORD works with a network of over 35 **EMAS correspondents** (ECOR) within the directorates-general and departments. The network includes i) "operational" EMAS correspondents[8] from services with a greater role to play in EMAS implementation such as OIB, and OIL, and ii) EMAS correspondents provide a link between their directorate-general/department and HR COORD, particularly for communication. The correspondents participate in formal meetings on average three times a year, usually before the start of information campaigns. They are nominated by their services and EMAS responsbilities are included in their job descriptions.

OIL is responsible for implementing EMAS in Luxembourg through a dedicated EMAS coordinator with DG HR providing assistance as required. The Joint Research Centre (JRC) centralises EMAS coordination in ISPRA (Italy) for all its sites. The coordination office is supported by EMAS coordinators at individual JRC sites. JRC has EN ISO 9001/14001 certifications, in addition to OHSAS 18000, which provides a useful base for introducing EMAS.

## 1.6 Key components of the EMAS system:

### *1.6.1 The Commission's environmental policy*

The environmental policy is the starting point of the environmental management system. It is signed by Commission Management and sets out the Commission's political objectives in concise terms. The environmental policy that was in force in 2013 is presented below. The policy was updated in 2014.

7 The Steering Committee is made up of the following directorates-general and departments: BUDG, CLIMA, DIGIT, ENER, ENV, HR, JRC, MOVE, SG, SANCO, OIB and OIL.

8 Operational EMAS correspondents are those whose services fall under the remit of the EMAS Steering Committee; they also act as EMAS correspondents.

# EMAS Environmental Policy

In 1997, the European Commission started a process of green housekeeping activities and subsequently in 2001, decided to pilot an environmental management system as laid down in Regulation (EC) 761/2001 allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

In 2009, the Commission decided to extend this environmental management system to all its activities and buildings in Brussels and Luxembourg as described in Decision C (2009) 6873). In making this commitment, the European Commission recognises the positive contribution it can make to sustainable development as a long-term goal, through its policy and legislative processes as well as in its day-to-day operations and decisions.

Concretely, the Commission commits to minimise the environmental impact of its everyday work and continuously improve its environmental performance by:

(1) Taking measures to prevent pollution and to achieve more efficient use of natural resources (mainly energy, water and paper);

(2) Taking measures to reduce overall $CO_2$ emissions (mainly from buildings and transport);

(3) Encouraging waste prevention, maximising waste recycling and reusing and optimising waste disposal;

(4) Integrating environmental criteria into public procurement procedures and into the rules regarding the organisation of events;

(5) Complying with relevant environmental legislation and regulations;

(6) Stimulating the sustainable behaviour of all staff and subcontractors through training, information and awareness-raising actions;

(7) Progressively extending all the above to all its activities and buildings;

and in relation to the Commission's core business by:

(8) Systematically assessing the potential economic, social and environmental impacts of major new policy and legislative initiatives and promoting the systematic integration of environmental objectives into Community policies;

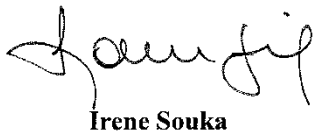
(9) Ensuring the effectiveness of environmental legislation and funding in creating environmental benefits;

(10) Promoting transparent communication and dialogue with all interested parties, both internally and externally.

By virtue of the powers conferred on the Appointing Authorities, the European Commission's EMAS Steering Committee, hereby approves the Policy Statement and commits to adopt the EMAS objectives, targets and action plan of the Commission, supervise the functioning of the system and monitor the use of the human and financial resources allocated to EMAS for an efficient deployment of the environmental management system.

This document shall take effect on the date of its signature, Brussels 05 FEV. 2010

On Behalf of the EMAS Steering Committee,



**Irene Souka**
Chairman

*1.6.2 Identification of significant environmental aspects*

Each site identifies its **environmental aspects:** the elements of its activities, products and services which have or may have an impact on the environment. **Significant environmental aspects** are identified: those aspects for which there is a risk that the Commission may find itself in contravention of applicable legislation or if at least three of six assessment criteria are met. The environmental aspects are collated in a register.

The environmental impact of each of the significant aspects is identified along with the activities, products and services associated with them. The relevant legislation is identified and monitored to ensure legal compliance.

*1.6.3 Legal compliance*

The Commission has different registers of applicable legislation (European, national and, where relevant, regional) for the Brussels and Luxembourg sites. The register of Brussels was updated in 2014 by internal auditors and by the legal officer of OIL in Luxembourg. The Commission was concluding a new contract to provide tailor made legal compliance registers for all sites. It was signed in June 2013, and the new registers should be available by late 2014. The main contract provisions include:

- compliance with legislation subject to customised monitoring at each Commission site;
- a database of environmental legislation which will be accessed online;
- a legal register to be updated twice a year;
- a notification system implemented to alert the Commission whenever legislation is amended;
- amendments to environmental legislation to be analysed on a quarterly basis; and
- a legal help desk and legal assistance are to be established.

The Commission applies host country legislation at each of the EMAS sites, and requires its contractors to do so, with particular attention paid to maintenance and inspection contracts.

In addition to complying with general legislation applicable to its facilities, the Commission must meet the requirements of the environmental permits that are granted by the authorities. Where the Commission is renting its facilities and is therefore not the permit holder, it seeks to ensure that the holder is compliant.

### *1.6.4 Monitoring of indicators and setting of objectives*

A fundamental requirement of EMAS is for organisations to strive for and demonstrate continual improvement. The Regulations therefore require organisations to monitor their performance through the identification of parameters to measure as indicators and the setting of objectives. While the definition of the indicators and the objectives set will be determined by the review of significant environmental aspects and will vary from site to site, Annex IV of the EMAS regulations nevertheless defines certain core indicators for which data is expected to be collected. These include energy efficiency, material efficiency, water, waste, biodiversity and emissions.

As an administrative organisation, the Regulations require the Commission's core indicators to be expressed in terms of output per person, therefore the total number of employees in the EMAS area is a common denominator of most indicator measurements. The Global Annual Action Plan records progress under the core indicators. It sets out objectives, and is updated and approved annually by the EMAS Steering Committee.

The core indicators are defined in the data tables for each site that are Annexes to this document. These are grouped under eight main headings that encompass the political objectives set out in the Environmental Policy and are as shown in Table 1.2:

**Table 1.2: Summary of main policy objectives and indicators**

| **No** | **Environmental Policy Objective** | **Indicators** |
|---|---|---|
| I | More efficient use of natural resources | a) Total energy consumption (buildings), b) total energy consumption (site vehicles), c) renewable energy use, d) water consumption, e) office paper consumption and f) offset (professional printing) paper consumption, |
| II | Reducing $CO_2$ emissions, (including $CO_2$ equivalent of other gases) and other air pollutants | a) $CO_2$ emissions from buildings energy consumption, b), other greenhouse gas emissions (as $CO_2$ equivalent from buildings (ie refrigerants), c) vehicle $CO_2$ emissions (manufacturer) d) vehicle $CO_2$ emissions (actual), e) actual total air emissions including $SO_2$,NOx,PM |
| III | Improving waste management and sorting | a) Total waste, b) controlled waste, c) separated waste (as % of total) |
| IV | Protecting biodiversity | a) built surface area, total site surface area |
| V | Promoting "greener" procurement | a) Percentage of contracts over 60.000 EUR incorporating additional "green" criteria, b) Percentage, fraction and value of "green" products in the office supply catalogue |
| VI | Ensuring legal | a) Risk prevention and management, b) progress in registering for EMAS, |

| No | Environmental Policy Objective | Indicators |
|---|---|---|
| | compliance | c) non-compliance in external EMAS audits |
| VII | Improving Communication (sustainable behaviour of staff; suppliers, and training) | a) Centralised formalised EMAS campaigns, b) environmental training for new colleagues, c) take up of e-learning, d) staff awareness (through two yearly external survey), e) register of training needs, f) response to internal questions |
| VIII | Enjoying transparent relations with external partners | a) Response to external questions, b) register of information sessions for main subcontractors and suppliers, c) register of local and regional stakeholders, d) dialogue with external partners |

The parameters identified under policy objectives I to IV are largely physically based, usually requiring invoices and/or measurements for their definition. For several resource consumption parameters, technical staff may also report results per square metre. This applies to "useful surface" areas which are often defined in lease or service contracts. Indicators under policy objectives V to VIII are more closely related to communication and training campaigns. Results obtained in these areas will ultimately be seen through improvements in the areas of policy objectives I to IV, and most parameters measured input based.

For consistency, this environmental statement incorporates reporting for each site together with a Commission wide summary based on the indicators and in the above order. This is consistent with the Global Annual Action Plan. Not all sites report on all parameters.

### 1.7 The Commission: what was new in 2013

New developments in EMAS included the following:

1. The Commission expanded the EMAS scheme to cover five new buildings in Brussels, one new building in Luxembourg and new JRC sites at Geel, and Sevilla;
2. The college of Commissioners adopted a decision making future expansions of EMAS scope more straightforward[9];
3. EMAS core procedures were under review;
4. A new approach for reporting for the Environmental Statement at site level was introduced to ensure consistency for which sites completed a standard data template as a first step towards analysing performance;
5. Reporting overall Commission results in the Environmental Statement by combining data for individual sites;
6. Estimating greenhouse gas emissions associated with missions, and for Brussels also emissions associated with commuting; and
7. Incorporating unit cost information.

9 College decision C(2013) 7708 of 18 November 2013.

# 2 A COMMISSION OVERVIEW OF EMAS PERFORMANCE

This section presents an overview of the results for the six EMAS sites, each of which has a separate section in Chapters 3 to 8. Subject to data availability for individual sites, where possible, parameters are defined for the Commission as a whole.

## 2.1 Overview of core indicators

The evolution of indicators relating to consumption of energy (for buildings), water, office paper together with $CO_2$ emissions and non-hazardous waste are presented in Table 2.1.

**Table 2.1 Change in consumption (%) in 2013 since:**

| Parameter and site | 2005 | | 2010 | | 2011 | | 2012 | 2013 Target | |
|---|---|---|---|---|---|---|---|---|---|
| | Overall | Annually | Overall | Annually | Overall | Annually | Overall | % change | Target met? |
| **Energy bldgs (KWh/p)** | | | | | | | | | |
| Brussels (offices) | -59,81 | -7,48 | -14,58 | -4,86 | | | -0,78 | -1,0 | No |
| Luxembourg | | | | | 28,32 | 14,16 | -0,28 | 0,0 | Yes |
| Petten | | | -15,01 | -5,00 | | | 26,26 | -1,0 | No |
| Geel | | | | | -6,33 | -3,16 | -6,23 | -1,0 | Yes |
| Sevilla | | | -14,55 | -4,85 | | | -8,96 | NA | |
| **Water use (l/p)** | | | | | | | | | |
| Brussels (offices) | -58,17 | -7,27 | -19,06 | -6,35 | | | 5,92 | -1,0 | No |
| Luxembourg | | | | | 24,34 | 12,17 | -9,18 | -2,0 | Yes |
| Petten | | | 67,40 | 22,47 | | | -32,82 | 0,0 | Yes |
| Geel | | | | | -18,39 | -9,20 | -11,85 | -1,0 | Yes |
| Sevilla | | | -36,13 | -12,04 | | | -1,27 | NA | |
| **Office paper (Shts/person/day)** | | | | | | | | | |
| Brussels | -45,00 | -5,63 | -16,17 | -5,39 | | | 6,01 | -2,0 | No |
| Luxembourg | | | | | -16,60 | -8,30 | -2,21 | 0,0 | Yes |
| Petten | | | -50,31 | -16,77 | | | -31,03 | -1,0 | Yes |
| Geel | | | | | | | -12,50 | -1,0 | Yes |
| Sevilla | | | -63,32 | -21,11 | | | -47,24 | NA | |
| **CO2 bldgs (kg/p)** | | | | | | | | | |
| Brussels (offices) | -84,25 | -10,53 | -12,70 | -4,23 | | | 3,26 | -1,0 | No |
| Luxembourg | | | | | -3,75 | -1,88 | 6,64 | -2,0 | No |
| Petten | | | -18,58 | -6,19 | | | 25,43 | -1,0 | No |
| Geel | | | | | -7,16 | -3,58 | -6,88 | -1,0 | Yes |
| Sevilla | | | -17,34 | -5,78 | | | -9,10 | NA | |
| **Non haz.waste (kg/p)** | | | | | | | | | |
| Brussels | -30,02 | -3,75 | -15,86 | -5,29 | | | -6,57 | -2,0 | Yes |
| Luxembourg | | | | | -49,60 | -24,80 | 11,98 | -2,0 | No |
| Petten | | | 59,79 | 19,93 | | | 18,61 | -1,0 | No |
| Geel | | | | | -31,33 | -15,67 | -44,26 | -1,0 | Yes |
| Sevilla | | | NA | NA | | | NA | NA | |

Per capita energy consumption has fallen in the longer term at most sites, and in Brussels the 2013 figure was 60% less than that in 2005. Reductions have been more modest in recent years. Two of the four sites met their targets for 2013 performance improvement, and Brussels nearly met its target. As 2013 was generally colder (and hotter) than 2012, achieving such reductions was noteworthy.

Water consumption has also fallen significantly at most sites, again with three of four sites meeting 2013 targets and over the longer term Brussels achieving a 58% reduction since 2005. Office paper consumption has also reduced significantly at all sites and with $CO_2$ emissions that largely mirror buildings energy consumption with Brussels achieving well over 60% since 2005. Non-hazardous waste reductions have been about 30% in Brussels since 2005. In the medium term, most of the sites that have started to report data since 2010 or 2011 have experienced reduced resource consumption and waste generation.

## 2.2 Description of activities

The NACE[10] codes for the Commission's six EMAS sites are presented in Table 2.2.

**Table 2.2: NACE codes and descriptions of activities at the sites**

| Code | Description | Brussels | Luxem-burg | JRC Petten (IET) | JRC Geel (IRMM) | JRC Sevilla (IPTS) |
|---|---|---|---|---|---|---|
| 99 | Activities of extraterritorial organisations and bodies | X | X | X | X | X |
| 84.1 | Administration of the State and the economic and social policy of the community | X | X | | | |
| 71.2 | Testing and techcnical analysis | | X | X | X | |
| 72.1 | Research and experimental development in natural sciences and engineering | | | X | X | |
| 72.2 | Research and experimental development on social science and humanities | | | | | X |

Brussels is the main site, the Commission's administrative centre, with a range of buildings dominated by offices but including conference centres, catering facilities, storage depots, print shops, childcare facilities, and sports facilities. The Luxembourg site is of a similar nature, though smaller but also includes small nuclear laboratory.

The Institute of Energy and Transport at JRC Petten (Netherlands) accommodates experimental equipment notably conducting research on fuel cells. The Institute for Research Materials and Measurement at JRC Geel (Belgium) contains Van de Graaff and Gelina Nuclear Accelerators, large power hungry installations, and an array of laboratories. The Institute for Prospective Technological Studies at JRC Sevilla (Spain) has advanced computing infrastructure, but lacks experimental laboratories. From an EMAS perspective, it is more similar in nature to the administrative centres of Brussels and Luxembourg, than to the other JRC sites, with the added complexity of being in wholly rented accommodation. Characteristics of these sites relating to EMAS are shown below in Table 2.3.

**Table 2.3: Basic characteristsics of the Commission EMAS sites (2013)**

| Site | Staff | | Buildings seeking registration | | Useful surface ($m^2$) | |
|---|---|---|---|---|---|---|
| | EMAS | Total | EMAS | Total | EMAS | Total |
| Brussels (all EMAS buildings) | 26.336 | 26.499 | 59 | 61 | 1.033.183 | 1.051.557 |
| Luxembourg | 1.422 | 4.050 | 4 | 14 | 64.703 | 191.713 |
| JRC Petten | 263 | 263 | 14 | 14 | 19.150 | 19.150 |
| JRC Geel | 362 | 362 | 14 | 14 | 44.535 | 44.535 |
| JRC Sevilla | 282 | 282 | 1 | 1 | 6.497 | 6.497 |
| **Total** | **28.665** | **31.456** | **92** | **104** | **1.168.068** | **1.313.452** |

[10] NACE: "Nomenclature Statistique des Activités économiques dans la Communauté Européenne"

The Brussels site clearly dominates with approximately ten times more staff than the other sites combined. Since the first Commission EMAS registration for Brussels in 2005 which included eight buildings, its scope has expanded to include 59 of 61[11] Brussels buildings. The remaining two will be accommodated in 2014 reporting and should be registered in 2015. Luxembourg started EMAS registration in 2011 and in 2013 had over one third of staff in the scope, and a similar proportion of floor space in its scope, and hopes to register the remaining buildings by 2020. Each of the JRC sites has been incorporated "whole" into EMAS.

## 2.3 Environmental impact of Commission activities

Each site undertakes its own review of environmental impact in order to identify those which are significant and determine how they should be managed. Details for each site are presented in the following chapters. There is no review for the Commission as a whole.

## 2.4 More efficient use of natural resources

Buildings' energy consumption is influenced by climate. Table 2.4 shows hot degree days (HDD, when heating is required in winter), and cold degree days (CDD, when cooling is required in summer) for meteorological stations near the Commission EMAS sites, using a reference temperature of 15.5°C. Comparing the number of degree days from year to year therefore indicates whether a year was colder (more time with temperatures less than 15.5°C, therefore more HDDs), or hotter (more time with temperatures greater than 15.5°C, therefore more CDDs).[12]

**Table 2.4: Comparison of degree days in 2012 and 2013 for EMAS sites**

| Site | 2012 | | | 2013 | | |
|---|---|---|---|---|---|---|
| | HDD | CDD | Total | HDD | CDD | Total |
| Brussels | 2.184 | 325 | 2.509 | 2.397 | 360 | 2.757 |
| *(% change 2012-13)* | | | | *9,8* | *10,8* | *9,9* |
| Luxembourg | 2.476 | 365 | 2.841 | 2.718 | 390 | 3.108 |
| *(% change 2012-13)* | | | | *9,8* | *6,8* | *9,4* |
| Petten | 2.117 | 272 | 2.389 | 2.301 | 290 | 2.591 |
| *(% change 2012-13)* | | | | *8,7* | *6,6* | *8,5* |
| Geel | 2.032 | 371 | 2.403 | 2.258 | 409 | 2.667 |
| *(% change 2012-13)* | | | | *11,1* | *10,2* | *11,0* |
| Sevilla | 751 | 1.840 | 2.591 | 713 | 1.723 | 2.436 |
| *(% change 2012-13)* | | | | *-5,1* | *-6,4* | *-6,0* |
| **Total** | 9.560 | 3.173 | 12.733 | 10.387 | 3.172 | 13.559 |
| *(% change 2012-13)* | | | | *8,7* | *0,0* | *6,5* |

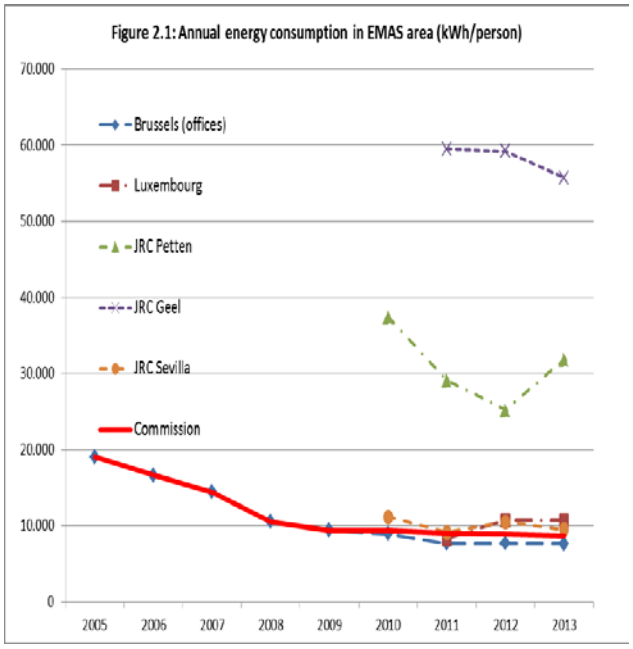
The data shows that for all sites except Sevilla, there were between 6 and 11% more hot degree days in 2013 than in 2012, suggesting that more energy for heating would likely be required. And for sites other than Sevilla there were more cold degree days in 2013, indicating that more air conditioning and cooling would likely be necessary than in 2012. So globally, most sites would expect, other factors being equal, to have higher energy bills in 2013 than 2012.

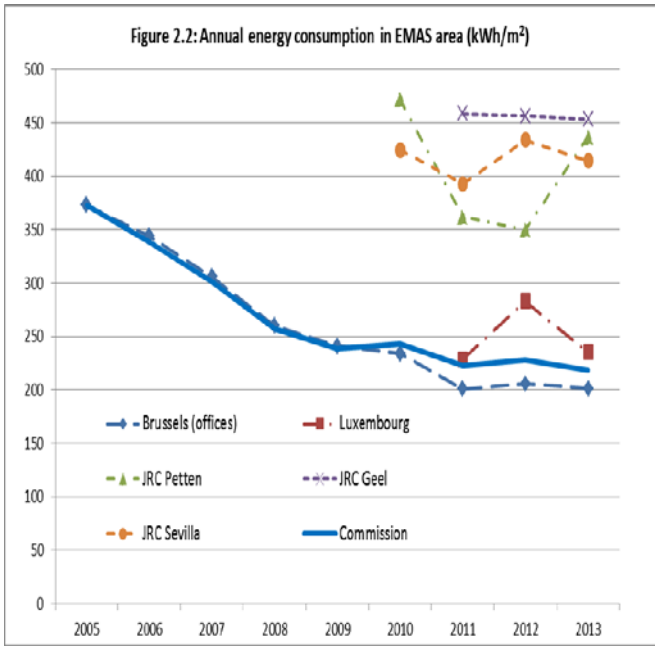
[11] Buildings managed by OIB, not including some Executive Agencies

[12] Data from www.degreedays.net (using temperature data from www.wunderground.com)

*2.4.1 Energy consumption*

Figures 2.1 and 2.2 show per capita and per square metre buildings energy consumption for the EMAS sites, together Commission value obtained by "weighting" the values for individual sites.



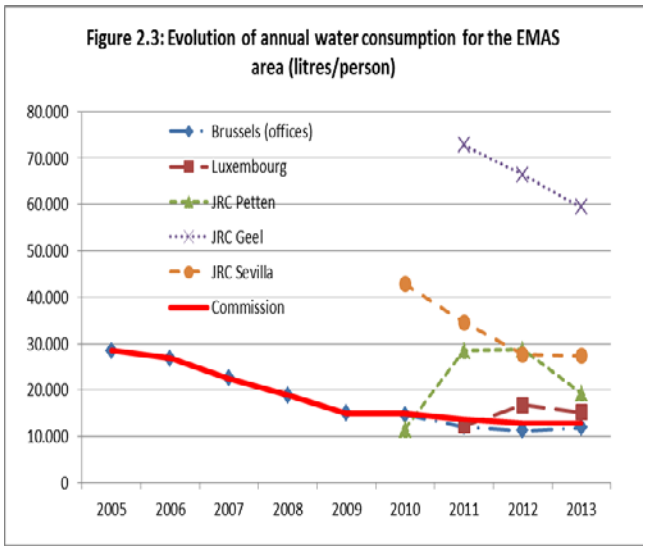




The Commission values are heavily influenced by Brussels data. Indeed, the two are identical prior to 2008 when only Brussels data was available. Brussels, Luxembourg and JRC Sevilla, all largely administrative sites, have broadly similar downward trends in per capita consumption, with Brussels in 2013 reporting less than half the 2005 value. JRC Sevilla has a slightly higher consumption per square metre, similar to some of the more scientific sites. Where energy consumption has reduced, particularly in the sites where office space dominates, per capita reductions have been greater than those measured per square metre. Since 2008/9 reductions in energy consumption have been smaller than in previous years.

JRCs Geel and Petten have higher energy consumption per capita and per square metre. At both Geel and Petten this is due to the energy requirements of large experimental equipment. Although consumption at these sites is significantly higher than at either Brussels or Luxembourg, the relatively small size of the sites and the number of staff result in the overall Commission value remaining close to, but slightly higher than that for Brussels.

Sites notably Brussels and Luxembourg have been purchasing electricity from renewable sources which overall accounts for 46% of the Commission's buildings energy consumption (KWh/p).

### *2.4.2 Water consumption*



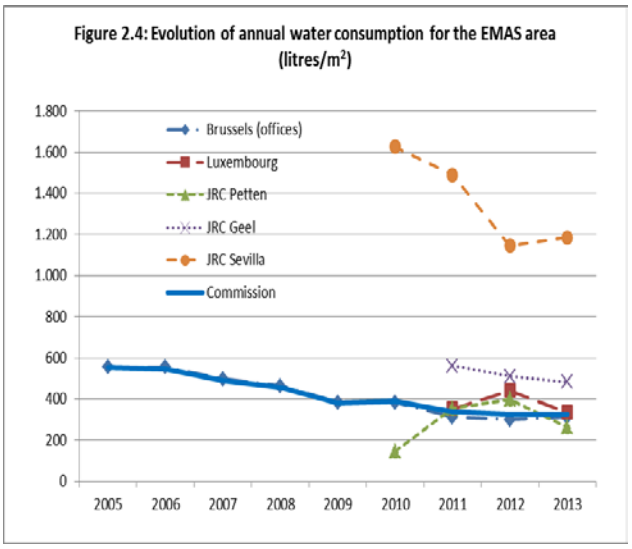




Figure 2.3 shows that per capita water consumption in Brussels has more than halved since 2005, and also fallen substantially when measured per square metre (Figure 2.4). As with energy consumption, the overall Commission value is close to that for Brussels. The JRCs at Sevilla and Geel have recorded the largest reductions in consumption over the last three to four years. JRC Petten suffered a major leak in 2011/2 resulting in a spike in water consumption. Overall, water consumption has been falling at most sites.

### *2.4.3 Office and offset paper*

Paper consumption data apply to the whole Commission site at both Brussels and OIL, and not just the buildings within the EMAS area.

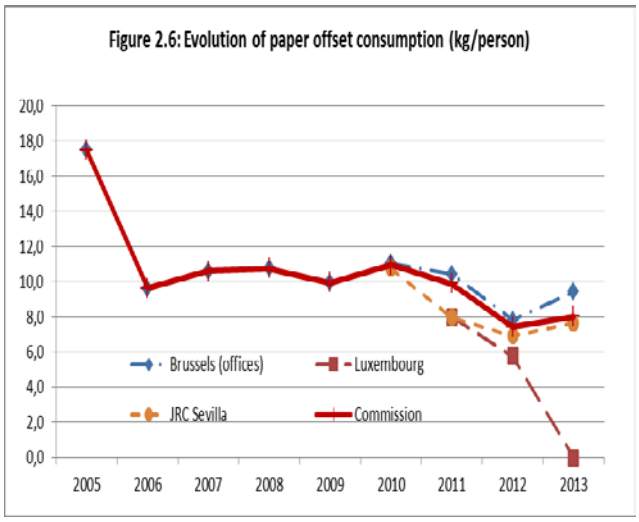
*a) Office paper*

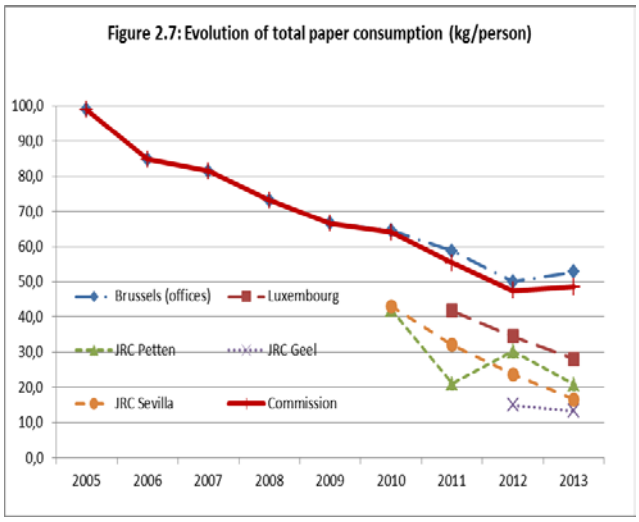
Figure 2.5 show the consumption of office paper which was recorded in kg/person and converted to an equivalent number of sheets per person per days[13]. OIB introduced a contract in July 2013 for office paper at 75g/m$^2$ to replace older supplies at 80g/m$^2$.

Office paper consumption has nearly halved in Brussels since 2005, but is higher than recorded at other sites in recent years. The JRC sites have lower consumption than either Brussels or Luxembourg. At JRC Petten, office paper is ordered in bulk, and the reported figures reflect purchase rather than consumption which may explain the "peaky" trend.

[13] using paper density and 211 working days per year,

*b) Offset (and total) paper consumption:*




Offset paper is that used in high quality or large format printing typically undertaken in a print shop. JRCs Petten, and Geel have no print shop and/or undertake a negligible amount of printing, and are therefore not included in Figure 2.6. JRC Sevilla contracts a large amount of offset printing per capita compared to other sites. In 2011 OIB introduced a new parameter for measuring waste paper in the print shop in Brussels. The percentage of paper waste was nearly 26% in 2011, reducing to 13% in 2012, and 5% in 2013.

Annual total paper consumption, representing office plus offset paper and measured in kg/person is represented in Figure 2.7 and has decreased at all sites. It has nearly halved between 2005 and 2013 at Brussels. Luxembourg and JRC Sevilla have recorded particularly good reductions in total paper use from 2011 to 2013.

## 2.5 Reducing emissions of $CO_2$, other greenhouse gases and air pollutants

Reporting on Greenhouse gases emitted owing to its direct or indirect activities is an important part of establishing an organisation's Carbon Footprint. Emissions are typically defined under different "scopes":

- Scope I: Direct Emissions typically arising from Fuels Combustion (eg boilers, furnaces), owned transport (Commission owned vehicles), process emissions and fugitive emissions (refrigeration and air conditioning leaks)
- Scope II: Indirect energy consumption (consumption of purchase electricity, heat, and steam cooling)
- Scope III: Other indirect emissions including, transport related activities (commuting and business travel, distribution), waste disposal (waste, recycling), leased assets franchising and outsourcing, and solids goods and services (sue of goods and services), purchased materials and fuels (eg extraction, processing and production).

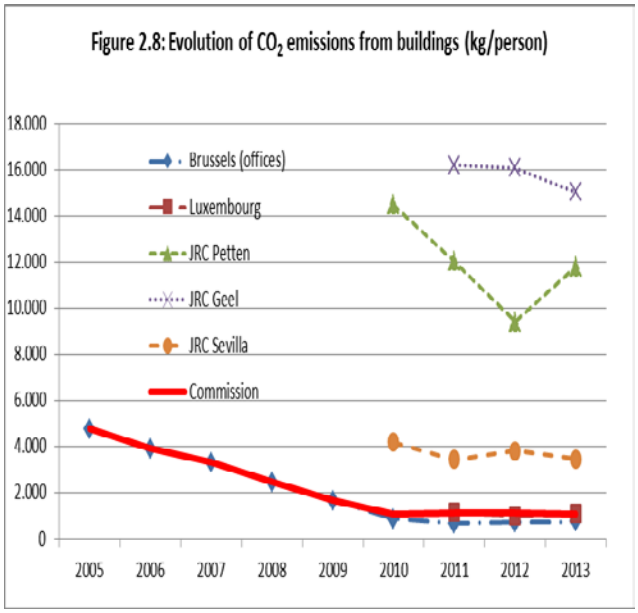
In this context, this report includes emissions under scopes I and II for each site. This includes gas (scope I) and electricity (scope II) consumption for buildings, refrigerants and cooling losses (scope I), and emissions Commission vehicle fleet, (scope I). Emissions from missions (scope III) are

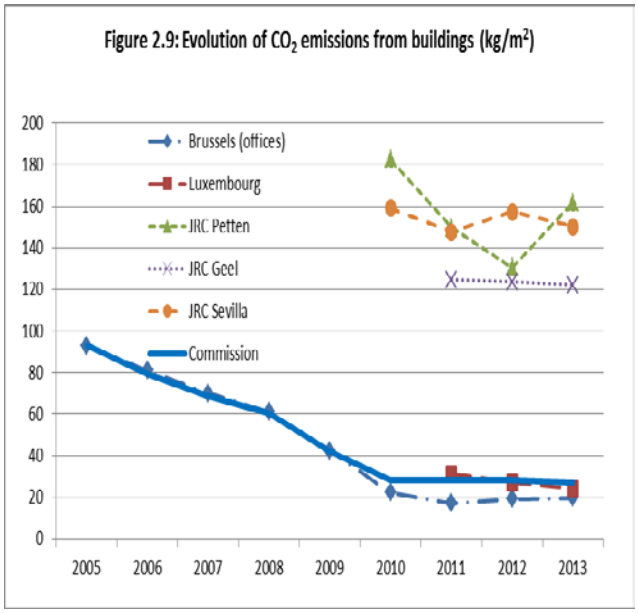
presented below for the Commission as a whole, and not for individual sites. There is some overlap between scopes I and III in relation to reporting at site level for buildings energy consumption and vehicle fleet emissions as some Commission buildings and vehicles are leased.

### *2.5.1 $CO_2$ emissions from buildings*

#### *a) Energy use in buildings*

As expected, Figures 2.8 and 2.9 demonstrate similar trends for carbon dioxide ($CO_2$) emissions to those described above for energy consumption with JRCs Geel and Petten recording the highest per capita emissions.




Brussels has reduced per capita emissions by over a half since 2005. Both Brussels and Luxembourg have the lowest emissions in recent years because they contract 95% and 100% respectively of their electricity from renewable sources. However, these lower emissions are balanced by higher emissions from the JRC sites, where energy is largely from non-renewable sources, resulting in almost constant overall Commission emission levels since the JRC sites started reporting (2010) by both types of measure.

#### *b) Loss of refrigerants*

Refrigerants have Global Warming Potentials (GWP) typically between 1.000 and 10.000 meaning that a leak of just a few kilograms can have the equivalent atmospheric global warming impact of a few tonnes of $CO_2$. All sites have had programs to replace R22 as required by legislation, and in Brussels the total quantity of refrigerants, together with that of R22, and losses has been recorded under EMAS for many years. Refrigerants typically account for less than 1 to 2% of buildings $CO_2$ emissions, although this may rise to nearly 5% if a site is contracting electricity from renewable sources. Individual sites have clearly demonstrated improved management of refrigerants since EMAS registration, and reduced losses, although reporting did not include all refrigerants.

In 2013 sites reported on losses of all refrigerants so that GWPs could be used to determine equivalent $CO_2$ emissions ($CO_2e$). Brussels and Petten reported losses of 35 and 20 $kgCO_2e$/person, while JRC Geel reported 590kg/person. Luxembourg and Sevilla continue to develop their reporting

### *2.5.2 $CO_2$ emissions from vehicles (at site level)*

Summary vehicle fleet information is presented in Table 2.5 for 2012 to 2013.

**Table 2.5: Annual emmissions from the site vehicle fleets**

| Site | Fleet vehicles | | $gCO_2$/km (manufacturer) | | $gCO_2$/km (actual) | | kgCO2/person | | Total kms | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 |
| Brussels | 160 | 120 | 160 | 155 | 227 | 217 | 21 | 22 | 2.638.992 | 2.603.297 |
| Luxembourg | 28 | 27 | 182 | 179 | 228 | 217 | 30 | 32 | 521.537 | 602.927 |
| JRC Petten | 5 | 5 | NR | 180 | NR | 242 | NR | 6 | NR | 6.000 |
| JRC Geel | 4 | 4 | NR | NR | NR | NR | NR | NR | NR | NR |
| JRC Sevilla | 1 | 1 | 136 | 136 | 75 | 158 | 3 | 4 | 9.889 | 6.455 |
| **Commission** | **198** | **157** | **163** | **160** | **226** | **217** | **22** | **23** | **3.176.418** | **3.218.679** |

NR: Not reported

In 2013 Brussels and Luxembourg accounted for over 90% of vehicles, and Brussels alone over 80%. The reduction in the total number of vehicles to 157 in 2013 is almost totally accounted for by Brussels. Both these sites have for many years sought to purchase or lease more efficient vehicles and this is shown by the reduction of manufacturer and actual emissions.

When annual vehicle $CO_2$ emissions are expressed on a per capita basis for sites reporting this data, the overall Commission value of 22 and 23 kg$CO_2$ respectively in 2012 and 2013 is approximately 1% of that for emissions from energy use in buildings, and a similar magnitude to refrigerant losses (CO2e).

### *2.5.3 Overall the EMAS sites' $CO_2$ emissions from missions*

$CO_2$ emissions resulting from missions undertaken by staff at the EMAS sites have been estimated using data from the Commission's proprietary management system[14] along with data reported by the Commission's travel agency[15]. The first step is to characterise the emissions of missions that were booked through the travel agency.

*Emissions characteristics of missions booked through the travel agency*

Tables 2.5a to c present a synthesis[16] of annual $CO_2$ emissions derived from quarterly figures for air, rail and hire car travel booked through the agency, with a breakdown by site achieved by matching traveller names and place of employment using the Commission's staff database[17].

[14] Commonly known as MIPS

[15] American Express report $CO_2$ emissions for air train and hire cars, as calculated by Atmosfair who use an approach developed with the German environmental authorities.

[16] Emissions for nearly 200.000 individual air, rail and hire car journey segments reported on an annual basis

[17] Approximately 11% of air travellers, and 4% of rail travellers were not recognised as Commission employees.

**Table 2.5a: $CO_2$ emissions for flights booked through the EC's Travel Agency in 2013**

| Site | Distance travelled (kilometres) | | | | Number of individual flights | | | | Total flights | | | $CO_2$ emissions | | Per capita distance, flights, emissions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | (km) | N | km/N | tonnes | gCO2/km | km/p | N/p | $tCO_2/p$ |
| Brussels | 35.505.975 | 41.261.304 | 31.520.625 | 44.925.203 | 21.436 | 25.764 | 17.955 | 25.012 | 153.213.107 | 90.167 | 1.699 | 23.088 | 151 | 5.782 | 3,4 | 0,87 |
| Luxembourg | 1.828.440 | 2.067.750 | 1.648.521 | 2.261.686 | 1.971 | 2.340 | 1.840 | 2.417 | 7.806.397 | 8.568 | 911 | 995 | 127 | 1.928 | 2,1 | 0,25 |
| JRC Petten | 272.235 | 391.083 | 279.843 | 274.916 | 208 | 284 | 184 | 212 | 1.218.077 | 888 | 1.372 | 156 | 128 | 4.631 | 3,4 | 0,59 |
| JRC Geel | 543.635 | 372.619 | 299.706 | 230.938 | 301 | 240 | 153 | 187 | 1.446.898 | 881 | 1.642 | 238 | 164 | 3.997 | 2,4 | 0,66 |
| JRC Sevilla | 346.244 | 478.454 | 319.052 | 462.563 | 311 | 405 | 249 | 435 | 1.606.313 | 1.400 | 1.147 | 193 | 120 | 5.696 | 5,0 | 0,68 |
| **Total for EMAS sites** | **38.496.529** | **44.571.210** | **34.067.747** | **48.155.306** | **24.227** | **29.033** | **20.381** | **28.263** | **165.290.792** | **101.904** | **1.622** | **24.669** | **149** | **5.255** | **3,24** | **0,78** |
| Commission total | 40.700.954 | 46.480.250 | 36.157.987 | 50.556.481 | 25.727 | 30.321 | 21.771 | 29.935 | 173.895.672 | 107.754 | 1.614 | 25.836 | 149 | | | |

**Table 2.5b: $CO_2$ emissions for rail trips booked through the EC's Travel Agency in 2013**

| Site | Distance travelled (kilometres) | | | | Number of individual journey segments | | | | Total rail journey segments | | | $CO_2$ emissions | | Per capita distance, journeys, emissions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | (km) | N | km/N | tonnes | gCO2/km | km/p | N/p | $tCO_2/p$ |
| Brussels | 1.239.825 | 1.374.985 | 974.845 | 1.343.149 | 7.065 | 8.190 | 4.830 | 8.144 | 4.932.804 | 28.229 | 175 | 147 | 29,8 | 186 | 1,1 | 0,006 |
| Luxembourg | 149.687 | 128.755 | 73.572 | 128.328 | 1.001 | 812 | 485 | 848 | 480.342 | 3.146 | 153 | 7,61 | 15,8 | 119 | 0,8 | 0,002 |
| JRC Petten | 34.672 | 24.402 | 16.669 | 27.206 | 281 | 225 | 148 | 234 | 102.949 | 888 | 116 | 0,59 | 5,7 | 391 | 3,4 | 0,002 |
| JRC Geel | 7.982 | 13.622 | 3.986 | 10.000 | 43 | 58 | 29 | 74 | 35.590 | 204 | 174 | 1,13 | 31,8 | 98 | 0,6 | 0,003 |
| JRC Sevilla | 10.427 | 2.668 | 2.890 | 10.444 | 33 | 8 | 17 | 34 | 26.429 | 92 | 287 | 1,06 | 40,1 | 94 | 0,3 | 0,004 |
| **Total for EMAS sites** | **1.442.593** | **1.544.432** | **1.071.962** | **1.519.127** | **8.423** | **9.293** | **5.509** | **9.334** | **5.578.114** | **32.559** | **171** | **157** | **28,2** | **177** | **1,04** | **0,005** |
| Commission total | 1.519.143 | 1.632.007 | 1.125.507 | 1.591.456 | 8.691 | 9.563 | 5.708 | 9.622 | 5.868.113 | 33.584 | 175 | 168 | 28,6 | | | |

**Table 2.5c: $CO_2$ emissions for hire car trips booked through the EC's Travel Agency in 2013**

| Site | Distance travelled (kilometres) | | | | Number of rentals | | | | Total rental journeys | | | $CO_2$ emissions | | Per capita distance, journeys, emissions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | (km) | N | km/N | tonnes | gCO2/km | km/p | N/p | $tCO_2/p$ |
| Brussels | 113.377 | 224.033 | 159.439 | 165.281 | 190 | 346 | 244 | 249 | 662.130 | 1.029 | 643 | 130 | 196 | 25,0 | 0,039 | 0,005 |
| Luxembourg | 421.593 | 451.718 | 423.750 | 286.439 | 595 | 606 | 595 | 376 | 1.583.500 | 2.172 | 729 | 302 | 191 | 391 | 0,536 | 0,075 |
| JRC Petten | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | N/A | 0 | 0,000 | 0,000 |
| JRC Geel | 1.944 | 1.620 | 0 | 416 | 5 | 4 | 0 | 1 | 3.980 | 10 | 398 | 0,70 | 176 | 11,0 | 0,028 | 0,002 |
| JRC Sevilla | 0 | 0 | 324 | 0 | 0 | 0 | 2 | 0 | 324 | 2 | 162 | 0,06 | 185 | 1,15 | 0,007 | 0,000 |
| **Total for EMAS sites** | **536.914** | **677.371** | **583.513** | **452.136** | **790** | **956** | **841** | **626** | **2.249.934** | **3.213** | **700** | **432** | **192** | **72** | **0,10** | **0,014** |
| Commission total | 593.085 | 761.271 | 670.366 | 537.628 | 861 | 1.075 | 931 | 711 | 2.562.350 | 3.578 | 716 | 492 | 192 | | | |

**Table 2.5d Deriving average distances for missions involving staff at EMAS sites using Commission Travel Agency booking data**

| | Total Missions | | Missions booked through the travel agency[2] | | | | | | Distance/ |
|---|---|---|---|---|---|---|---|---|---|
| **Travel mode** | | EC Staff[1] | | Prop. of total | Number | Legs | Legs/mission | Distance/leg | **Mission** |
| | **N** | % | N | % | N | N | N | km | **km** |
| Commercial flights | 57.090 | 88,9 | 50.753 | 72,04 | 36.562 | 102.814 | 2,81 | 1.617 | 4.548 |
| Rail | 26.864 | 95,3 | 25.601 | 72,04 | 18.443 | 33.216 | 1,80 | 174 | 313 |
| Hire car | 3.990 | 99,1 | 3.954 | 72,04 | 2.849 | 3.471 | 1,22 | 717 | 873 |

Note 1/ As recognised in staff database

Note 2/ In 2013, 72.04% of missions involving flights/rail and rental cars were booked through the Agency

In relation to air travel (Table 2.5a) it is clear that the second and fourth quarters are the busiest, the latter representing nearly thirty percent of distance travelled during the year. Brussels accounts for 93% of air travel emissions. Per capita emissions for Brussels staff was 0.87 tonnes, slightly higher than the Commission average (0.78 tonnes). Per capita emissions for the JRC sites range from 0.59 to 0.68 tonnes, which is roughly double the figure for Luxembourg (0.25 tonnes) whose staff take fewer and shorter flights than their colleagues elsewhere.

More rail kilometres were covered in the second quarter but the number of trips was similar in the second and fourth quarters (Table 2.5b). Rail journey emissions represent less than 1% of those from air travel. JRC Petten staff use rail travel more frequently than the other sites, and the trips tend to be significantly longer at over 300 km per journey segment.

Unlike air and rail travel, car hire (Table 2.5c) is more frequent in the second and third quarters, with a sharp drop off in the fourth quarter. Total $CO_2$ emissions were approximately three times that for rail travel, and represent approximately 2% of that from air travel. Luxembourg staff hired cars more frequently than the other sites (on average 0.5 times per person per year), far higher than the Commission average of 0.10 per person. JRC Petten did not use hire cars in 2013 and JRC Sevilla did so only twice.

The data in Tables 2.5a to c is relate to individual trip segments, of which there may be several in a mission. In order to estimate total annual $CO_2$ emissions for the EMAS sites, it is necessary to estimate average distance per mission using this data, and this is presented in Table 2.5d. The average mission length by air[18] is estimated at 4.548km, far greater than that for rail or for hire cars (313 and 873km respectively).

*Overall $CO_2$ emissions from missions for the EMAS sites*

Table 2.5e presents the total estimated emissions for the year for all modes.

**Table 2,5e Estimated $CO_2$ emissions from missions of staff at EMAS sites**

| Travel mode | Missions | Avg. Mission | $CO_2$ emissions | | |
|---|---|---|---|---|---|
| | N | (km) | gCO2/km | Tonnes | % of total |
| Commercial flights | 50.753 | 4.548 | 149 | 34.426 | 93,8 |
| Train | 25.601 | 313 | 28,4 | 228 | 0,6 |
| Hire car | 3.954 | 873 | 192 | 662 | 1,8 |
| Service Car | 11.728 | 274 | 217 | 699 | 1,9 |
| Private car | 12.096 | 274 | 192 | 636 | 1,7 |
| Air taxi | 308 | 1.503 | 149 | 69 | 0,2 |
| **Total** | **132.218** | | | **36.720** | 100,0 |
| **Per Capita $tCO_2$** | | | | **1,2** | |

*Note: Number of missions based on PMO2 Performance indicators*

*km/trip for air, train hire car, and private charter flight derived travel agency data*

*km/trip for service cars (and $gCO_2$/km) from Table 2.5, assumed value for private cars*

*gCO2/km for air train, hire car derived from Agency data, assumed for private cars and private charter flights*

Air travel dominates $CO_2$ emissions from missions. At 1,2 $tCO_2$ per year, per capita emissions from missions are comparable, but very slightly less than emissions from buildings consumption (1.3 $tCO_2$) assuming for the latter that emissions from renewable energy do not generate emissions.

[18] It is not possible at this stage to consider mixed modes of transport for missions

*Estimating the contribution of high altitude aviation emissions to global warming*

In the last few decades scientists have realised that emissions from aircraft engines at high altitude have a greater global warming effect than emissions at or near ground level as they eject not only $CO_2$ but nitrous oxides, soot, and other products of kerosene combustion and also form contrails. The overall warming effect of emissions at cruising altitude, for flights exceeding 400 - 500 km, is thought to be typically between two and four times that generated by $CO_2$ emissions alone.

Radiative forcing is a measure of man's contribution to disturbing the natural balance between incoming solar radiation and reflected outgoing radiation as measured at the top of the troposphere[19]. Although there is considerable uncertainty, and ongoing research is, a radiative forcing index (RFI) of 2.7 is commonly adopted to estimate the equivalent amount of $CO_2$ that would be needed to generate the warming observed.

Taking radiative forcing into consideration to describe the overall warming effect of aircraft emissions, and applying an RFI of 2.7 to $CO_2$ emissions, per capita equivalent $CO_2$ emissions from missions for EMAS sites rises by about 50% to 1.8 tonnes.

### *2.5.3 Total air emissions of other pollutants*

Emissions of sulphur dioxide ($SO_2$), nitrous oxides (NOx) and particulate matter (PM), and in some instances volatile organic compounds (VOC) have been reported by some sites, and is summarised in Table 2.6.

**Table 2.6: Emissions of SO2, NOx, PM, VOC (Total and kg/person)**

| Site | Total Kg | | | | Kg per person | | | |
|---|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2010 | 2011 | 2012 | 2013 |
| Brussels (offices) | NR | NR | NR | 21.120 | NR | NR | NR | 1 |
| Luxembourg | NR | NR | NR | NR | NR | NR | NR | NR |
| JRC Petten | 805 | 540 | 685 | 800 | 3 | 2 | 3 | 3 |
| JRC Geel | NR | NR | 4.190 | 4.191 | NR | NR | 12 | 12 |
| JRC Sevilla | NR | NR | NR | NR | NR | NR | NR | NR |

NR: Not Reported

JRC Petten has reported since 2010 and includes physical measurements and calculations for NOx and whereas VOC data is based on purchase and consumption of solvents. $SO_2$ and $PM_{10}$ are excluded, being considered negligible by the authorities. The figures for Brussels are based on calculations using energy consumption data, and for Geel on diesel consumption only. Emissions on an annual per person basis were reported at between 0 and 12kg in 2013. Owing to the different approaches at site level, deriving a Commission figure is currently impractical.

[19] The layer of the atmosphere extending 10 to 18km from the earth's surface, where weather processes occur

## 2.6 Improving waste management and sorting

*2.6.1 General waste*

Figure 2.10[20] shows that overall the Commission's generated 300kg/person of general waste in 2005, but had reduced this to a little over 200kg in 2013. There is some fluctuation in recent years particularly of sites newer to EMAS.

JRC Sevilla is liaising with the landlord to put in place a new waste management plan, which should generate more complete and reliable data. JRC Petten is the only site not showing a reduction in per capita waste generation over the last three to four years.

*2.6.2 Controlled waste*

The Commission weighted value for controlled waste (Figure 2.11) in 2013 represented about 2% of the mass for general waste.

For sites comprising predominantly office space, per capita generation of controlled waste has typically fluctuated between 1 and 3kg. As expected JRC Geel generates more waste, owing to the nature of the materials that are handled, though at JRC Geel the per capita quantity generated has reduced by two thirds.

Year to year comparisons for the research sites may not always be appropriate because some controlled waste may be stockpiled prior to disposal for months or even years.

[20] Waste figures for Brussels are for all Commission buildings (EMAS scope and others), for Luxembourg only EMAS scope is considered.

*2.6.3 Waste sorting*

Figure 2.12 presents the percentage of waste that is sorted into different streams. It therefore represents all waste except that which is thrown away after all other sorting options have been exhausted, or everything except domestic waste.

The overall Commission figure is almost identical to that for Brussels and has fluctuated between 55% and 60% most of the last few years. The JRC sites have higher sorting rates than either Brussels or Luxembourg. Increased waste sorting has been demonstrated at Geel and Luxemburg since 2011.

JRC Sevilla's new waste management plan mentioned above will also cover controlled waste and provide data covering more types of waste.

*a) Recycling obselete IT equipment*

DIGIT has a framework contract with Oxfam Solidarité (Oxfam), for the “removal and recycling, for humanitarian purposes", of goods no longer used by the Commission but still useful beyond their economic life, and thus providing a useful social outcome. And the sales permit it to fund its humanitarian and welfare activities. Through the contract with Oxfam DIGIT aims to reuse on average at least 70% of units collected from the Commission. Actual recycling rates have usually been far higher and within the range of 66% (2007) to 98% (2013) as shown in Table 2.6a.

**Table 2,6a: Number of IT items collected and recycled**

| Parameter | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|
| Collected items | 8.844 | 14.004 | 16.139 | 12.014 | 15.462 | 11.147 | 19.360 | 24.744 |
| Processed items | 18.273 | 10.090 | 11.175 | 7.861 | 15.301 | 12.471 | 17.936 | 5.553 |
| Items for second hand use | 13.157 | 6.659 | 8.381 | 5.739 | 12.509 | 10.900 | 16.308 | 5.455 |
| Second hand use (%) | **72** | **66** | **75** | **73** | **82** | **87** | **91** | **98** |
| Recycled or dismantled (%) | 28 | 34 | 25 | 27 | 18 | 13 | 9 | 2 |

Note: Not all items are processed in the year they are collected

Since 2010 the re-use rate has exceeded 80%. Left over equipment is transferred to authorised operators on behalf of Recupel, the non-profit organisation responsible for recycling electrical and electronic waste in Belgium. During the annual audit of Oxfam Solidarity under its EMAS registration, the auditor verified that its recycling measures comply with environmental regulations and noted the generally good progress it had made in relation to legal requirements.

In 2012 there was a 74% increase in the number of items collected, coinciding with the signing of the new contract following a lull in activity after the previous one expired. The high re-use rates particularly since 2010 were achieved despite the falling cost of new IT goods, which make older IT equipment less attractive. This is due to the generally good quality of the collected items, and systematic recycling effort made by Oxfam Solidarity in the context of its EMAS registration.

In 2014 DIGIT will continue efforts to recycle and re-use obsolete equipment in Brussels and continue to achieve a minimum of 80% re-use. It will also increase recycling of IT equipment from Luxembourg at the Oxfam Solidarity centre in Namur (Belgium) where recycling rates are expected to eventually match those achieved in Brussels.

## 2.7 Protecting biodiversity

In 2013, sites started collecting data for the EMAS biodiversity indicator: built surface area at ground level per person. The JRC sites have reported this figure, but both Brussels and Luxembourg, with more property, are progressing towards reporting in 2014.

**Table 2.7: Biodiversity indicators in 2012 and 2013**

| Site | Built surface ($m^2$) | | Built surface ($m^2$/p) | | Built surface (% of site) | |
|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 |
| Brussels<br>Luxembourg | Under development | | | | | |
| JRC Petten | 13.365 | 13.365 | 50 | 51 | 4,4 | 4,4 |
| JRC Geel | NR | 82.079 | NR | 227 | NR | 21,6 |
| JRC Sevilla | 7.073 | 7.073 | 29 | 25 | 60,6 | 60,6 |

NR: Not Reported

As shown in Table 2.7, per capita built surface area in 2013 was between 25$m^2$ and 238$m^2$. JRC Geel has extensive large experimental facilities and associated technical installations which may explain the relatively large footprint per person. The JRC sites, with the exception of Sevilla, are likely to have larger per capita person than both Brussels and Luxembourg.

Part of the JRC Petten site is located in a Natura 2000 protected habitat, and the site is one of the stakeholders involved in its management. There is a forestry management plan at JRC Geel that aims to restore diversity in the surrounding forest which in recent years has become overwhelmingly dominated by pine at the expense of native broad leave species.

## 2.8 Green Public Procurement (GPP)

### *2.8.1 Incorporating GPP into procurement contracts*

Both Brussels and Luxembourg have worked to increase the number of their procurement contracts, managed by OIB and OIL respectively that include some form of "green" criteria in the contract or award process, in addition to the standard clauses. Brussels achieved this in 94% of contracts in 2013, and Luxembourg in 92% of contracts which marked an increase from 65% in 2012 and 32% in 2011.

One interesting example of green procurement at Brussels in 2013 was the new catering contract in which three vendors were awarded concessions, replacing a single incumbent. The JRC sites have not used such an approach but have developed targets for 2014: 10% for Petten and Sevilla, and 5% for Geel.

*a) IT procurement*

DG DIGIT is responsible for IT in both Brussels and Luxembourg, and the JRC sites. It uses environmental criteria in the technical evaluation of all invitations to tender for the purchase of IT hardware and incorporates these criteria into the financial evaluation. Where pertinent the financial evaluation includes the cost of energy consumed by the equipment during its lifecycle.

In addition to continuing to include environmental criteria in various stages of a range of procurement contracts DIGIT provides information and training to staff who are involved in preparing calls for tender for the provision of equipment and services. Figure 2.14 is an example of how, as a result, computer power consumption has reduced since 2002.

**Figure 2.14: Improved power consumption in Commission computers since 2001**

No new PC models were introduced in 2013. In 2014, as for 2013, environmental criteria will continue to be included in the technical specifications of invitations to tender, and the energy saving data collection tool will continue to be implemented on individual PCs.

*2.8.2 Office supply contracts*

Brussels and Luxembourg have also increased the number of "green" products in the standard office supply catalogue, and their value as a proportion of total sales as shown in Table 2.8.

**Table 2.8: Proportion and value of "green" products in the office supply catalogue**

| | Percentage "green" | | Fraction "green" | | Value "green" (EUR) | | Value total (EUR) |
|---|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 |
| Brussels | 26,7 | 36,2 | 169 / 633 | 186 / 514 | NR | NR | NR |
| Luxembourg | 18,4 | 27,9 | 99 / 537 | 88 / 391 | NR | 37.922 | NR |

NR: Not Reported

Luxembourg reported sales of "green" products of nearly 38.000 EUR representing 14% of the total. This suggests that a majority of the "green" items are relatively lower value, given that in 2013 nearly 28% of products included were considered "green". JRC Geel introduced an office furniture supply contract in 2013 including only items meeting ecological criteria.

## 2.9 Demonstrating legal compliance

*2.9.1Prevention and risk management*

Sites have their own standard operating procedures including internal and external audits that are required to demonstrate compliance with operating licenses and legislation. These take into account environmental compliance which is typically integrated with health and safety compliance. Sites also monitor the number of EMAS non conformities (NCs) identified through external verification audits as shown in Table 2.9.

**Table 2.9: EMAS verification non conformities**

| Site | 2011 | 2012 | 2013 |
|---|---|---|---|
| Brussels (offices) | 21 | 5 | 3 |
| Luxembourg | 19 | 3 | 0 |
| JRC Petten | 0 | 0 | 1 |
| JRC Geel | EMAS verification audits | | |
| JRC Sevilla | from 2014 | | |

As can be seen in Table 2.9, the number of NCs can fluctuate significantly from year to year depending on the auditor's approach. HR COORD encourages the external auditors to take into account the resources available to Commission staff when formulating their findings particularly in relation to non-conformities, and prioritise accordingly.

*2.9.2 Registering more buildings in EMAS*

Brussels and Luxembourg are both large sites with many buildings. Owing to the administrative workload associated with incorporating new buildings in EMAS (including system implementation, data preparation and reporting internal and external audits), its scope has expanded gradually by adding a "manageable" number of buildings every year. In Brussels the first EMAS registration included 8 buildings and a useful surface area of 206.166 $m^2$. In 2013 the EMAS scope included 96.7% of Brussels buildings (59 out of 61[21]) and 98.3% of useful floor space (1.033.183 of 1.051.557 $m^2$), although indicators for energy and water consumption and $CO_2$ emissions were reported for office buildings (93.5% of the total: 982.810 $m^2$). In Luxembourg, which first achieved EMAS registration in 2011, it included 28.6% of buildings (4 out of 14) which is equivalent to 33.7% of useful floor space (64.703 out of 191.713$m^2$).

In contrast, owing to their smaller size and previous Environmental Management System experience, each JRC site is entirely integrated within the EMAS scope (100% of buildings and useful floor space). Overall for the Commission, using data presented in Table 2.3, 88%[22] of buildings (92 of 104) are included in the EMAS scope, and 89% of useful floor space (1.168.068545 of 1.313.452 $m^2$).

## 2.10 Internal Communication and training

This section describes the corporate communication and training actions common for almost all the Commission sites. HR COORD prepares detailed corporate communication and training action plans annually, supports individual services in setting up staff awareness campaigns, updates EMAS training material and delivers training and technical support to the EMAS Correspondents Network. The more important actions are outlined below.

*2.10.1. Communication to management*

In 2013, HR COORD launched an action entitled "EMAS Presentations to EC Management" starting with a presentation to the Network of the Directors of Resources in Brussels. It will continue in 2014, addressing others EC management networks, as well as the management representatives in Directors' meetings in different services upon department's specific requests. Two articles were published in Management Matters, the e-Magazine for European

[21] Buildings managed by OIB, a number subject to change, and not including some Executive Agencies

[22] Not including Executive Agencies and Representations in Member States, the latter of which are shared with the European Parliament

Commission's senior and middle management, on the theme "*EMAS Ambassadors lead by example*".

*2.10.2. Communication towards all staff*

There were two main corporate communication campaigns on i) "Resource Efficiency" (May-June 2013) and ii) "Sustainable Mobility" (September-October 2013). The main highlights were:

*a) Campaign on Resource Efficiency*

**(i) New EMAS Resource Efficiency Posters** *"Small actions, big changes"***:** Four thematic posters on energy, waste, paper and water pointing out the importance of small gestures which together can have a large impact. The campaign was taken up in all Commission sites and was considered successful based on the input received from staff. The slogan *"Small actions, big changes"* was selected via a competition among EC-staff in 2012 which generated 271 slogan proposals.

**(ii) EMAS Ambassadors' video:** A promotion video featuring different levels of Commission staff, from the top to the bottom, demonstrated their commitment towards EMAS goals and objectives. Top management was represented by Deputy Secretary General Marianne Klingbeil and Vice President Maroš Šefčovič who called on people to *"join us in our efforts for a greener and more sustainable Commission!"*

**(iii) Distribution of stickers (10.000) and cards (3.000): *"Save energy: Turn off when not in use"*** The stickers, with eco-friendly glue for multiple applications, were placed close to the electricity switches in meeting rooms across the Commission. Additional cards were placed in training and meeting rooms or public spaces such as kitchenettes and cafeterias.

**(iv) Green Commission (EMAS) Awards**[23]: In 2013, HR COORD held the inaugural Green Commission (EMAS) Awards to highlight and reward environmental best practice and initiatives. Maroš Šefčovič, Vice-President for Interinstitutional Relations and Administration awarded the winning departments on 24th September 2013, with the presence of EC management representatives.

*b) Campaign on Sustainable Mobility*

**(i)** An **Alternative Mobility Day for Commission staff** was organised on 23rd September 2013**,** and was promoted by a video-clip produced by TV MARKT. The action with the slogan *"On 23/09 leave your car a rest"* promoted "alternative" mobility options and was supported by several actions in each site (see relevant sections).

[23] http://ec.europa.eu/avservices/photo/photoByReportage.cfm?ref=024008&sitelang=en

In addition, HR COORD published two articles in the monthly Commission's internal magazine "Commission en Direct" (Cend)[24], as well as numerous announcements on the Commission's intranet (My IntraComm) and flat-screens.

*2.10.3. Dialogue with internal stakeholders*

The Commission has a corporate register of internal questions and suggestions that recorded 57 entries in 2013 (49 in 2012), all of which received responses. In addition, at a local level, EMAS Correspondents keep records of questions and suggestions from staff along with responses.

The Commission makes a two yearly EMAS on-line survey to know about its staff environmental behaviour and awareness. In 2013, 2.142 participants responded (22.2% response rate). 80% of staff consider themselves to be *at least reasonably well informed* on environmentally friendly behaviour at work. At JRC sites the figure was 87% and in Luxembourg 79% (compared to 72% in 2011). 96% of participants declared that they *take environmental actions at least from time to time*. EC-staff considered as the most popular media for receiving information about EMAS the electronic newsletters, the intranets and the messages from management. The survey participants provided 965 staff suggestions, which could be a resource for designing future communication campaigns and actions.

*2.10.4. Communication among the EMAS Correspondents' Network (ECOR)*

In 2013 HR COORD evaluated the participation of each service on a scale of 1 to 10 using objective criteria such as presence of ECORs at network meetings, and whether they rolled out centrally prepared campaigns. The average score was 5.3. Lower scoring services have particularly been targeted to try and improve performance.

The evaluation indicated an overall performance improvement of the ECOR Network with only six services "facing problems" compared with ten in 2012. HR COORD will continue to provide hands-on guidance and technical assistance for EMAS campaigns, and organise best-practise exchanges during network meetings.

*2.10.5. Training*

Individual services are responsible for aspects of training at site level, for example that for new colleagues. These are described further in the chapters for each site. At a corporate level the following EMAS trainings were organised during 2013:

*a) EMAS training for all staff:*

During 2013, 2.587 staff received EMAS-training (2.469 in 2012), either as part of i) an induction session for newcomers or ii) as a general-interest EMAS e-learning course.

(i) EMAS Presentations to EC Newcomers: A 10-15 minute presentation is included in the twice monthly introductory program for Commission newcomers in Brussels, Luxembourg and the JRC-sites[25]. In 2013, there were 2.242 attendees. Additionally, "EMAS in EC" is included as a

[24] In substitution of the previous weekly Cend newspaper,

[25] The periodicity of the newcomers' presentations for the JRC-sites depends on the number of new colleagues (at least twice per year).

specific section in the EC newcomers' e-learning module[26], and is also mentioned in their official acceptance letter.

(ii) The EMAS e-learning course: The EMAS e-learning course has been available to all Commission's staff in both English and French since 20th February 2012 with 345 participants to date. The course will be revised during 2014 and included in the induction pack of compulsory training for Commission's Newcomers. This e-learning is also available for staff belonging to others Institutions such as the Committee of the Regions and the European Economic and Social Committee.

*b) EMS Training*

During 2013, EMAS Correspondents and the Environmental Officers at OIL (Luxembourg) benefitted received three introductory training sessions on EMAS benefitting 31 staff. Two further workshops benefitting 25 people prepared ECORs and their volunteer teams for communication campaigns. Several training sessions benefitting 100 participants have been held in the context of extending EMAS to the JRC-sites.

In total 156 ECORs, eco-group volunteers, Environmental Officers and JRC Site Coordinators benefitted from received EMAS-training in 2013, up from 94 staff in 2012 and 62 staff in 2011.

*c) Specialised courses*

Selected staff whose activities may have potentially significant environmental impacts may benefit from externally provided environmental training sessions, although this is not managed by HR COORD. Examples are the energy counsellor's course by Brussels Environment (IBGE) and eco-driving training for Commission drivers.

Aiming to map the current situation regarding the special trainings offered by the services, HR COORD established a register of training needs for groups with significant environmental impact. In 2014, this register will be updated and if necessary accompanied by a follow-up action plan.

## 2.11 External communication

*2.11.1 Environmental Statement*

The Environmental Statement is published on the newly created "EMAS in EC" section[27] at the official EMAS website managed by DG ENV and on DG ENV's "Library of Environmental Statements".

*2.11.2 Parliamentary questions*

The EMAS Coordination Team responded to three parliamentary questions in 2013 in collaboration with the ECORs in OIB/OIL, DG DIGIT and DG ENV.

[26] Available at: http://ec.europa.eu/dgs/human-resources/newcomers/WELCOME_EN/lws/euid_A7.htm

[27] http://ec.europa.eu/environment/emas/emas_ec/index_en.htm

*2.11.3 Communication with external stakeholders*

HR COORD responded to all 20 entries recorded during 2013 in the external register of questions and suggestions, compared with 24 in 2012. In 2013 exchanges were ongoing with EU or international organisations, including the United Nations (UN), the European External Assistance Service (EEAS) and the European Court of Auditors (CDCE).

Also in 2013 within the framework of the *Group Interinstitutionnel de Management Environnemental*, (GIME), chaired by the European Commission in 2013, there was (i) a common announcement by the European Commission, the European Parliament, the Council's General Secretariat, the Committee of the Regions, the European Economic and Social Committee relating to Earth Hour and (ii) a thematic Green Public Procurement (GPP) workgroup – following the initiative of the Committee of the Regions and the European Economic and Social Committee- aiming to promote exchange of best-practice.

*2.11.4 Information for suppliers and sub-contractors*

To better understand how main EC suppliers and sub-contractors (>60.000 €) address environmental considerations, a register was established with a view to developing a Commission-wide communication procedure to implement Green Public Procurement (including guidelines, indicators and follow-up). This will be further addressed in the GIME Green Public Procurement Workgroup.

*2.11.5 Identification of "key" External Stakeholders at site level*

To facilitate EMAS extension, in 2013 HR COORD established a local contacts register for all sites with details on local and regional contact-persons relevant to the system's implementation. In 2014, the register will be updated with information relevant to all JRC-sites and DG SANCO-Grange.

## 2.12 EMAS costs and savings

This is the Commission's first Environmental Statement to use unit cost information to evaluate the costs of implementing EMAS and identify savings that can be associated with reduced resource consumption. The availability of data varies considerably from site to site.

*2.12.1 Costs for staff and contracts implementing EMAS*

Table 2.10 summarises the estimated direct cost of human resources of Commission staff[28]along with those of consultancy, and other contracts directly linked with coordinating EMAS implementation. The per capita costs for central coordination of EMAS (DG-HR) and the network of correspondents are evaluated using staff numbers for the different EMAS sites.

[28] Using standard gobal rate for fonctionnaires:, 132.000 EUR (Note Circulaire au RUF du 08.08.2013)

**Table 2.10: Direct cost of implementing EMAS (EUR/per person and total) for each site**

| Site | Per person costs in: | | Savings in | Total costs in: | | Savings in |
|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2012-3 | 2012 | 2013 | 2012-3 |
| HRCOORD+ECOR network | 33,2 | 29,2 | 4 | 1.122.884 | 928.052 | 194.832 |
| Brussels (offices) | 5 | 5 | 0 | 132.000 | 132.000 | 0 |
| Luxembourg | 99 | 114 | -15 | 396.000 | 462.000 | -66.000 |
| JRC Petten | 248 | 251 | -3 | 66.000 | 66.000 | 0 |
| JRC Geel | 0 | 182 | -182 | 0 | 66.000 | -66.000 |
| JRC Sevilla | 541 | 538 | 3 | 132.000 | 151.840 | -19.840 |
| **Commission** | **55** | **57** | **-2** | **1.848.884** | **1.805.892** | **42.992** |

The Commission weighted average increased very slightly in 2013 to 57 EUR per person. There was significant variation in cost between the sites, the figure for Brussels and Luxembourg being significantly lower than for the JRC sites. This is expected because the JRC sites have 200 and 400 staff compared with thousands at Brussels or Luxembourg. As new sites are added to EMAS, total costs of implementation will necessarily increase but overall per capita costs should not vary significantly.

### *2.12.2 Savings from reduced energy consumption in buildings*

Reduced costs for buildings energy consumption represent by far the greatest savings associated with reduced resource use. Unit costs supplied by sites, together with total energy consumption within the EMAS area has been used to evaluate per capita buildings energy costs as shown in Table 2.11.

**Table 2.11: Total buildings energy cost (EUR/person)**

| Site | Costs in: | | | | | Reduction in annual costs in 2013 since: | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2011 | 2012 | 2013 | 2005 | 2010 | 2011 | 2012 |
| Brussels (offices) | 1.194 | 623 | 579 | 550 | 552 | 642 | 71 | 28 | -1 |
| Luxembourg | NR | NR | NR | NR | 746 | NA | NA | NA | NA |
| JRC Petten | NR | 1.858 | 1.510 | 1.221 | 1.520 | NA | 338 | -10 | -299 |
| JRC Geel | NR | NR | 5.008 | 4.937 | 3.976 | NA | NA | 1.032 | 961 |
| JRC Sevilla | NR | NR | NR | 1.211 | 1.177 | NA | NA | NA | 34 |
| **Commission** | **1.194** | **641** | **679** | **640** | **621** | **573** | **20** | **58** | **19** |

NR: Not Reported, NA Not applicable

These vary widely, and as expected the JRC sites, owing to their energy intensive experimental activities, have far higher per capita than either Brussels or Luxembourg. Since first EMAS registration in 2005, Brussels has reduced its per capita energy costs by 642 EUR to 552 EUR. JRC Geel has recorded greater per capita savings, spending 1.032 EUR less per person in 2013 than in 2011.

A more detailed account of reducing annual expenditure on energy for office buildings in the Brussels EMAS area is presented in Section 3.12. If per capita expenditure in the EMAS area were assumed to be similar to that in the non EMAS areas, then it would have been nearly 25 Million EUR in 2005, compared with 14 Million in 2013. Using the figures in Section 3.12, cumulative savings in 2013 (since 2005) amount to nearly 58 million EUR.

The savings in annual expenditure for JRC Geel between 2011 and 2013 is nearly 380.000 EUR. There is currently insufficient historic data on staff numbers to be able to calculate overall costs for the total Commission EMAS area since 2005.

### *2.12.3 Savings from reduced water consumption*

**Table 2.12: Water consumption costs (EUR/person)**

| Site | Costs in: | | | | | Reduction in annual costs in 2013 since: | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2011 | 2012 | 2013 | 2005 | 2010 | 2011 | 2012 |
| Brussels (offices) | NR | NR | NR | 40 | 43 | NA | NR | NR | -3 |
| Luxembourg | NR | NR | NR | NR | 30 | NA | NA | NA | NA |
| JRC Petten | NR | 23 | 57 | 57 | 39 | NA | -16 | 18 | 19 |
| JRC Geel | NR | NR | 244 | 229 | 210 | NA | NA | 34 | 19 |
| JRC Sevilla | NR | NR | NR | 49 | 48 | NA | NA | NA | 1 |
| **Commission** | | **23** | **172** | **44** | **45** | **NA** | **-22** | **127** | **-1** |

Per capita water consumption data is less complete than that for energy consumption but indicates broadly similar costs for the Commission across the EMAS area of 44 and 45 EUR respectively in 2012 and 2013. The 2011 data at the Commission level are not representative as neither Brussels nor Luxembourg is included, and Petten suffered a leak. JRCs Petten and Geel spent 19 EUR less per capita in 2013 than in 2012, while JRC Sevilla achieved per capita saving of 1 EUR.

### *2.12.4 Savings from reduced office paper consumption*

Table 2.13 shows that overall within the EMAS area there has been a saving of 20 EUR on per capita paper consumption in the last year. Overall data for the Commission prior to 2011 are not reliable because data is lacking for Brussels and Luxembourg. JRC Petten and JRC Sevilla achieved 34 and 23 EUR reductions between 2010 and 2013, the former reducing its expenditure by half, the latter by two thirds.

**Table 2.13: Office paper costs (EUR/person)**

| Site | Costs in: | | | | | Reduction in annual costs in 2013 since: | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2011 | 2012 | 2013 | 2005 | 2010 | 2011 | 2012 |
| Brussels | NR | NR | NR | 52 | 33 | NA | NA | NA | 18 |
| Luxembourg | NR | NR | NR | NR | 20 | NA | NA | NA | NA |
| JRC Petten | NR | 67 | 34 | 49 | 33 | NA | 34 | 0 | 15 |
| JRC Geel | NR | NR | NR | NR | NR | NA | NA | NA | NA |
| JRC Sevilla | NR | 33 | 27 | 19 | 10 | NA | 23 | 16 | 9 |
| **Commission** | | **51** | **30** | **51** | **31** | **NA** | **20** | **-2** | **20** |

NR= Not reported, NA= Not applicable

### *2.12.5 Costs of offset paper consumption*

JRC sites other than Sevilla do not have print shops or do a negligible amount of offset printing. Per capita costs for JRC Sevilla were 11 EUR in 2010, increasing to 17 EUR in 2013. Offset unit cost data was unavailable for Brussels and Luxembourg.

### *2.12.6 Costs of general waste disposal*

JRC Petten has recorded unit costs since 2010, which have risen from 9 EUR in 2005 to 14 EUR in 2013. The average Commission cost for 2013 based on Brussels, Luxembourg and JRC Petten was 35 EUR.

**Table 2.14: General waste costs (EUR/person)**

| Site | Costs in: | | | | | Reduction in annual costs in 2013 since: | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2011 | 2012 | 2013 | 2005 | 2010 | 2011 | 2012 |
| Brussels | NR | NR | NR | NR | 34 | NA | NA | NA | NA |
| Luxembourg | NR | NR | NR | NR | 41 | NA | NA | NA | NA |
| JRC Petten | NR | 9 | 13 | 12 | 14 | NA | -5 | -1 | -2 |
| JRC Geel | Under development | | | | | | | | |
| JRC Sevilla | | | | | | | | | |
| **Commission** | | | | | 35 | | | | |

NR= Not reported, NA= Not applicable

### *2.12.7 Costs for disposing controlled waste*

**Table 2.15: Controlled waste costs (EUR/person)**

| | Costs in: | | | | | Reduction in annual costs in 2013 since: | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **2005** | **2010** | **2011** | **2012** | **2013** | **2005** | **2010** | **2011** | **2012** |
| Brussels | NR | NR | NR | NR | 3,15 | NA | NA | NA | NA |
| Luxembourg | NR | NR | NR | NR | 3,51 | NA | NA | NA | NA |
| JRC Petten | NR | 2,36 | 4,51 | 2,04 | 5,56 | NA | -3,20 | -1,05 | -3,53 |
| JRC Geel | | Under development | | | | | | | |
| JRC Sevilla | NR | 7,34 | 16,80 | 19,86 | 17,73 | NA | -10,39 | -0,93 | 2,13 |
| **Commission** | | | | | **3,19** | | | | |

NR= Not reported, NA= Not applicable, JRC Sevilla includes medical waste only

Although the unit costs for controlled waste are far higher than for general waste, the quantities generated are much lower, and per capita costs are therefore smaller, approximately 10% of those for general waste on a Commission wide basis.

# 3 BRUSSELS – ADMINISTRATIVE ACTIVITIES

The Office for Infrastructure and Logistics in Brussels (OIB) manages buildings and logistics in Brussels and thus plays a key role in the collation and administration of pertinent data for EMAS.

## 3.1 Overview of core indicators at Brussels since 2005

OIB has been collecting data on core indicators for the Brussels site since 2005. A summary of their variation since 2005, over the last three years and the last year is shown in Table 3.1.

**Table 3,1: Percentage changes in core indicators at Brussels over long, medium and short term**

| Parameter and units | From: 2005 Overall | To: 2013 % per year | From: 2010 Overall | To: 2013 % per year | From: 2012 % | Target % |
|---|---|---|---|---|---|---|
| Energy bldgs (KWh/p) | **-59,8** | **-7,48** | **-14,6** | **-4,86** | -0,78 | -1,00 |
| Energy bldgs (KWh/$m^2$) | **-46,1** | **-5,76** | **-14,0** | -4,67 | -2,34 | -1,00 |
| Water use (l/p) | **-58,2** | **-7,27** | **-19,1** | **-6,35** | **5,92** | -1,00 |
| Water use (l/$m^2$) | **-43,8** | **-5,47** | **-18,6** | **-6,20** | 4,54 | -1,00 |
| Office paper (kg/person) | **-46,7** | **-5,84** | **-18,8** | **-6,26** | **2,70** | -2,00 |
| Office paper (Shts/person/day) | **-45,0** | **-5,63** | **-16,2** | **-5,39** | **6,01** | -2,00 |
| $CO_2$ bldgs (kg/p) | **-84,2** | **-10,53** | **-12,7** | -4,23 | 3,26 | -1,00 |
| $CO_2$ bldgs (kg/$m^2$) | **-78,8** | **-9,85** | **-11,4** | -3,81 | 1,88 | -1,00 |
| Refrigerants lost (kg) | **-58,2** | **-7,27** | **0,5** | **0,18** | **9,62** | |
| of which R22 (kg) | **-93,3** | **-11,66** | **-18,8** | **-6,25** | **0,00** | |
| Non haz.waste (kg/p) | **-30,0** | -3,75 | **-15,9** | **-5,29** | **-6,57** | -2,00 |

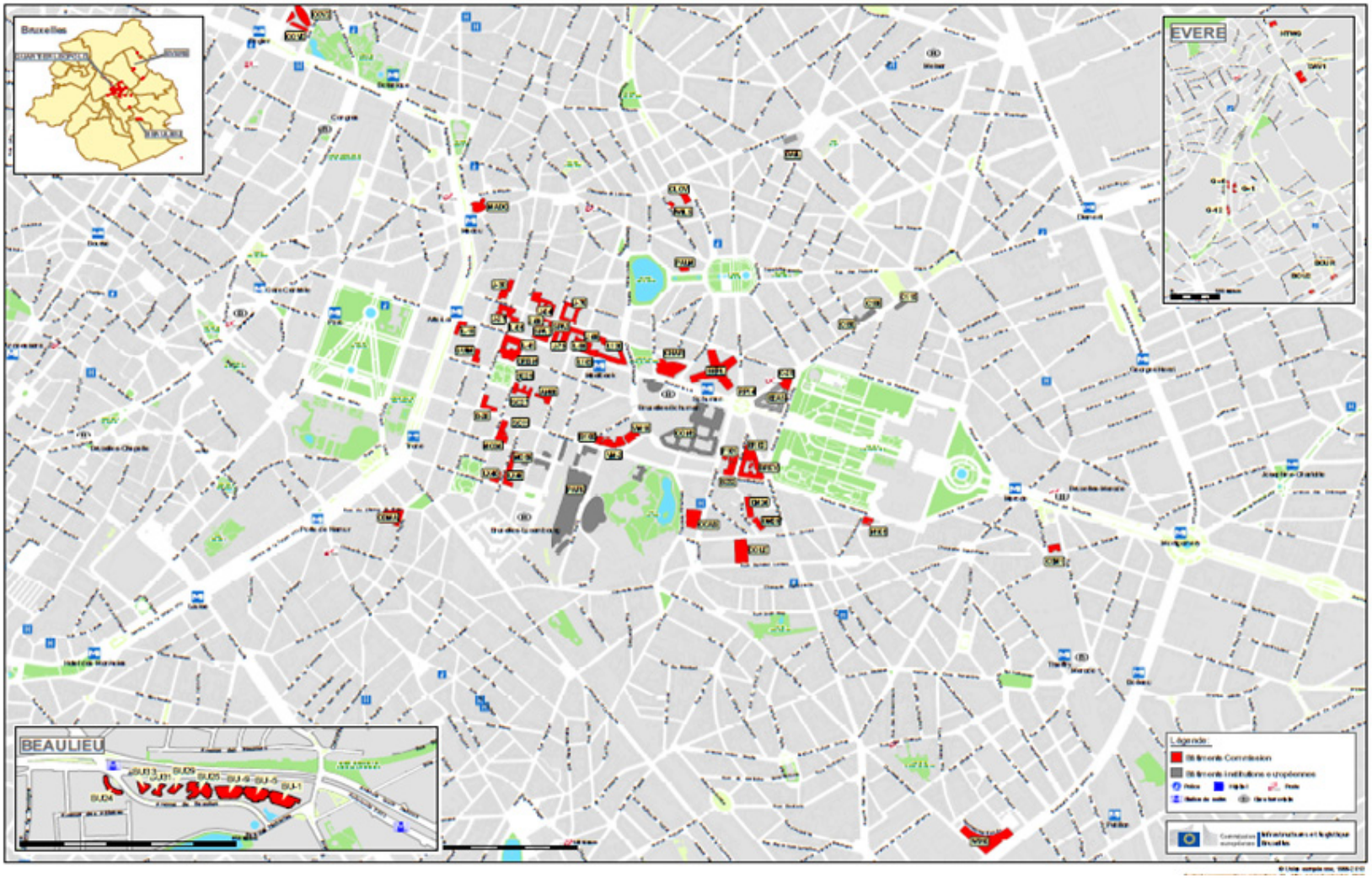
Note: Energy, water, $CO_2$ reported for office buildings in the EMAS area

It is evident that since EMAS registration in 2005 all parameters have reduced considerably, averaging over 5% annually except non-hazardous waste. This trend is generally replicated over the period 2010 to 2013. In 2013, year energy consumption and consequently $CO_2$ emissions have reduced despite more extreme temperatures, and non-hazardous[2] waste generation fell markedly. Construction works are responsible for increased water consumption in 2013. The increase in refrigerants lost reflects different reporting adopted for 2013.

## 3.2 Description of Brussels activities

Most of the Commission's activities in Brussels are classic administrative tasks. But there are also other services including cafeterias, canteens, restaurants, archives, print shops, a car fleet, a medical service, crèches and after school day care centres. The distribution of buildings is shown in the following figure.

## Immeubles occupés par la Commission à Bruxelles



Many of the buildings are located around the European quarter on the Eastern side of Brussels. A cluster of 10 buildings are located further afield in the south east of the city at Beaulieu, the Commission having found more affordable rented accommodation than was available in the more central "European quarter". A further few buildings are located outside the centre to the north and the south of Brussels including a sport centre at Overisje, and HTWG.

## 3.3 Environmental impact of Brussels activities

The Commission undertook a full update of the environmental aspects in 2010, the results of which are summarised in the table below which is reviewed and updated every year.

**Table 3.2 – Summary of significant environmental aspects for the Brussels site**

| Aspect group | Environmental aspect | Environmental impact | Activity, product or service | Indicator/Action Plan |
|---|---|---|---|---|
| Air | $CO_2$, $SO_x$, $NO_x$, CO, VOC emissions | Air pollution, climate change | Buildings: HVAC and equipment maintenance<br>Transport: work-related travel and journeys to and from work (organisation and personal) | Indicators 2a, 2c,-2d, |
| | HCFC gas emissions | Depletion of the ozone layer | Used in refrigerators | Indicator 2b; action plans |
| Local aspects | Dust and noise | Noise and air pollution, health risks | Generated by building renovation/repairs, staff travel and Commission car fleet | Indicator 2c / mobility plan |
| Bio-diversity | Choice of ingredients and their origin | Destabilisation of ecosystems | For catering | Indicator 5a, "green catering contract" |
| | Choice of sites and type of buildings | Destruction of natural habitat, relief, visual pollution | In the context of the Commission's buildings policy | Indicator 4a |
| Waste | (Hazardous) waste production | Air, water and/or soil pollution, biodiversity risks | Medical and research laboratories, sanitary installations, cleaning, maintenance and office activities | Indicator 3b |
| Water | Wastewater discharge | Risk of eutrophication, water pollution | Sanitary and technical installations | Not addressed |
| Resources | Fossil fuel consumption | Reduction in natural resources | Heating, cooling, ventilation, electrical equipment and transport | Indicator 1a, 1b |
| | Paper consumption | | For office activities, printing, training and communication requirements | Indicator 1e, 1f |
| | Water consumption | | For catering, sanitary and technical installations | Indicator 1d |
| Environmental risks | Load losses, malfunctions, | Air, water and/or soil | In the context of delivery, storage and use of | Emergency planning, legal |

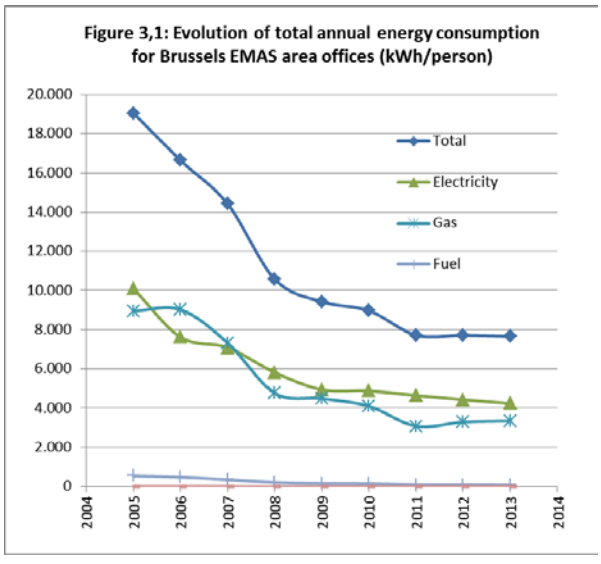
| Aspect group | Environmental aspect | Environmental impact | Activity, product or service | Indicator/Action Plan |
|---|---|---|---|---|
| | leakages, spills of chemicals, gas, waste, etc. | pollution, health risks | chemicals/fuel used for maintenance of the technical installations, waste management and storage | compliance: Indicator 6a |
| (Indirect) financing | Indirect environmental aspects linked to programmes to be financed[29] | Environmental impact caused by third parties | Taking the environment into account in project selection and evaluation* | Indicator 5a; green procurement policy |
| (Indirect) public procurement | Environmental performance of contractors. Sustainability and impact of products and services selected[30]. | Environmental impact caused by third parties | Integration of environmental clauses in contracts: influence of contract through 'sustainable' purchases | Indicator 5a; green procurement policy |

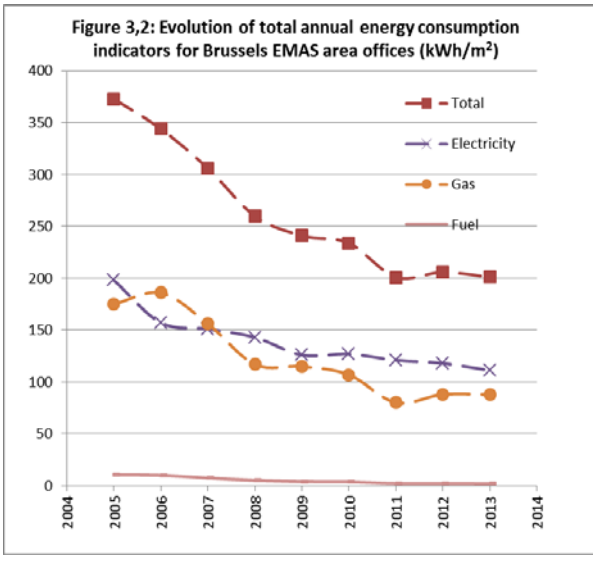
* These indirect aspects are managed via a series of specific mechanisms, including impact analysis (see point 2.1), and regulatory measures,. Since the EMAS management system is not appropriate for dealing with these subjects, these activities have not been included in the scope of the environmental management system at the Commission.

## 3.4 More efficient use of natural resources

### *3.4.1 Energy consumption*

### *a) Buildings*




29 These may include damage to local biodiversity and natural resources and emissions relating to construction/development projects, etc.

30 For example: transport, use of natural resources, the lifecycle of the product, recycling, waste management, etc.

Figures 3.1 and 3.2 illustrate that total energy consumption for EMAS registered office buildings (indicator 1a) fell by 60% and 46% (per person and per square metre respectively) since the first EMAS registration in 2005. Per capita consumption fell most rapidly between 2005 and 2009, with smaller gains recorded since. The reduction in per metre consumption has been more steady. Fuel consumption is minor in comparison to that of electricity and gas. In 2013 only three buildings used heating oil, and this represented around 2% of the total energy used for the Commission buildings.

The **2013 target** of a 1% energy consumption reduction was partially achieved with an actual reduction of 0.8% per capita and 2.3% per square metre. The **target for 2014** is a further 1% reduction. Initiatives for continued improvement identified in management approved action plans are summarised below:

| **Year Since** | **Improvement measures description )** | **Progress in 2013** | **Expectations in 2014 (and end date)** |
|---|---|---|---|
| 2011 | Optimisation of comfort hours in office buildings | Implemented | Completed |
| 2011 | Upgrade of lighting systems and installation of sensor detectors for higher energy efficiency | Ongoing | Continues in 2014 |
| 2012 | Energy audits to identify energy efficiency improvement measures | 7 buildings audited | Identify other buildings to be audited |
| annual | Comfort hours reductions during summer, winter holidays | Ongoing | |
| 2014 | Detailed energy action plan for 10 buildings (to respond to Commission obligation under the Energy Efficiency Directive (EED) | Completed in 2013 | Start implementation |

*b) Site vehicles*

With a fleet of more than 120 vehicles total energy consumption for vehicles (new indicator 1b) was equivalent to 80.318 kWh/person, a reduction of 3.1% compared to 2012. . The **2014 target** is to reduce total fleet consumption by 1.51%.

*c) Renewable energy use in buildings and vehicles*

Overall renewable energy use of buildings (indicator 1c) represented 53% of total buildings energy consumption, and this was due to purchase of 95% renewable electricity from the supplier (since August 2009). No additional renewable energy sources were installed on site in 2013. The **2014 target** is to maintain this percentage of renewable energy in the mix.

*3.4.2 Water consumption*

Figure 3.3 shows that water consumption has also reduced considerably since initial EMAS registration in 2005, with the 2013 value representing only 42% and 56% of the 2005 figure when measured on a per capita and per square metre basis.

The **2013 target** of a 2% reduction in water consumption was not met. The increased water consumption observed in 2013 was due to construction works in the Schuman area, close to the BERLAYMONT building, resulting in an additional 17.000m$^3$ of local consumption compared with 2012. Water consumption in this area has been back to "normal" since November 2013. The **2014 target** is a further 1% reduction.

Performance in 2013 was also affected by changes in the EMAS scope which now covers more space and more employees. Initiatives undertaken in 2013 include water management, water leak detection system and water loss prevention mechanisms. Initiatives planned in 2014 aims at continued improvements including implementation of *ad hoc* technical measures in specific buildings.

3.4.3 *Office and offset paper*

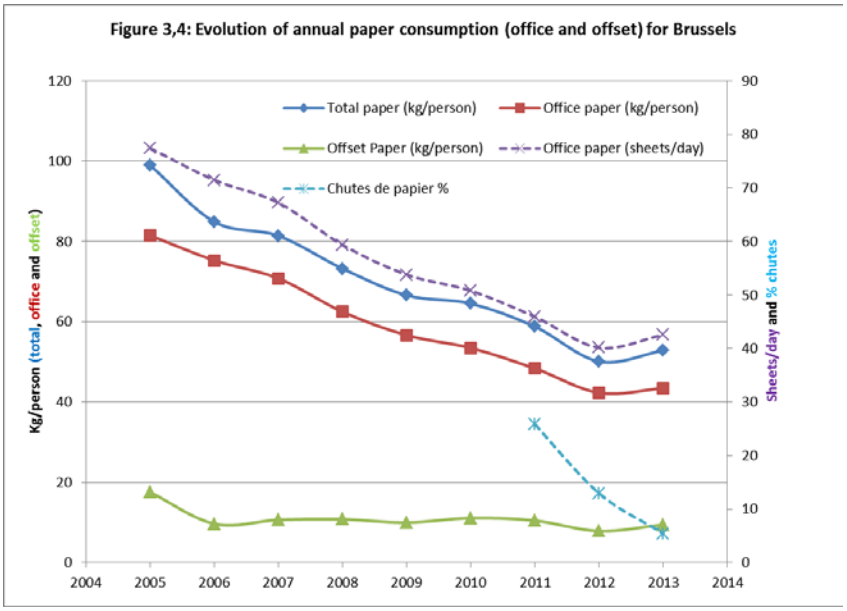



Figure 3.4 shows that total paper consumption (kg/person) has reduced by more than 50% since 2005, and this is due to a reduction in office paper use, offset paper consumption remaining largely unchanged particularly since 2006. There was however, a slight increase in total per capita paper consumption in 2013. Use of office paper as measured in sheets per person per day has nearly halved since 2005. With reference to offset paper (paper used in the print shop), OIB introduced a "chutes de papier" indicator in 2010 to record paper waste as a percentage of total use. From a value of over 25% in 2011, this has reduced drastically to around 5% in 2013. However, demand for print shop services is likely to increase due to the increasing interest of Commissions' services in the those provided by the print shop.

The **2013 target** of a 3% reduction in per capita office paper consumption was not met although there was a reduction of 5,1% in total paper consumption. The **2014 target** is a further 2% reduction. The **2013 target** for "chutes de papier" of less than 17% was achieved by a large margin, and the **target for 2014** is 15%.

The following initiative for continued improvement was identified in a management approved action plan:

| Year<br><br>Since | Description of the improvement measures | Progress<br><br>in 2013 | Expectations in 2014 (and end date) |
|---|---|---|---|
| 2013 | Paperless working group: monitoring of paper consumption, optimisation of existing circuits | Ongoing | To be continued |

Performance in 2013 in relation to office paper exceeded expectations mainly for the following initiatives i) launching the new inter-institutional contract for office paper aiming at 75 g/m$^2$ paper density ii) paperless working group within OIB, including promoting paperless financial circuits; iii) continuing the phasing-out of individual printers and the rationalisation of the number of network printers.

For offset paper, the following initiatives were undertaken in 2013 (continued from 2012): i) raising awareness of the quantities printed in the departments responsible, ii) using more environmentally-friendly paper; iii) contined advising Commission services to opt for default print layouts that consume less paper.

## 3.5 Reducing emissions of CO2, other greenhouse gases and air pollutants

Table 3.2 shows the breakdown of $CO_2$ emissions ($CO_2$ or as $CO_2$ equivalent) by source in 2013 for the office buildings in the EMAS scope.

**Table 3,2: Percentage of $CO_2$ emissions from different sources in 2013 (kg/person)**

| Source | "Base" case | | No $CO_2$ for electricity from renewables | |
|---|---|---|---|---|
| | Quantity | % of total | Quantity | % of total |
| Office buildings (EMAS) | 1.857 | 97,1 | 751 | 93,02 |
| Refrigerants loss, all Commission | 34,50 | 1,8 | 34,50 | 4,27 |
| Vehicles, all Commission | 21,84 | 1,1 | 21,84 | 2,70 |
| Missions (excluding vehicles) | | | | |
| **Total** | **1.913** | **100,0** | **808** | **100,0** |

Note: Commission has contracted 95% electricity from renewables sources since August 2009

The base calculation applies a factor of 0.275 kg/KWh to the total electrical consumption. The second calculation considers that $CO_2$ emissions from electricity generated from renewable sources are zero.

In both cases emissions from buildings energy consumption clearly dominate. In the first case, refrigerant losses from buildings installations account for less than 2% of the total emissions, whereas the true value as presented in the second case is closer to 5%. In the "base" case Commission vehicles represent just over 1% of total emissions but the true value is closer to 3%.

Emissions from missions have been estimated for the Commission as a whole and are presented in Chapter 2.

### *3.5.1 $CO_2$ emissions from buildings*

*a) Buildings (energy consumption)*

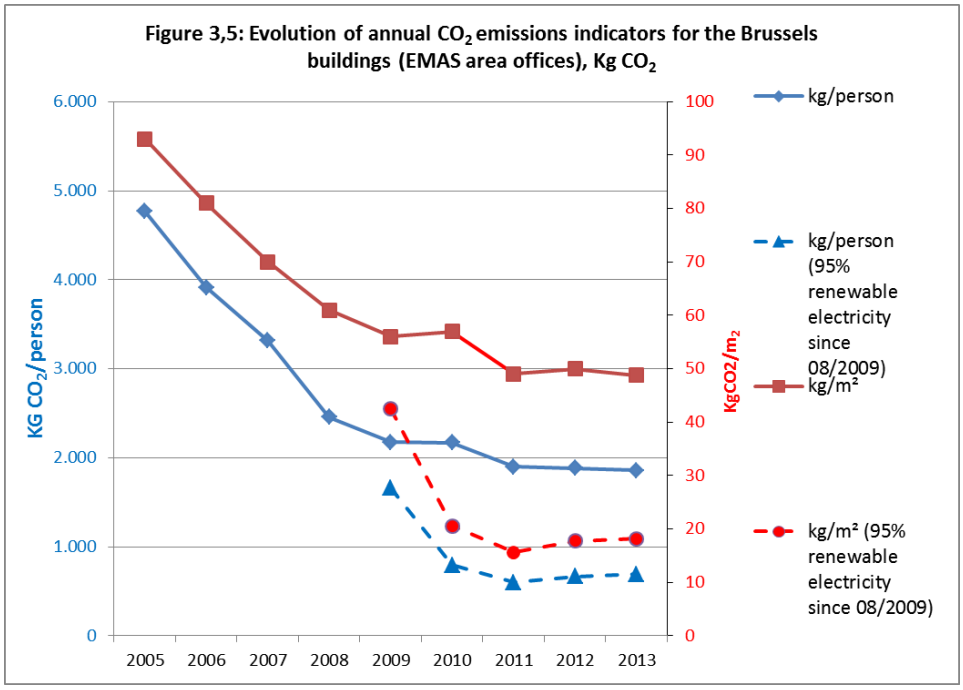
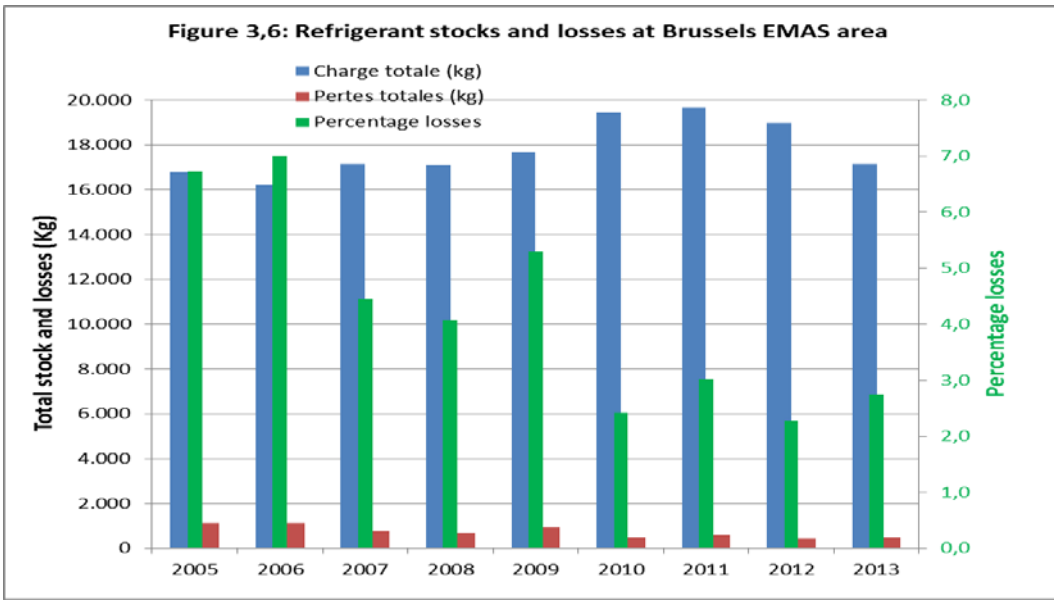



Figure 3.5 shows that $CO_2$ emissions have reduced considerably since initial EMAS registration in 2005. If the true value of emissions is taken into account since the contracting of 95% renewable electricity in August 2009 then the reduction since 2005 is even greater, (assuming that renewable electricity does not generate $CO_2$ emissions). However since 2011, under this scenario emissions have increased slightly which is consistent with Figures 3.1 and 3.2 that show gas consumption having increased during this period on a per person and square metre basis. As mentioned in chapter 2, 2013 was a significantly colder winter than 2012 (when degree days are taken into account), so this increase is not surprising.

The **2013 target** of a 1% reduction in $CO_2$ emissions was exceeded (base calculation) with an reduction of 4,3% per capita and a reduction of 8,1% respectively. However this does not represent the real situation where as discussed above, emissions have risen slightly. The **2014 target** is a further 1% reduction under the base calculation scenario.

There are no management approved action plans specifically for reducing buildings $CO_2$ emissions as measures introduced to reduce energy consumption, particularly from gas, described in section 3.3.1 will consequently also reduce $CO_2$ emissions.

*b) Buildings -other greenhouse gases (refrigerants)*




OIB has monitored the total quantity of refrigerants in technical installations (excluding catering), and losses since 2005. Figure 3.6 shows that although the quantity of refrigerants has risen until 2011 (but fallen slightly since) total losses have fallen to 472kg (from over 1.000kg in 2005). Each kilogram of refrigerant lost may be equivalent to between 1.000 and 5.000 kg of $CO_2$. Before 2013 only R22 was specifically identified for reporting as $CO_2$ equivalent, which explains why the total CO2e for refrigerants reported jumps from 127 tonnes in 2012 to 914 tonnes in 2013.

There were no specific targets relating to reducing refrigerant losses in 2013 or 2014. A **2014 objective** is to define the substances responsible for losses (in addition to R22) so that their $CO_2$ equivalence can be evaluated. However management approved action plan has been in place since 2011 to phase out certain HFC and HCFC installations as follows:

| Year | Description of the measures | Progress in 2013 | Expectations for 2014 (and finish date) |
|---|---|---|---|
| since 2011 | Phase out of insitallations with HCFC (including R22), and HFC (hydroflourocarobs; R134a, R404a, R407c, R410a, R417a) | Ongoing | Largely complete, finished by 2015 |

Under this (and previous action plans) the number of equipment units to be phased out is indicated in Table 3.3. In the last four years the total has reduced by approximately two thirds.

**Table 3,3: Phase out of equipment (with HCFC), number of units left at end of year**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|
| Excluding catering | | | | | 153 | 138 | 119 | 85 | 65 |
| Catering | 211 | 133 | 79 | 40 | 35 | 31 | 28 | 3 | 0 |
| **Total** | | | | | **188** | **169** | **147** | **88** | **65** |

Performance in 2013 met expectations. In 2013 an invitation to tender was launched for works to replace HCFC(R22) refrigerant fluid in refrigeration machines in buildings. In 2014 a specific contractor will perform all the works necessary to phasing out the remaining equipment according to a detailed annual planning.

Other initiatives undertaken in relating to buildings emissions in 2013 included: i) raising awareness about the need to assess the impact of other greenhouse gases with a view to reporting in future on $CO_2$, $CH_4$, $N_2O$, HFC, PFC and $SF_6$ emissions. This assessment will be extended to include atmospheric emissions of $SO_2$, $NO_x$ and PM.

*3.5.2 $CO_2$ emissions from vehicles (indicator 2c)*

*a) Commission vehicle fleet*

Brussels operates a vehicle fleet of 120 owned and leased cars which has reduced in size in recent years. Figure 4.7 shows how vehicle emission and average vehicle use have evolved.

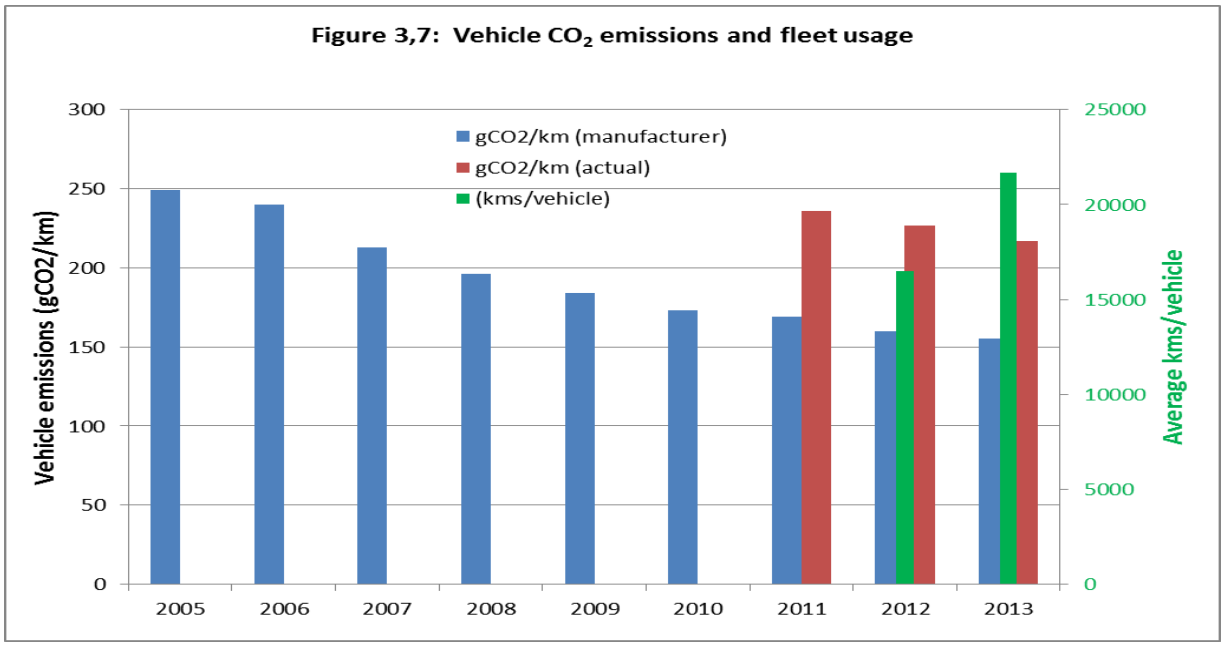



Figure 3.7 shows that OIB has reduced the Commission's vehicle fleet emissions (measured as $gCO_2$/km using manufacturer's technical specifications) by nearly 40% since 2005, by buying or leasing more efficient cars. Actual $gCO_2$/km emissions, measured using fuel consumption data, have reduced by 8% between 2011 and 2013. Vehicles average 21.694km per year, suggesting the smaller number of vehicles is being used more intensively, as this figure was 16.494km in 2012. There are still however several vehicles ravelling less than 5.000 kms per year.

The **2013 target** of maintaining the manufacturer's emissions of 160 $gCO_2$/km was met with an actual value of 153 $gCO_2$/km which also exceeds the **2014 target** of 155 $gCO_2$/km. The **2013 target** for actual emissions of 224 $gCO_2$/km was also achieved (217 $gCO_2$/km) and the 2014 **target** is to reduce to 213 $gCO_2$/km.

Initiatives undertaken in 2013 included systematically replacing vehicles in the Commission's car fleet that have reached the end of their economic life-cycle with more environmentally

friendly models (lower engine capacity, hybrid technology, electric vehicles, etc.), and providing Commission drivers with 'eco-driving' training.

*b) Missions (excluding Commission vehicle fleet)*

There were no specific targets in 2013 or 2014 or management approved action plans to reduce CO2 emissions from missions.

Initiatives undertaken in 2013 to encourage staff to consider less energy intensive alternatives for mission travel include i) the evaluation of the use of videoconferencing within the Commission; the results of this evaluation ii) promoting videoconferencing in DGs other than DG DIGIT and encouraging them with a monthly utilisation report; iii) continuing to promote the use of service bicycles; and iv) continuing to distribute tickets for the public transport network for journeys within Brussels and to make free travel available to staff on presentation of their service card on STIB bus routes 21 and 2.

*c) Commuting (and mobility)*

There were no specific targets in 2013 or 2014 or management approved action plans to reduce $CO_2$ emissions from missions. The Commission makes bicycles available for staff at several buildings to a provide a quick option for moving between offices and attending external meetings, and the number of trips undertaken using these bikes is presented in Figure 3.8.

The total number of recorded journeys fell by around 15% from 20.434 in 2012, to 17.139 in 2013. The more extreme weather recorded in 2013 (as shown by the analysis of degree days presented in section 2) is one likely reason for this. There were notably far fewer bicycle trips in the first five months of 2013 than in the same period of 2012.

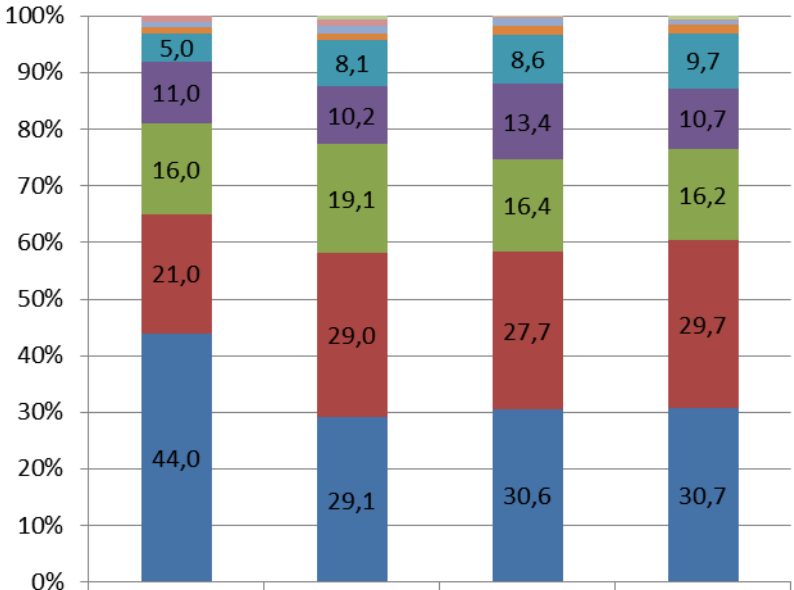
Initiatives undertaken in 2013 concerning commuting included i) continued financial support to public transport season tickets; ii) providing buildings with bicycle parking and showers for staff who cycle to work; iii) promoting the "Bike to Work" and "Bike Experience" schemes; iv) promoting car-pooling, and assisting staff in finding car pooling partners via a dedicated Intranet site v) exploring options for joint schemes with local bike partners such as "Villo", and vi) drafting the new multi-annual Mobility Plan.

*d) Mobility survey 2013:*

OIB conducts a survey on staff mobility every two years and in 2013 received 2349 responses (38%) from a sample of 6257. A breakdown of the modes of transport is presented below.[31]

[31] Résultats de l'Enquête sur la Mobilité du Personnel, Octobre 2013 – Rapport Final – CARSA consultants, Spain

**Figure 3,8a Evolution in staff commuting behaviour, 2004-13**




| | 2004 | 2008 | 2011 n=1795 | 2013 n=2349 |
|---|---|---|---|---|
| Other | 0,0 | 0,6 | 0,2 | 0,5 |
| Car share | 1,0 | 1,1 | 0,2 | 0,4 |
| Eurobus (21/22) | 1,0 | 1,4 | 1,4 | 0,6 |
| Motorbike/scooter | 1,0 | 1,2 | 1,5 | 1,6 |
| Bicycle | 5,0 | 8,1 | 8,6 | 9,7 |
| Walk | 11,0 | 10,2 | 13,4 | 10,7 |
| Train | 16,0 | 19,1 | 16,4 | 16,2 |
| Bus/tram/metro | 21,0 | 29,0 | 27,7 | 29,7 |
| Car | 44,0 | 29,1 | 30,6 | 30,7 |

It is evident that the percentage share of different modes has not changed significantly since 2008. Although the number of staff commuting by car fell from 44% to around 30% between 2004 and 2008, it has not reduced since, suggesting that mobility campaigns face challenges in reducing the proportion of people driving to work. Although car sharing was rare 0.4% in 2013, this was an increase over that of 2011. The following table shows how the 2013 survey results compare with the objectives of the Brussels Mobility Plan.

| Outcomes of the Mobility Survey 2013 in relation to the objectives of the Mobility Plan 2010-2014: | | |
|---|---|---|
| **Transport mode** | **Objectives Mobility Plan 2010-2014** | **2013** |
| Individual use of private cars | 25% | 30.7% |
| Public transport (train and EuroBus included) | 54% | 46.4% |
| Walking/cycling | 20% | 20.4% |
| Carpooling | 50% increase in relation to 2008 (1%) | 0.4% |

In comparison with the mobility plan objectives for the period 2010 to 2014, in 2013 Brussels staff more frequently used private vehicles, and less frequently used public transport for commuting than expected. Carpooling is half as popular as it was in 2004-8, but more popular than in 2011. But the number of staff walking or cycling to work in 2013 was in line with the Mobility Plan objectives.

The majority of respondents are aware of the ability of Commission incentives to promote travel by means other than private car, through the: i) the provision of service bicycles, ii) subsidised public transport season tickets, iii) free access to bus lines 21 and 22 , and iv) however facilities in buildings and parking spaces for bicycles and motorbikes. However, the popularity of the first three incentives mentioned above decreased by 2-5% compared to 2011. 53% of respondents suggest that the Commission should maintain collaboration with the Region of Brussels-Capital on urban mobility and infrastructure.

Survey data suggest that 50% of staff live within 7km of their workplace, 80% within 20km and 95% within 60km. Per capita $CO_2$ emissions for staff commuting, based on several very preliminary assumptions, are estimated to be between 0.3 to 0.5 tonnes.

*3.5.3 Total air emissions of other air pollutants ($S0_2$, $NO_2$, PM)*

Brussels is one of several European cities experiencing high levels of airborne pollution, and Belgium is one of the European countries on the Commission's "watch list" for lack of compliance with the 2010 Air Quality Directive. With around 60 buildings each with two to three boilers, and a fleet of over 120 predominantly diesel vehicles; the Commission must ensure that it is not unduly contributing to this problem.

These pollutants are typically released into the air as products of combustion, therefore boilers and vehicle engines are a potential source. In order to develop improved reporting on these atmospheric pollutants, OIB started to collect data in 2013.

Because combustion of natural gas releases less airborne pollution than that of oil; the Commission is proceeding to phase out oil heating installations. Of the three buildings still heated by oil (L-86, PALM, OVER - the first of which is in the EMAS scope) one is currently being renovated and converted to natural gas from 2014; and another will be converted to natural gas at a date still to be determined. Studies concerning the future of the third building are ongoing with one scenario under consideration is to leave it 2015.

There were no specific quantitative targets identified in 2013 (other than assessing the impact of other greenhouse gases (…to include atmospheric emissions of $SO_2$, $NO_x$ and PM), the **2014 target** will be to define the method to report on 2013 data.

## 3.6 Improving waste management and sorting

### *3.6.1 General waste*

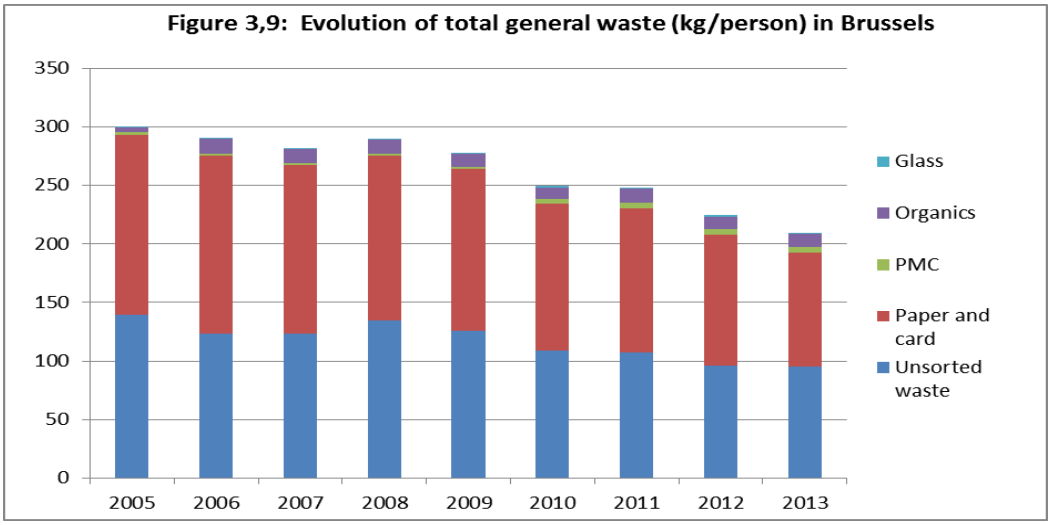
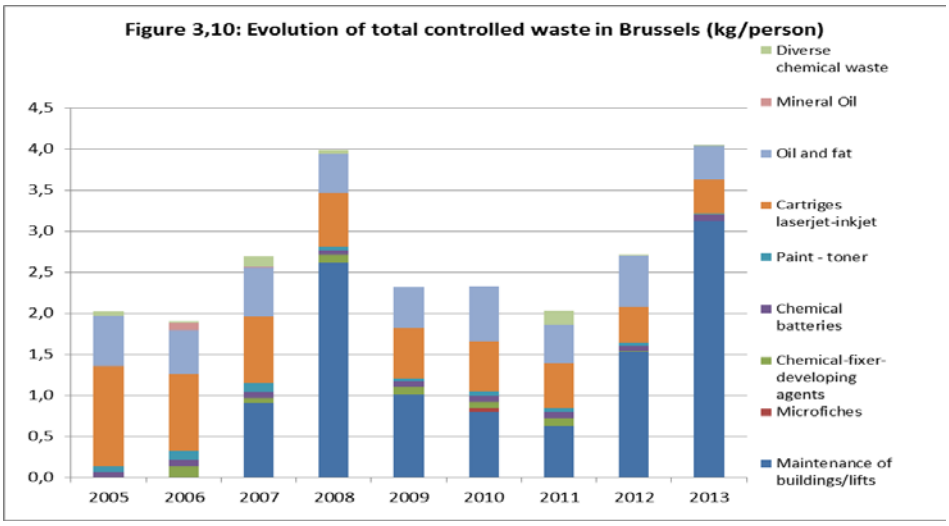



Figure 3.9 indicates that waste generated per person has reduced by nearly one third since 2005. Unsorted waste and paper/carton make up a large percentage. The **2013 target** of a 1% reduction in total waste generation was achieved with an actual reduction of 13,7% in total general waste which is equivalent to a 6,6% reduction per capita. The **2014 target** is to maintain the 2013 performance but the **longer term target** is to achieve a 5% reduction by 2018.

There are no specific management approved **actions** for continued improvement. Other initiatives undertaken in 2013 include i) improving the selective sorting of waste using sorting bins in areas and buildings for public use; and ii) exploring ways of reducing transport distances to reduce the environmental impact of vehicles used by staff engaged in waste transport.

### *3.6.2 Controlled Waste*




According to Figure 3.10 total controlled waste has typically been in the range of 2kg to 3kg per person since 2005. Printer cartridges have become a smaller proportion of the

total, as various paperless strategies have been implemented; showing that such strategies can result in reduced use of other consumables. There was no **2013 target** for controlled waste reduction; however the **2014 target** is 2%. There were no specific management approved actions for continued improvement.

Other initiatives undertaken in 2013 include i) replacing the containers for hazardous products; ii) improving storage of oil and other drums of hazardous products; all drums will be placed in a collection container iii) reducing the capacity of drums used for oil to make them easier to handle; and iii) taking steps to reduce the risk of accidental spillage and the risk of affecting the health of staff transporting the drums.

*3.6.3 Waste sorting*

OIB seeks to maximise the sorting of waste into potentially useful streams, and minimise the amount of unsorted, typically general waste.

**Table 3.4 Percentage of waste sorted at the Commission in Brussels**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|
| Percentage of waste sor | 53,9 | 57,7 | 56,6 | 54,1 | 55,3 | 56,8 | 57,3 | 57,9 | 55,6 |

Table 3.4 shows that the proportion of total waste that is sorted typically fluctuates between 54 and 58%. The **2013 target** of 60% for sorting was not achieved. The **2014 target** is 62% with a **long term objective** of 65% by 2018.

## 3.7 Protecting biodiversity

Brussels started collecting data for this indicator in 2013, and there was no **specific 2013 target.**

OIB generally strive to continuously improve the environmental impact in the building sector, including adopting several measures contributing, directly or indirectly, to protect biodiversity and including i) integrating and managing several green areas in its buildings; ii) managing a green park in the Overijse site, outside the EMAS scope, but with an area of 13.000 m² with around 60 trees, iii) introducing infrastructure measures such as green roofs in building projects such as that at Overijse (roof 1800 m²); iv) opting for green procurement of goods and services: (e.g. where possible integrating environmental considerations in the selection of construction materials); and v) introducing the BREEAM assessment in recent projects (ORBAN building: BREEAM very good; L-15 building BREEAM-in-use assessment).

The 2014 target is to provide the data to report under this indicator as defined in the EMAS procedures.

## 3.8 Green Public Procurement

*3.8.1 Incorporating GPP into procurement contracts*

OIB aims to incorporate green public procurement principles into its contracts exceeding 60.000 EUR and has increased the number of contracts including "green" criteria in the last few years. The **2013 target** was to incorporate green criteria into all contracts over 60.000 EUR, and the actual amount was 94%. The **2014 target** is to achieve 100%. The following management approved action has been identified to achieve the target.

| Year<br><br>Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2012 | Integrate GPP criteria in the call for tenders and technical specification | Ongoing | Systematic implementation |

Other initiatives undertaken in 2013 include implementing in mid-year the new inter-institutional contract on office supplies.

*3.8.2 Contrats de fournitures de bureaux*

Most office supplies are provided by a single supplier. The number of "green" products has been around 27% (169 of 633 products) in 2012 and 36% (186 of 514 products) in 2013. The **2014 target** is 35% rising to 45% by 2016.

## 3.9 Demonstrating legal compliance

*3.9.1 Prevention and risk management*

OIB records statistics relating to the findings of buildings audits and inspections of health, safety and environment. These audits and inspections are based on permits and legal requirements for each building and technical installation. There are normally over 1.500 reports per year and as shown in the table below, the number of reports with minor non conformities has hovered around 40%, and those with major non conformities at around 1 to 2%.

**Table 3.5 Evolution of non conformities**

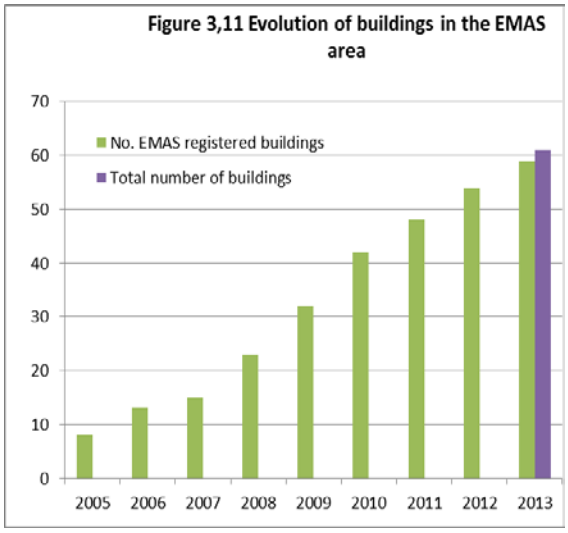
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|
| % de rapports en Non conformité | 36 | 40 | 38 | 38 | 43 | 48 |
| Δ % | 0 | 11,1 | -5 | 0 | 13,1 | 11,6 |
| % de rapports avec Non-conformité majeur | 2 | 1 | 0 | 1 | 2 | 4 |

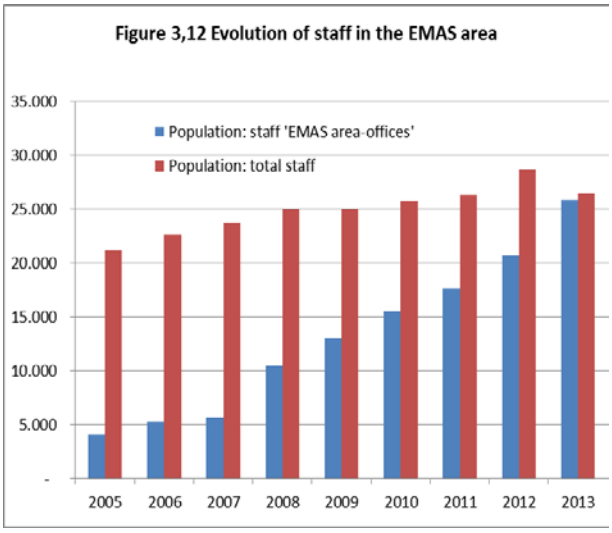
The major non conformities noted in 2013 by integrated audits at OIB although none were EMAS related. A major initiative undertaken during 2013 was the preparation and tendering of a new multi annual contact for the external technical inspection service that will start in 2014. Detailed technical specifications included several new technical controls which are relevant from an environmental management systems perspective.

These include i) Diagnosis of boiler installations of more than 15 years old – in line with the energy performance of building directive (ref. 6D), ii) Diagnosis of air conditioning installations of more than 15 years old - in line with the energy performance of building directive (ref. 6E), iii) Periodic controls of cogeneration systems and associated air analysis (ref 6G) and iv) Periodical control of generating groups (*électrogènes groups*) and associated air analysis (ref 6H). In addition a number of previous controls (ref. 6A, 6B, 7B, 7C) have been have been updated to better answer to the environmental needs.

*3.9.2 Registering more buildings in EMAS*

Figures 3.11 and 3.12 show the increase in the number of EMAS registered buildings since 2005, and also in the number of staff who work in them.




The number of buildings and staff in the EMAS area has grown rapidly since first registration in 2005. The EMAS area in Brussels included 26.336 staff in 2013 representing an increase of nearly 6.000 since 2012. At first registration in 2005, the EMAS staff population was 4.033.

The **2013 target** was to increase the number of EMAS registered buildings from 48 to 54, and this was achieved. The **2014 target** is to further increase the number to 59 based on data reported in 2013. The following management approved action plan will ensure further improvement.

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2014 | EMAS registration of all buildings managed by OIB in Brussels | Ongoing | Complete by 2015 |

## 3.10 Internal communication and training

*3.10.1 Welcome Office INFO DAY*

HR COORD participated in the Welcome Office's INFO DAY on 20th March 2013 at Berlaymont Piazza, presenting EC-Newcomers with an overview of the Commission's environmental management system and practical eco-tips. There were approximately 800 participants.

*3.10.2 Resource efficiency Campaign*

Local actions organised in 8 DGs/services included: the collection and recycling of old mobile phones in collaboration with Jane Goodall Institute Belgium, the collection of plastic bottle tops for the support of the association G.E.H (Groupe d'Entraide pour Hémiplégiques), study-

visits to the Renewable Energy House (REH), the promotion of “green” office supplies, and the collection and re-use of old office supplies and stationary.

*3.10.3 Sustainable Mobility Campaign*

During European Mobility Week (16th to 20th September 2013), OIB organised lunchtime guided bike tours, starting from five different Commission buildings and which attracted about 100 participants. In addition, an information stand informed Commission staff on mobility issues during the EU Mobility Week, at Berlaymont Piazza, also promoting new actions such as the "Bike to Work" initiative to EC-staff[32] and a regional car-pooling platform[33]. Free bike technical repairs were offered on 12th and 13th September 2013, at the entrance of the Berlaymont building.

During the Alternative Mobility Day for EC-staff on 23rd September 2013, a mobility lottery was organised in Brussels among the EC-staff who opted for alternative modes of transport. The winners were offered day free-passes for all trains in Belgium and cyclists’ vests. The action was further supported by the EMAS Mobility Posters “Feel Mobile”, a mobility guide brochure and a car-pooling leaflet. There were 178 participations from 10 DG/services.

In addition, an EMAS Sustainable Mobility Panel Discussion on "*Sustainable mobility in Brussels - Reality and future perspectives*" took place on 3rd October 2013, in collaboration with local and regional authorities responsible for mobility issues, the EUCG (EU Cyclists’ Group) and OIB Mobility Sector. It was followed by a sustainable mobility exhibition including information-stands attended by the panel members organisations and attracted 30 participants.

In addition, mobility info-stands, mobility breakfasts and workshops on safe cycling were also organised in 12 services.

*3.10.4 Other specific actions at site level*

All the parameters associated with site specific EMAS related training have reduced, owing largely to the reduction of EMAS dedicated staff.

There were three specific training packages available in 2013, and the **2014 target** is to maintain this number.

OIB ensures ongoing communication with staff in Brussels through the following management approved action (PAG):

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2011 | Environmental communication actions (Concrete electronioc newsletter) | Ongoing | Yearly action |

32 https://www.biketowork.be/index.php?option=com_btwregister&view=register&Itemid=74&lang=fr-FR

33 http://www.carpool.be/index/choose

## 3.11 Transparent dialogue with external partners

The EU Open Day 2013 event was held in the Berlaymont on 4th May 2012, as part of the EU Institutions' Open Day for the general public *"It's about Europe, it's about you!"*[34] Informational panels on EMAS in the Commission were displayed. More specifically OIB has designed a poster on EMAS-results in 2012. Approximately 25.000 attended the Berlaymont building the Open Day.

HR COORD and OIB participated in several local and regional conferences or meetings, for example the EMAS Regional and Federal Network Meetings in Brussels.

OIB conduct regular dialogue with national and regional environmental authorities in order to share best practices and identify potential synergies.

In 2013, there have been three specific external actions coordinated by DGs ENER, MOVE and OIB: (i) A presentation concerning EMAS to the Innovation and Networks Executive Agency (INEA)35, (ii) An EMAS Presentation on 04th October 2013 during the "Facility topic" event in Chatau de Franc-Waret, Belgium and (iii) The publication of an article on the Belgian technical magazine Le Profacility Guide 2014 by OIB[36].

## 3.12 EMAS Costs and saving

The direct administrative cost of implementing EMAS (costs of OIB EMAS coordination) specifically for the Brussels site is estimated at 5 Euros per person, This excludes central EMAS coordination (DG HR) and the EMAS network of correspondents who are based in several DGs and services.

The major savings that have been identified since EMAS implementation relate to energy, for which unit costs have been identified dating back to 2006. In conjunction with per capita consumption, this permits estimations of energy costs as shown in Table 3.6.

**Table 3,6: Reduction in energy costs for office buildings in EMAS area**

| Parameter | 2005 (1) | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|
| Total Staff (EMAS Office Buildings) | 4.033 | 5.238 | 5.702 | 10.393 | 13.014 | 15.527 | 17.586 | 20.663 | 25.818 |
| Total Staff (Commission) | 21.203 | 22.635 | 23.760 | 24.936 | 24.937 | 25.750 | 26.305 | 28.681 | 26.499 |
| Total energy cost for EMAS office buildings (EUR) | 4.815.907 | 5.208.605 | 4.811.195 | 9.983.744 | 8.250.735 | 9.673.107 | 10.189.199 | 11.372.245 | 14.242.833 |
| Total enegy cost for all Commission buildings (2) (EUR) | 25.319.327 | 22.507.941 | 20.048.321 | 23.953.277 | 15.809.912 | 16.041.558 | 15.241.252 | 15.784.963 | 14.618.516 |
| **Total per capita energy cost for EMAS office buildings** | **1.194** | **994** | **844** | **961** | **634** | **623** | **579** | **550** | **552** |
| Electricity (Eur/person) | 909 | 670 | 576 | 737 | 456 | 465 | 452 | 415 | 409 |
| Gas (Eur/person) | 269 | 309 | 251 | 214 | 171 | 150 | 122 | 130 | 137 |
| Fuel (Eur/person) | 16 | 14 | 17 | 9 | 8 | 8 | 5 | 5 | 5 |

Notes

1) Unit costs: Assume 2005 same as 2006, 2008 still under review

2) Assuming non EMAS area have similar costs for energy as EMAS area

34 http://europa.eu/festivalofeurope/

35 http://inea.ec.europa.eu/en/home/

36 Available at: http://profacility.be/piclib/biblio/pdf_00000754fr.pdf

According to Table 3.6, the per capita cost of energy used in the EMAS area office buildings has fallen from around 1000 EUR/person 2005/6 to 552 EUR in 2013. Assuming (conservatively) that similar consumption rates apply both inside and outside the EMAS perimeter, these figures suggest that the Commission's annual energy bill has fallen from around 25.3 Million EUR in 2005 to 14.6 Million EUR in 2013, while staff numbers have risen by a quarter.

In comparison per capita expenditure related to other resources is far more modest. Data from 2012 and 2013 reveal that:

- Water consumption in the EMAS area offices amounted to 43 EUR/person in 2013 compared with 40 EUR/person in 2012; and

- Total paper consumption (of which offset paper is responsible for a large part of the costs) reduced from 52 to 33 EUR/person in 2012/2013.

- Waste consumption figures are under review but suggest general waste in the order of 34 EUR/person and controlled waste about one tenth of this amount.

# 4 LUXEMBOURG — ADMINISTRATIVE ACTIVITIES

The Office for Infrastructure and Logistics in Luxembourg (OIL), manages the buildings and logistics in Luxembourg and plays a key role in the collection and management of data relevant to EMAS.

## 4.1 Overview of the main indicators in Luxembourg since 2011

OIL has collected data for the Luxembourg site on core indicators since 2011. Their variation is given in Table 4.1:

**Table 4.1: Percentage changes in core indicators at Luxembourg**

| | From 2011 Overall | To 2013 % per year | From 2012 % | To 2013 Target % |
|---|---|---|---|---|
| Energy bldgs (KWh/p) | **28,32** | **14,16** | -0,28 | 0,00 |
| Energy bldgs (KWh/$m^2$) | 2,96 | 1,48 | **-16,78** | 0,00 |
| Water use (l/p) | **24,34** | **12,17** | **-9,18** | -2,00 |
| Water use (l/$m^2$) | -4,84 | -2,42 | **-24,21** | -2,00 |
| Office paper (kg/person) | **-16,60** | **-8,30** | -2,21 | -2,00 |
| Office paper (Shts/person, | **-16,60** | **-8,30** | -2,21 | |
| $CO_2$ bldgs (kg/p) | -3,75 | -1,88 | **6,64** | -2,00 |
| $CO_2$ bldgs (kg/$m^2$) | **-22,78** | **-11,39** | **-11,00** | -2,00 |
| Non haz.waste (kg/p) | **-49,60** | **-24,80** | **11,98** | -2,00 |

It is clear that there have been considerable reductions in several parameters since EMAS registration in 2011 and particularly between 2012 and 2013. The large increase in per capita energy and water consumption since 2011 is due to including the EUFO building in the EMAS scheme in 2012.

In 2012-3, per capita energy and water consumption in EMAS buildings decreased slightly, while the reduction in per capita paper consumption was modest. But the reductions when measured in consumption per square metre (particularly for water, energy consumption and $CO_2$ emissions) were substantial. The following text will provide explanations for the changes in each indicator.

There was increased general waste collection over the period 2012-3 following a large reduction in 2011-2. To address the situation and to raise awareness, in 2014 the Commission organised a general information campaign: "Give waste a second life!".

## 4.2 Description of activities in Luxembourg

Most of the Commission's activities in Luxembourg are administrative. These are supported by canteens, restaurants, cafeterias, archives, a print works, a vehicle fleet, medical services, a day nursery and study centre. In addition to its administrative activities, DG ENER also manages a laboratory for research in radiation protection.

Other than the “Foyer Européen” which is owned by the European institutions along with the Euroforum, CPE3 and CPE5 buildings, for which the Commission has a long-term lease with

a purchase option, the Commission's other buildings are leased. The buildings are listed in the following table. The first three buildings (Drosbach, Hitec, Euroforum (EUFO)) are registered in the EMAS scheme and the fourth (CPE 5) will be submitted for registration in 2014.

**Table 4.2: Commission buildings in Luxembourg**

| BUILDING | EMAS YEAR | Surface (HS, m2) | %EMAS surface of total surfa | Staff 2013[3] | Year of construction | Year of acquisition or leasing | Occupational type |
|---|---|---|---|---|---|---|---|
| DRB | 2012 | 22.603 | 11,79% | 697 | | B - 2006; A - 2009; D - 2010 | Location |
| HITEC (bureau) | 2012 | 3.994 | 2,08% | 97 | | 2005 | Location |
| EUFO | 2013 | 23.354 | 12,18% | 518 | 1995 and 2003 | 1995 and 2003 (new contract) | Emphytéose avec option d'achat |
| CPE5 | 2014 | 9.146 | 4,77% | 41 | 2011 | 2011 | Location avec option d'achat |
| FOYER | 2015 | 1.192 | 0,62% | 4 | 1920 | 2009 | Propriété |
| CPE1 | 2015 | 2.763 | 1,44% | 39 ** | | 1984 | Location |
| CPE2 | 2015 | 1.646 | 0,86% | n/a | | 1984 | Location |
| CPE3 | 2016 | 4.323 | 2,25% | 43 | 1996 | 1996 and 2009 (extension) | Location avec option d'achat |
| eBRC HITEC (data) SS(-3 and -4)**** | 2016 | 294 | 0,15% | n/a | | 2006 | Location |
| eBRC WIN (data) HS/SS (0 and -1)**** | 2016 | 1.206 | 0,63% | 2 | | 2007 and 2009 | Location |
| BECH | 2017 | 34.062 | 17,77% | 847 | | 1998 and 2005 | Location |
| Fischer | 2018 | 3.817 | 1,99% | *** | | 1.4.2005 | Location |
| Mercier | 2019 | 19.953 | 10,41% | *** | 1970, 1984 | old part: 1973, 1998 (new contract); new part: 1985 | Location |
| JMO | 2020 | 63.360 | 33,05% | 1618 | 1975-1978 | 1975 | Location |
| | | 191.713 | 100% | | | | |

* ComRef 21.10.2013 — Updated: 03/12/2013 — Author: OIL 01, EMAS Coordination Team

** CPE1 and CPE2 are considered as one building

*** Data not yet available in ComRef

**** Calculated surface: soil and underground (HS - SH)

As shown on the map below, most of the buildings are located in the Kirchberg area in the centre of the City of Luxembourg or south of the city centre. CPE 5 is located 15 km west of Luxembourg in Bertrange-Mamer.

Commission services in the Drosbach and Hitec buildings serve exclusively classical administrative purposes (the data center in Hitec building has not yet been included in EMAS scheme). The Euroforum building accommodates administrative services, and the research laboratory for radiation protection. CPE 5 however caters entirely to children of inter-institutional staff with a crèche, after school and study centres.

**Figure 4.1: Location of EMAS and other buildings in Luxembourg**

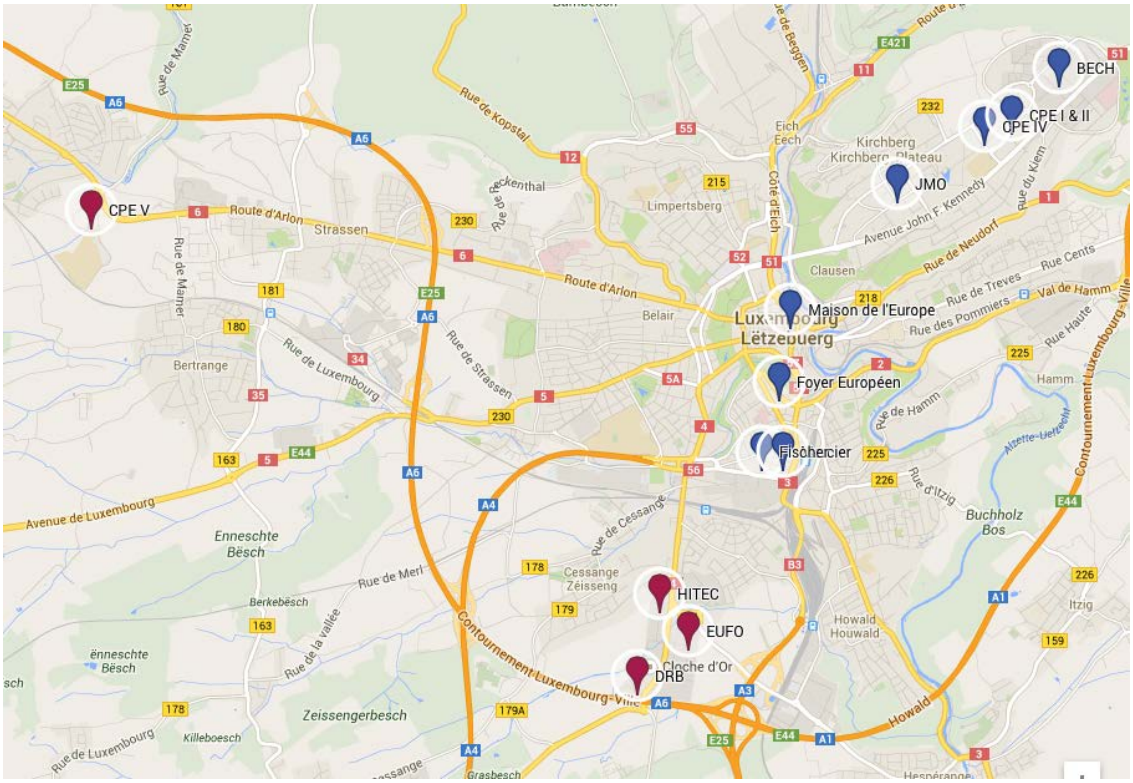



**Table 4.3: Addresses of selected Commission buildings in Luxembourg**

| Building | Address | Building | Address |
|---|---|---|---|
| BECH | 5, rue A. Weicker | Fischer | 135, rue A. Fisher |
| CPE I, II III & | Rue A. Borschette | Foyer européen | 10, rue Heine. |
| CPE IV | Rue R. Coudenhove-Kalergi | HITEC | 11, Rue E. Ruppert |
| CPE V | Rue G. Thorn, Bertrange | JMO | Rue A. de Gasperi |
| DRB | 12, rue G. Kroll | Maison de l'Europe | 7, rue Du- procedure aux-herbs |
| EUFO | Rue R. Stumper | Mercier | 2, rue Mercier |

CPE 5 (the Early Childhood Centre), which is new to EMAS implementation, is a new building occupied in 2012. It has two levels and contains classrooms, kitchenettes, a canteen, kitchen, gymnasium, dispensaries, playgrounds, *crèche* and after-school centre, inner courtyard, offices and a car park. The *crèche* is managed by European Parliament and the whole campus is owned by ABP (L'Administration des Bâtiments Publics).

In order to reduce running costs, some facilities are shared with the European school. Some shared technical installations are located within the European school, such as the heating installation and medium voltage transformers, and others in the CPE V (Control panel for emergency pumps and spillage retention).

## 4.3 Environmental impact of activities in Luxembourg

The Commission undertook a full update of the environmental impact of its activities in 2010, the results of which are summarised below. This is reviewed and updated annually.

**Table 4.4: Summary of significant environmental aspects for the Luxembourg site**

| Group of issues | Environmental aspects | Environmental impact | Activity, product or service | Indicator/action plan |
|---|---|---|---|---|
| Legal | Identification of environmental aspects in EU and national legislation | Legislation at different levels (national and European) | Supplies-maintenance and security of buildings | Monthly updating of the regulatory surveillance |
| | Identification of environmental aspects related to nuclear activities | Authorisation Order No 03/14 | Nuclear activities | Inclusion with DG ENER in "Legal Compliance" procedure |
| Air | Emissions of $CO_2$, SOx, NOx, CO, VOC,<br><br>Gas emissions HCFC | Air Pollution<br>Risks for biodiversity and climate change-Destruction of the ozone layer | Buildings: HVAC (heating, ventilation and air conditioning) and maintenance of equipment<br><br>Radio protection laboratory transport: Work-related travel and journeys to and from work (professional and private) | Provision of a free transport pass for the city of Luxembourg and reduced price tickets for journeys in the Grand Duchy |
| | Air emissions from the nuclear laboratories | Radioactivity | Risk of radiological contamination of the air emitted from nuclear laboratories.<br>Transfer of radioactive materials | |
| Water | Waste Water discharge | Water pollution, risks of Eutrophication<br><br>reduced potable water sources potable-Impact on aquatic biodiversity | Toilets and-installations (HVAC) — Buildings maintenance | A test was carried out to install mist taps in toilets at HITEC but installation was not feasible for technical reasons |
| | Water discharged nuclear laboratories | | Risk of radiological contamination of waste water from nuclear laboratories. | Commission has revised its water treatment procedures |
| Waste | Generation of waste | Odours-greenhouse gases, pollution of the air, water and/or soil<br>Impacts on biodiversity | Office activities and cleaning<br>Production and consumption of meals<br>Print works | Acquisition of machinery and consumables with low environmental impact |
| | Generation of controlled waste | | Production of non-traditional waste in nuclear laboratories. | |

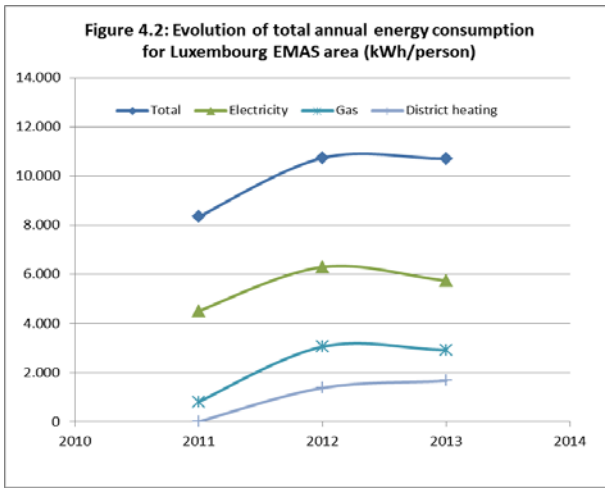
Note:
The white cells are data from the administrative activities in Luxembourg;
The yellow cells in the table relate only to the activities of the Laboratory of Radiation Protection (in EUFO building).

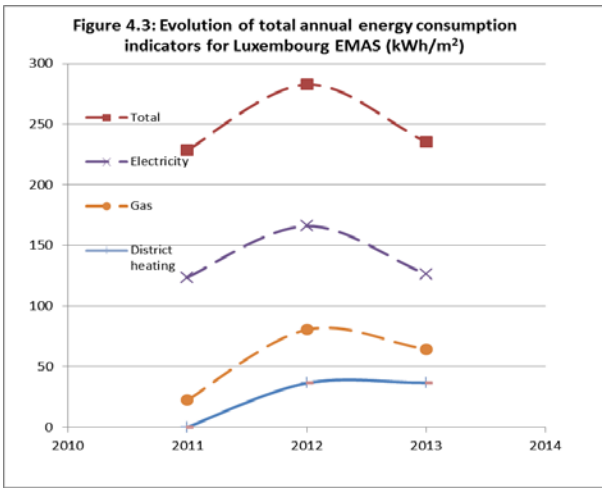
## 4.4 More sustainable use of natural resources

In the following sections, total and per capita consumption data apply only to Commission staff working in the buildings included within the EMAS scheme.

### *4.4.1 Energy consumption*

*a) Buildings*




With the EUFO building's inclusion in the EMAS scheme in 2012, total energy consumption increased considerably, since its IT facilities consume a lot of energy. In 2014, the EMAS registration will also seek to include CPE 5 (crèche, after school and study centres, based on information reported in 2013.

As shown in Figures 4.2 and 4.3, total per capita and per square metre energy consumption decreased in 2013. This is due, in part, to lower energy consumption in the CPE 5 building compared with other buildings. It has a boiler fuelled by wood chips as the main heating supply which is supplemented with a gas boiler when necessary. Although the CPE5 building has good energy performance, per capita energy consumption decreased only slightly in 2013. This is because it contains relatively few staff but can accommodate nearly 600 children who are currently not included in the per capita calculation.

The 2013 target to reduce the overall energy consumption by 1% was not met. Two actions were implemented in 2013 aimed at reducing energy consumption, involving the EUFO and Drosbach buildings:

- EUFO: a study investigated the feasibility of installing photovoltaic panels on the roof. It concluded however that it was not economic, and will therefore not be taken forward.

- Drosbach: the Commission analysed the building's energy consumption and identified very high electricity consumption for cooling which was due to the cooling installations capacity far exceeding the building's requirements. The owner has agreed to study the problem and implement a technical solution to better regulate and optimise the existing cooling equipment.

The 2014 objective is not to exceed 2013 consumption.

Initiatives for continuous improvement, identified in management approved action plans are summarised below:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014 and end date (if applicable) |
|---|---|---|---|
| 2013 | Replacing halogen lights with LEDs in EUFO building | Completed | Reduction in energy consumption |
| 2013 | New refrigeration unit for free cooling technology to be installed in the EUFO building. | Call for tenders launched in 2013 and resumed at the beginning of 2014. The return of tenders is expected in the summer of 2014 and delivery for 2015 | Reduction of energy and water consumption |
| 2013 | Actions targeting staff: Encouraging users to turn off PCs and lights while absent | Continuous process | Reduction in energy consumption |

*b) Site vehicles*

Luxembourg has a fleet of 27 vehicles, and their total energy consumption (indicator 1b) is equivalent to 387 kWh/person, or around 2.6% of that for buildings. The 2014 Objective is not to exceed 2013 consumption.

*c) Renewable energy use in buildings and vehicles*

Overall, the use of renewable energy in buildings (indicator 1c) accounts for 57.2% of their total energy consumption. This is due to contracting a mains electricity supply derived 100% from renewable sources and by using a wood-chip boiler. The 2014 objective is to maintain this percentage of renewable energy in the energy supply mix.

*4.4.2 Water consumption*

Figure 4.4 shows that per capita water consumption increased significantly following integration of the EUFO building in the EMAS scheme. A heating system failure occurred in 2012, but the cold weather did not permit a system shut- down for repairs, leading to above average water consumption.

Following the resolution of this problem, water consumption decreased again. .

The 2013 objective to reduce water consumption by 2% per capita (and per square metre) was easily achieved with reductions of 9.2% and 24.2% respectively. Total consumption also decreased by 1.8%. The 2014 objective is to not exceed 2013 levels.

DG ENER was particularly successful in 2013 in reducing the amount of waste water generated, and that may be contaminated, through implementing the following action plan:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014 and end date (if applicable) |
|---|---|---|---|
| 2013 | DG ENER-lux: Changing the procedure for cleaning the nuclear laboratories | Between June 2005 and February 2013 (i.e. 92 months) tanks were emptied on average every 6 months between each discharge (15 times). Following the modification to cleaning procedures, in 2013, the tank was last emptied in February. | Significant reduction in the amount of potentially contaminated waste water that must be removed and treated if contamination is detected. |

Projects for 2014 include replacing the two existing conventional cooling towers in EUFO building by two air cooling facilities which do not consume water. In addition, to save electricity by greatly reducing the need for compressors, "free cooling" units that use low external ambient temperatures for cooling will be upgraded.

*4.4.3 Office and offset paper consumption*

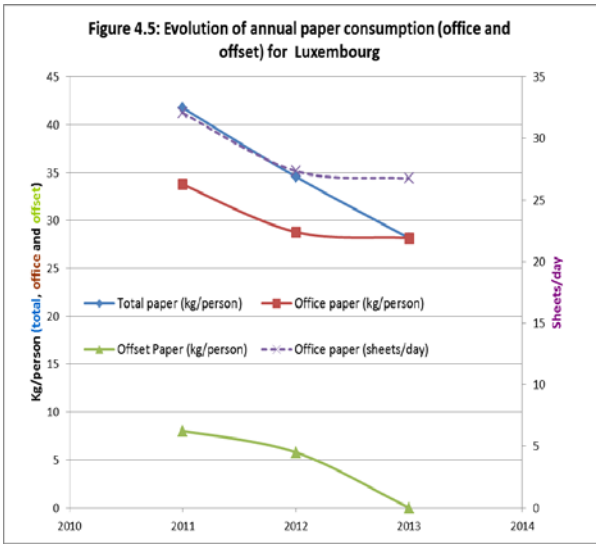



Table 4.5: Evolution of printing equipment in Luxembourg

| | 2011 | 2012 | 2013 |
|---|---|---|---|
| Local colour printer | 24 | 0 | 0 |
| *evolution %* | *0* | *-100* | |
| Local black and white printer | 5 | 0 | 0 |
| *evolution %* | *0* | *-100* | |
| Network black and white printer | 30 | 20 | 20 |
| *evolution %* | *0* | *-33* | *0* |
| Network colour printers | 9 | 14 | 17 |
| *evolution %* | *0* | *56* | *21* |
| Black and white photocopier | 10 | 8 | 8 |
| *evolution %* | *0* | *-20* | *0* |
| Colour photocopier | 1 | 1 | 1 |
| *evolution %* | *0* | *0* | *0* |
| Fax | 5 | 3 | 3 |
| *evolution %* | *0* | *-40* | *0* |
| Total | 84 | 46 | 49 |

*a) Office paper*

The above results show that the consumption of office paper fell considerably between 2011 and 2013 accompanied by a decrease in the amount of printing equipment. The following activities contributed:

- Rationalised paper use through the "Rapidoc" system;
- Greater use of hyperlinks between software applications (ABAC and ARES) reducing the need for paper documents;
- Sending supporting documents for Recovery Orders in PDF format to DG Budget. This was already possible, but there was duplication between paper and electronic format, and now the process is handled electronically;
- Migration to the internet banking for catering;
- The continued removal of personal printers in favour of networked printers; and
- Promoting double-sided printing in black and white where possible.

In 2013, the print workshops were out of service for seven months. In relation to printing procurement, whether machinery or consumables, items with the lowest environmental impact are preferred where possible. For example, the plotter uses inks with water soluble latex, rather than chemical solvents, to print posters.

In 2013, office paper consumption was around 2.7million pages of A4. The Commission started to purchase A4 paper with a density of 75 g/m² (replacing the older supply of 80g/m²) but distribution of the lighter paper started in January 2014.

In 2012 the total paper consumption was 115,08 tonnes. The 2013 target was to not exceed this amount which was achieved with a decrease of 0.9% (114,03 tonnes of paper consumed). The 2014 target is a 2% reduction in office paper consumption.

DG ENER has also undertaken a number of actions to reduce printing:

- Financial procedures and missions are managed electronically (no paper version);
- Not printing multiple copies of ACPC [37]dossiers that circulate between Luxembourg and Brussels.

Other initiatives in 2013 for reducing office paper consumption included continuing both the awareness campaigns on the rational use of paper; and the withdrawing of personal printers and optimising the number of network printers.

*b) Offset paper*

Offset paper was used in the Luxembourg print shops. However, for technical and environmental reasons, digital presses are now used for both colour and black and white printing.

As shown in Table 4.5, the result of these actions and initiatives is that both offset and office paper consumption dropped significantly in recent years. Office paper consumption in 2013 was at its lowest level since 2011, while offset paper was phased out.

## 4.5 Reduction of $CO_2$ and other greenhouse gases, air pollutants

Table 4.6 provides a breakdown of $CO_2$ emissions by source.

**Table 4.6: Percentage of $CO_2$ emissions from different sources in 2013 (kg/person)**

| Source | Quantity | % of total |
|---|---|---|
| Buildings (EMAS) | 1.102 | 97,15 |
| Refrigerants loss (R22 only), all Commission | 0,00 | 0,00 |
| Vehicles, all Commission | 32,36 | 2,85 |
| Missions (excluding vehicles) | Not included | |
| **Total** | **1.135** | **100,00** |

[37] Advisory Committee on Procurement and Contracts

They are clearly dominated by emissions resulting from buildings' energy consumption (95%), although Commission vehicles represent 3%. Refrigerant losses expressed as $CO_2$ equivalent are considered to be minor (< 1 %), although only R22 is taken into account. An estimation of Commission wide emissions from missions is presented in Chapter 2. They are currently not reported for individual EMAS sites.

*4.5.1 $CO_2$ emissions from buildings*

*a) Emissions due to energy consumption*

$CO_2$ emissions per m² decreased by 11% between 2012 and 2013. $CO_2$ emissions per capita increased by 6,6% in 2013, but remained below the 2011 level.

The increase in per capita $CO_2$ emissions is likely due to CPE 5's inclusion in the EMAS scheme in 2013. As indicated in Section 4.4.1, it has few staff but can accommodate nearly 600 children who are not taken into account in the per capita calculations.

The 2013 target to reduce emissions by 1% per capita and per square metre was partly met. No 2014 target has been set. There is no specific approved action plan to reduce $CO_2$ emissions from buildings. However, measures taken to reduce energy consumption described in section 4.4.1 will inevitably also reduce emissions.

*b) Emissions due to release of other greenhouse gases (refrigerants) in buildings*

There was no specific target for reducing refrigerant losses in 2013 or 2014. A 2014 objective is to establish refrigerant inventories so that losses expressed as $CO_2$ equivalence can be assessed and another is to progressively phase out all installations operating with R 22+. An action plan to phase out HCFCs and HFCs in certain installations was implemented in 2011.

OIL does not have refrigerant data for buildings prior to 2013. The HVAC installations containing HFCs are managed by the building owners, who at the Commission's request provide inspection results relating to refrigerants.

Regulatory testing of the HVAC installations in the EUFO building did not detect any leakage of the 165kg of refrigerants in the system in 2013.

*4.5.2 $CO_2$ emissions from vehicles*

*a) Emissions from Commission vehicles*

In 2013, the Luxembourg fleet comprised 27 owned or leased vehicles of which 23 are diesel and the remainder petrol.

Figure 4.7 shows that, due to the purchase or lease of more efficient vehicles, emissions as stated by manufacturers (in $gCO_2$/km) reduced slightly since 2011, but the decrease in "actual" emissions (calculated from fuel consumption) was greater. This suggests more efficient driving and/or better maintenance. The average vehicle travelled 24.117 km in 2013. The 2013 target to reduce $CO_2$ emissions was achieved.

Actual average fleet emissions fell from 228 $gCO_2$/km in 2012 to 217 $gCO_2$/km in 2013. The 2014 target is not to exceed the latter figure. The following specific action was approved to contribute to continuous improvement.

| Since | Description: | Progress in 2013 | Expectations in 2014 and end date |
|---|---|---|---|
| 2013 | Study to replace 2 petrol cars for one electric one | Ongoing | Finished in 2014 or 2015 |

In addition to systematically replacing fleet vehicles having reached the end of their economic life-cycle with more environmentally friendly models (considering features such as lower engine capacity, hybrid technology, bio-fuels, electric power), during 2013 Luxembourg also enrolled drivers in "eco-driving" training courses.

*b) Missions*

There were no specific objectives in 2013 or 2014 targeting reduced $CO_2$ emissions from missions. Initiatives taken in 2013 to encourage staff to explore alternatives producing less emissions included i) evaluating the use of videoconferencing within the Commission; ii) promoting videoconferencing in DGs and; iii) continuing to promote the use of service bicycles.

*c) Staff mobility*

There were no specific objectives in 2013 or 2014 or approved action plans to reduce $CO_2$ emissions resulting from staff mobility. There were fewer bicycle journeys in 2013 (1033) than in 2012 (1320). But this is due to the exceptional cold weather of the first five months of 2013.

Initiatives in 2013 included (i) continued financial support to employees with season tickets for public transport (through the free distribution of the Jobkaart in Luxembourg city public transport networks and the subsidised M-Pass card for the transport network within the Grand-Duchy of Luxembourg); (ii) providing buildings with bicycle parking and showers to encourage staff to bike to work; and (iii) promoting cycling also through encouraging participation in the bike experience programme; and iv) promoting car sharing and v) assisting staff to find partners for car sharing via a dedicated intranet site.

The number of public transport season ticket holders has increased from 90% of statutory Commission staff having a Jobkaart in 2011, to 93% in 2012 and 94% in 2013.

*4.5.3 Total emissions of other air pollutants ($S0_2$, $NO_2$, PM)*

Unlike several other European capitals, air quality is generally good in Luxembourg, as noted by the Environment and agro biotechnology Department in Luxembourg when it mapped air pollution in the Grand Duchy in 2013. Nevertheless, the Commission has actions seeking to improve air quality and associated with road traffic. These include:

- Promoting "soft" mobility by ensuring the availability of bicycles;
- Promoting public transport within Luxembourg city by distributing a free transport pass for the network of the Grand Duchy, by distributing tickets at a reduced price; and
- Considering acquiring electric service cars.

The Commission has 14 buildings and a fleet of 27 vehicles in Luxembourg. Air pollutants are products of combustion typically emitted by boilers and motor engines, so heating installations and fleet cars are potential sources. As indicated in section 4.5.1, the Commission undertook in 2013 to ensure its services prepare reports on how to tackle on air pollution.

In November 2013 a report[38] on emissions testing of four mixed fuel boilers in the EUFO building concluded that all have a combustion efficiency greater than 90%, which is considered acceptable.

No specific quantitative targets were identified in 2013 (other than to evaluate the impact of other greenhouse gases in understanding the atmospheric emissions of $SO_2$, NOx and PM), the 2014 target will be to define the method of reporting on 2013 data.

## 4.6 Improving waste management and sorting

### *4.6.1 General waste*

Figure 4.8 indicates that per capita waste generation in EMAS buildings decreased in 2012 but increased in 2013. Mixed (unsorted) waste and paper/cardboard accounted for a large percentage of waste, 61% and 30% respectively. There were slight decreases in generation of waste from scrap metal, plastic, cans, wood and glass.

The 2013 target of reducing total waste generation by 1% to 110 kg/capita was not achieved. The objective for 2014 is not to exceed 2013's level of waste generation.

Initiatives taken in 2013 included: i) improving the sorting of waste by providing sorting bins; ii) investigate how to reduce the environmental impact of vehicles used to transport waste; iii) a study for the introduction of organic waste separation to be introduced in 2014); iv) establishing a waste prevention and management plan for the JMO, EUFO and CPE III buildings; v) reporting annually on waste, and vi) following specialised training organised by Luxembourg's Environmental Authority.

A 'recycling' working group was set up at CPE and aims to make children aware of the need to recycle and to reduce waste. Recyclable materials have been used for children's activities.

[38] 46919-ev-em- report No 003 of 4 November 2013 by AIB Vinçotte submitted to the Luxembourg Environmental Authority

*4.6.2 Controlled waste*

According to Figure 4.9, total per capita generation of controlled waste has nearly halved between 2011 and 2013, falling from just under 1.8kg to nearly 1kg. Printer cartridges have become a smaller proportion of the total since various paperless strategies were implemented indicating that such strategies will inevitably result in reduced use of other consumables.

The 2013 target was a 1% reduction in per capita generation of special waste (to 1.25kg) which was exceeded). The 2014 objective is not to exceed that of 2013. The following actions have been approved for the continuous improvement:

| Since | Description: | Progress in 2013 | Expectations in 2014 and end date |
|---|---|---|---|
| 2013 | Centralised collection of organic waste from the kitchen and cafeteria | Ongoing | Finished in 2014 |
| 2013 | Removal of polystyrene containers substituted by recyclable cardboard containers | Continuous process | OIL will remain vigilant when the contract is renewed |
| 2013 | Increase in waste sorting. Additionally the replacement of kitchen appliances, (particularly dishwashers) took into account the need to reduce energy (and water consumption) and use less consumable products | Continuous process | Continuous process |

Other initiatives undertaken in 2013 included: i) replacing dangerous product containers; ii) improved storage of oil and other hazardous products; all drums will be stored in a dedicated container (iii) reducing the capacity of the barrels used for oil storage (making them easier to handle); and iv) taking measures to reduce the risk of accidental spillage and the risks to the health of staff who transport the drums.

*4.6.3 Recycling*

Owing to a new project centralising the collection of organic waste from kitchens and cafeterias, it is estimated that sorted waste will be around 40% of total waste generation. This compares with 38% in 2011.

## 4.7 Protection of biodiversity

The Commission, occupies only part of several of its buildings so the total and "natural" area are shared with other tenants. It is difficult to draw conclusions on biodiversity. Accordingly there was no specific target for 2013. The 2014 target is to define a methodology and calculate values for 2013. There is no special measure approved in respect of this indicator.

## 4.8 Green public procurement (GPP)

*4.8.1 Integrating GPP into contracts*

OIL aims to integrate green public procurement in its contracts worth more than EUR 60.000 and has increased the number of contracts incorporating such criteria in recent years.

The 2013 target was to incorporate the green criteria in all contracts over EUR 60.000. Twelve of the 13 contracts signed in 2013 (ie 92%), included such clauses. The 2014 target is to achieve 100% with the following actions:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014 and end date |
|---|---|---|---|
| 2013 | Establishment of a new contract for office supplies, choice of articles for the Eco label products | Ongoing | Systematic implementation |

*4.8.2 Office supplies*

Office supplies provided by a single supplier. 'Green' products accounted for around 18% of the items in their catalogue (99 out of 537) in 2012. The 2013 target was to increase this to 25% (110/418), and this was exceeded with the value achieved of 27.9% (88/391). Supply orders totalled 270.182 EUR, of which 37.922 EUR, or 14% were "green".

## 4.9 Demonstrating legal compliance

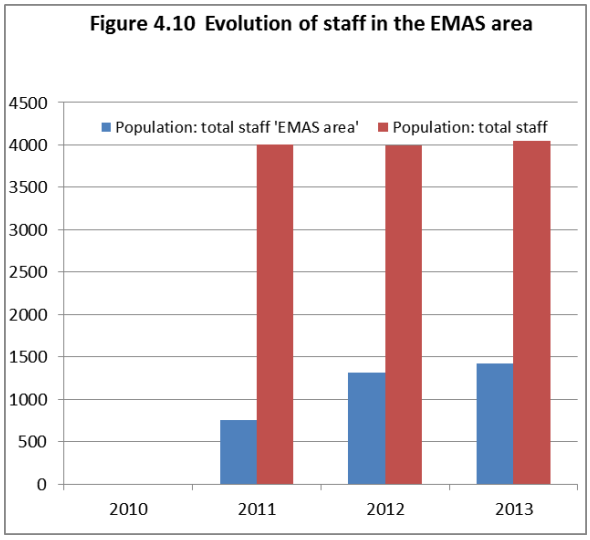
*4.9.1 Risk prevention and management*

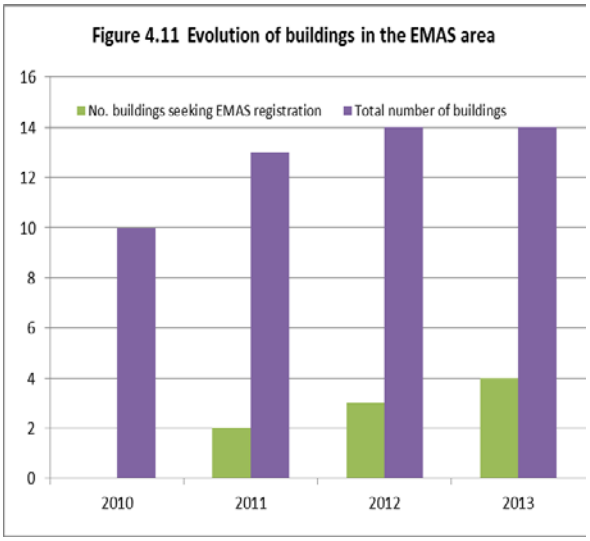
Luxembourg records statistics relating to health, safety and environment inspections in addition to building audit findings. There are typically over 1500 reports per year. It monitors the number of non-compliances that are resolved throughout the year and the percentage of minor and major non-conformities.

The 2013 target of resolving 60% of non-compliances was not met, the actual value being 45%. The 2014 target is 50%. There are no specific objectives in relating to buildings inspections or specific actions related to EMAS.

*4.9.2 Integrating more buildings in EMAS*

Figures 4.10 and 4.11 represent the evolution of the EMAS buildings, and employees.




The number of buildings and staff in the EMAS perimeter has increased since 2011. In 2013 it included 1.422 employees, almost double the 2011 figure (759 employees), whereas the total number of buildings doubled to four.

The 2013 target was to register a third building under EMAS. The 2014 target is to add a fourth which would increase the total useful surface area within the EMAS scheme to 64.703m². The following action plan has been set up to further improve performance.

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014 and end date |
|---|---|---|---|
| 2013 | CPE V building with an area of 9.146 m² above ground will be audited in 2014 | Ongoing | Certification |

*4.9.3 Conformity with the EMAS system*

OIL monitors the EMAS internal audit and verification audit findings in collaboration with HR COORD. OIL is responsible for following up on minor and major non-conformities identified by the audits and verifications.

## 4.10 Internal communication and training)

*4.10.1 Resource Efficiency campaign*

OIL organised a Green Day on 4th June 2013 at the JMO building in Luxembourg. The event was launched by Mr Marco SCHANK, Luxembourg's Minister for Housing and Minister Delegate for sustainable development. Local and regional actors including the 'Europe House' were among the stand holders. Exhibitions on biodiversity, flora and fauna lasted until 17th June 2013. There were approximately 600 participants.

*4.10.2 Sustainable Mobility Campaign*

On 19th September 2013, OIL organised a mobility day in Luxembourg. The events included: i) breakfast for cyclists at BECH, EUFO, DRB, HITEC and JMO buildings; ii) bicycle rides, iii) discovery tours organised by the European Parliament, iv) Inter-institutional poster competitions on mobility at KAD and JMO buildings and the European Court of Auditors buildings. These events attracted approximately 400 participants.

In addition, local activities were organised in 4 services on the promotion of EU Cyclists' Group (EUCG).

*4.10.3 Other specific OIL actions*

Figure 4.12 shows the increasing amount of training on offer and number of staff benefitting expressed also as a percentage of total employed. EMAS training for Newcomers at the Commission is performed twice a month.

In 2013, a total of 335 persons benefitted from a basic introduction to EMAS. Other more specific courses were also held during the year 2013:

1) Responsibility for waste management in the company;
2) Designing and managing safety registers;
3) How to react in the presence of asbestos in the buildings;
4) EMAS training (training for staff in place); and
5) Eco-driving training for drivers

Various awareness-raising activities including videos, communications, newsletter, surveys, meetings were organised, and a training plan for 2014, including:

1) specific training for the EMAS team;
2) training for staff involved in monitoring EMAS i) waste officer (and alternates), ii) catering staff, iii) workshop staff, iv) teaching staff, and v) chauffeurs.
3) general training for OIL and DG ENER professional staff;
4) special training for DG ENER (radiation protection) staff.; and
5) general training for suppliers.

### 4.11 Transparent dialogue with stakeholders

EMAS coordination staff have established and maintain close working relations with the other institutions in Luxembourg including the European Parliament, the European Court of Justice, the Court of Auditors, and the European Investment Bank (EIB), in particular through ECONET meetings (an inter-institutional working group that meets once every two months) and various campaigns. The subjects discussed in 2013 related mainly to improving cooperation with the Luxembourg authorities (in particular with the Ministry of the Environment), and in relation to mobility: i) the creation of an inter-institutional website for car sharing, and ii) installing charging points for electric cars.

### 4.12 Estimation of EMAS running costs and savings

The time cost of staff dedicated to EMAS coordination in 2013, based on full time equivalence is presented below, along with resource consumption costs (EUR/ person):

- 114 for EMAS coordinating staff (3.5 full-time equivalents);
- 746 for buildings energy consumption;
- 30 for water;
- 20 for office paper; and
- 41 for general waste; and 3.51 for controlled waste.

Unit cost data are not available for years before 2013.

# 5 JRC PETTEN – INSTITUTE FOR ENERGY AND TRANSPORT (IET)

JRC-Petten (hereafter referred to as Petten) conducts scientific and technical activities in the domains of energy technology, renewable energy, energy efficiency, security of energy supply and nuclear reactor safety, some of which require experimental facilities and laboratories.

## 5.1 Overview of core indicators at Petten since 2005

Petten has been collecting site data on core indicators since 2010 and the variation in some of the main indicators is shown in Table 5.1.

**Table 5.1: Percentage changes in certain core indicators at JRC Petten since 2010**

| Parameter | From: 2010 | To: 2013 | From: 2012 | To: 2013 | Target 2013 |
|---|---|---|---|---|---|
| | Overall | % per year | Overall | % per year | % |
| Energy bldgs (KWh/p) | -15,0 | -5,00 | 26,3 | 26,3 | -1,00 |
| Energy bldgs (KWh/$m^2$) | -7,4 | -2,46 | 24,9 | 24,9 | -1,00 |
| Water use (l/p) | 67,4 | 22,47 | -32,8 | -32,8 | 0,00 |
| Water use (l/$m^2$) | 82,3 | 27,45 | -33,6 | -33,6 | 0,00 |
| Office paper (kg/person) | -50,3 | -16,77 | -31,0 | -31,0 | -1,00 |
| Office paper (Shts/person/da | -50,3 | -16,77 | -31,0 | -31,0 | -1,00 |
| $CO_2$ bldgs (kg/p) | -18,6 | -6,19 | 25,4 | 25,4 | -1,00 |
| $CO_2$ bldgs (kg/$m^2$) | -11,3 | -3,77 | 24,0 | 24,0 | -1,00 |
| Non haz.waste (kg/p) | 59,8 | 19,93 | 18,6 | 18,6 | -1,00 |

Since 2010 all parameters have decreased significantly except generation of non-hazardous waste. However from 2012 to 2013, in addition to increased waste generation, there was a significant increase in energy consumption which inevitably is accompanied an increase in $CO_2$ emissions.

## 5.2 Description of JRC Petten activities

The site is continuously adapting to changes to meet future needs. Current core competences are in the domains of energy technology, renewable energy, energy efficiency, security of energy supply and nuclear reactor safety. Petten has research laboratories for the testing, characterisation and analysis of different products, components, materials and processes. As a reference laboratory, IET is also validating several types of testing methods.

One of Petten's important activities is the training of EU Member State and candidate country scientists. The IET disseminates scientific results by organising scientific events, participating in conferences and workshops and by writing articles for publication in scientific journals. Through research networks, the results are disseminated to national authorities and research centres, industry, and other interest groups. Furthermore, the Institute represents the EC in several energy issue-related committees. Information on the research projects' objectives and results is available on the internet pages of the Commission, JRC and IET.

The site location and layout of buildings is presented below in Figure 5.1.

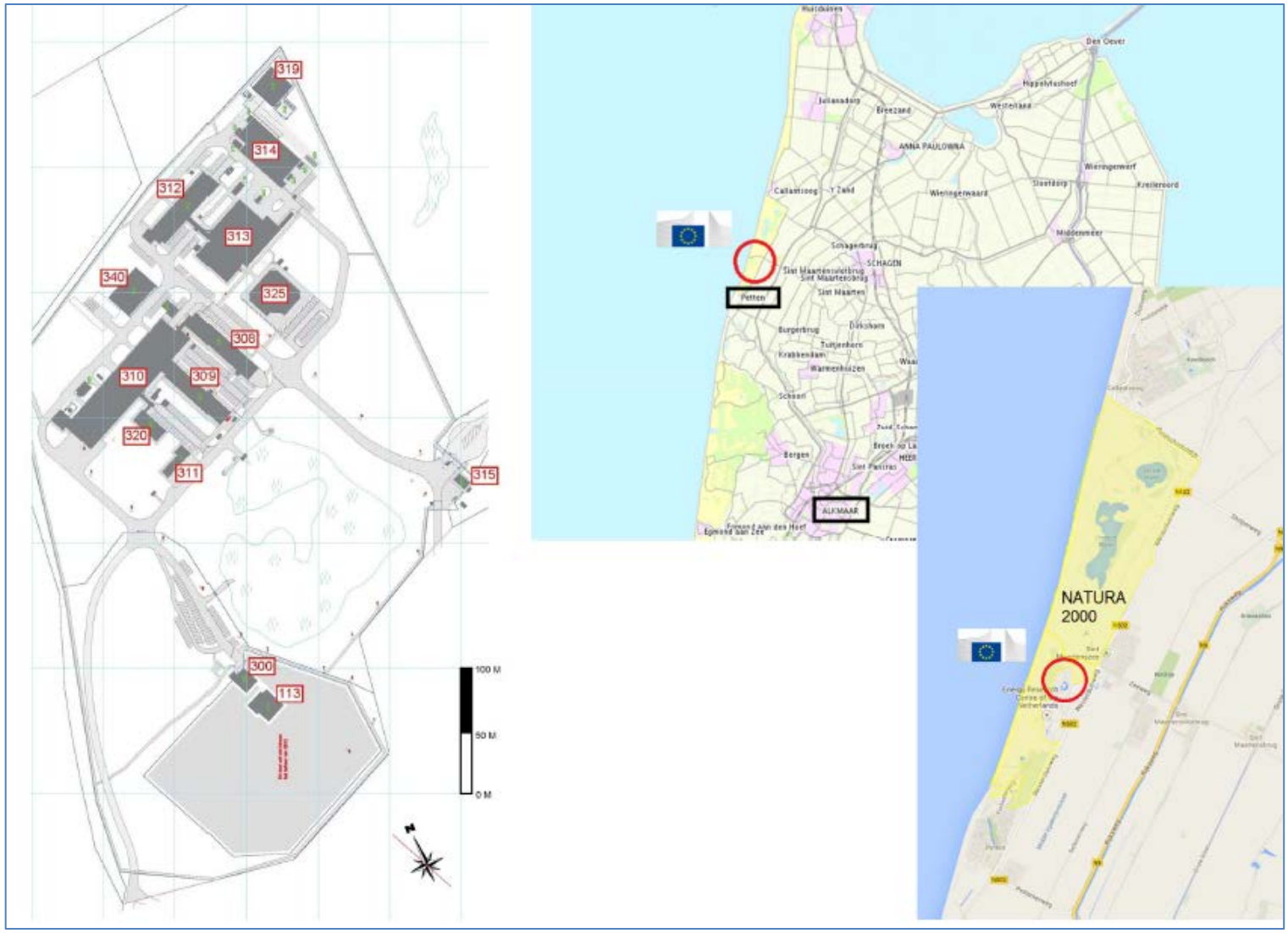



**Figure 5.1: JRC Petten: Site location and layout**

The EC owns the High Flux Reactor (HFR) located at the site. However it is operated by Dutch company NRG which also holds the operational licence and consequently is outside the EMAS scope. Buildings 113 (the radiographic laboratory), and 114 (a storage container for redundant components) located adjacent to the HFR, but outside the continuous perimeter of the remainder of the Petten site, are included within EMAS, although the latter was removed in 2013 and the process of transferring building 113 under the license to NRG is still ongoing. A description of the buildings is presented below:

| Building(s) | Description (and/or status) |
|---|---|
| 308, 309 | Office buildings |
| 310 | Large experimental hall |
| 312, 325 | Office building with some smaller laboratories |
| 313 | Offices, central store, mechanical workshop, storage, library, gym |
| 314/319 | Office, laboratory, workshop |
| 320 | Offices |
| 300 | Security, entrance to HFR, operated by the Dutch company NRG, located on HFR |
| 315 | Security |
| 340 | Storage (maintenance, cars, workshop) |
| 113/114 | Laboratory, to be transferred to NRG, located on the HFR site |

## 5.3 Environmental impact of JRC Petten activities

The results of the analysis of environmental aspects at Petten are summarised in the table below, which is reviewed and updated every year.

**Table 5.2 – Summary of significant environmental aspects for the Petten site**

| Aspect Group | Environmental Aspect | Environmen-tal Impact | Location/Activity/Product/Service |
|---|---|---|---|
| Air, Energy (gas, electricity, fuel) | Emission of gases (argon, carbon monoxide, etc.) | Pollution of the air, climate change, exploitation/ depletion of natural sources | FCTEST (fuel cell testing) |
| | Emissions of combustion gases (CO2 and NOx) | | General, Hydrogen Production, Transport and mobility (missions, commuting, service cars) |
| | Emissions of testing gases | | HySaST SolTeF (Hydrogen Safety for Storage and Transport, SolTef-laboratory). AMALIA lab (Ageing of Materials under the effect of environmentally assisted stress corrosion cracking). |
| | Welding (smoke), emission of aerosols to the air (VOC, volatile organic compounds) | | Assembly Room, workshop |
| | Cleaning chemicals, emissions of solvents to the air (VOC) | | Workshop |
| | Energy for building heating, climate control, steam generator, machines, household utilities, lightning etc. | | General |
| | Energy saving measurements taken into account for putting up new buildings or rebuilding existing buildings | | Infrastructure |
| | Energy consuming hardware: purchase of materials, equipment and machines | | IT-service, Infrastructure |
| | Geothermal cooling, use of groundwater for cooling process with Fuel cell testing | Warming of groundwater | FCTEST |
| | H(C)FC emissions | Destruction | Climate control buildings |

| Aspect Group | Environmental Aspect | Environmen-tal Impact | Location/Activity/Product/Service |
|---|---|---|---|
| | | of the ozone layer | |
| External Safety (hydrogen, storage dangerous substances, pressure, radiation) | Hydrogen in production/testing facilities, adequate ventilation and gas detection equipment | Disturbing / pollution of living environment. Health risks. | FCTEST, HySaST SolTeF, Hydrogen Production |
| | Storage of hazardous substances | | Micro Structured Analysis (MAS), Sample Preparation, Central Store |
| | Use and storage of gas bottles and (high) pressure equipment | | FCTEST, AMALIA lab, Assembly Room, Workshop, HySaST SolTeF |
| | Radioactive material | | Assembly Room, Commissioning area |
| Local aspects | Noise, dust (PM), soil (prevention and history) | Noise, air and soil pollution, health risks | FCTEST, Hydrogen Production, HySaST SolTeF, Laboratory , grinding room, workshop |
| Waste | Various waste (e.g. packaging material, paper and cardboard, metals) | Exploitation of renewable materials, producing waste | General |
| Waste (chemical, dangerous) | Chemical Waste, 'Klein Chemisch Afval' (e.g. batteries), scrap from material used, hazardous waste mainly from Metallography, TEM and SEM | | Grinding room, Wire-erosion, HySaST SolTeF, MAS, Sample Preparation, Central Store |
| Waste water | Waste water (housekeeping: cleaning, sanitation and installations) | Risk of eutrophicatio n, pollution of water | General |
| | Salted water, production of deionized water by reversed osmoses | | FCTEST, Hydrogen Production |
| | Cleaning / rinsing water, cleaning of testing materials and equipment | | Micro Structured Analysis (MAS) |
| | Heavy metals, waste water contains heavy metals due to grinding | | Grinding room, wire-erosion |
| Water (use of) | Water for Sanitation and installations, water consumption | Drying of ground, waste water | General |
| Bio - diversity | Choice of ingredients and their origin | Weakening of ecosystems | Research and process/activities on site |
| | Site selection and type of buildings | Destruction of the natural habitat of the relief. Visual pollution | The (real estate/environmental) policy of the EC and JRC Petten site |
| Resources | Fossil fuel consumption (heating, cooling, ventilation, electrical equipment and transportation) | Decrease in natural resources | General |
| | Use of paper (office, printing, communication needs) | | |
| | Water consumption (health and technical equipment. i.e. Geothermal installation) | | |
| Procureme nt, funding (indirect) | Indirect environmental aspects of programs to finance. Environmental performance of contractors. Sustainability and impacts of products and services selected. | Impacts on the environment caused by third parties, products and in the 'chain' | 'Sustainable' purchasing: taking account of the environment in the selection and evaluation of projects. Integration of environmental clauses in contracts. |

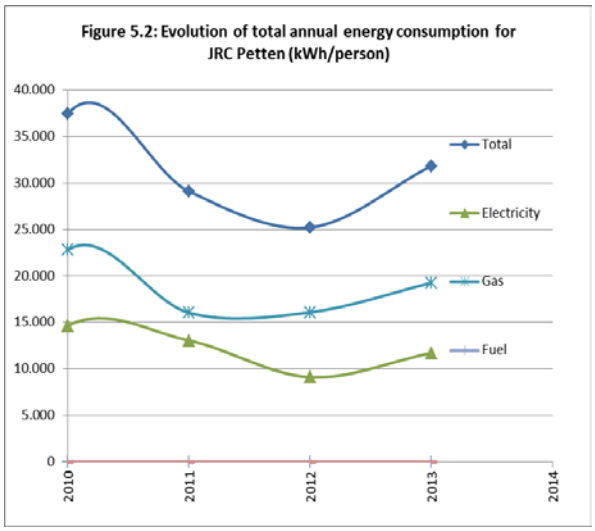
The environmental aspects in the table above are significant, based on the results of the environmental analysis. Petten is taking measures to prevent pollution and to achieve more efficient use of natural resources (mainly energy, water and paper). A majority of the impacts are followed through the monitoring of indicators.

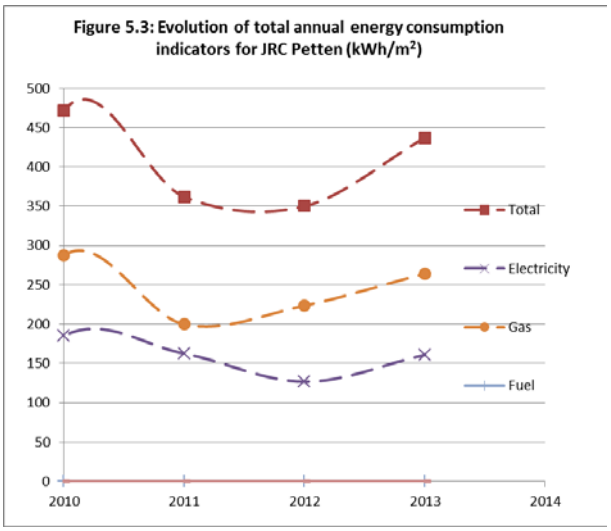
## 5.4 More efficient use of natural resources

### *5.4.1 Energy consumption*

*a) Buildings*

Because Petten is a scientific site the consumption of energy and water depends to a significant extent on the activities in laboratories: energy-intensive experiments in one year may be followed by less energy-demanding experiments in the following year. This can give rise to sharp increases or decreases from year to year. Currently no distinction is made between energy and water consumption in offices and in laboratories.




Figures 5.2 and 5.3 illustrate that total energy consumption for buildings (indicator 1a) fell considerably between 2010 to 2012. In 2013 it increased by approximately 20% per person and per square metre as a result of an unusually cold period from January to May 2013. Overall there was a significantly larger number of both hot and cold degree days in 2013 than in 2012 as shown below:

| Comparison of Hot Degree Days (HDD, winter) and Cold Degree Days (CDD, summer) | | | | | | |
|---|---|---|---|---|---|---|
| | 2012 | | | 2013 | | |
| | HDD | CDD | Total | HDD | CDD | Total |
| JRC Petten | 2,117.0 | 272.0 | 2,389.0 | 2,301.0 | 290.0 | 2,591.0 |
| % change 2012-13 | | | | 8.7 | 6.6 | 8.5 |

In 2013 the air treatment and cooling installations in building 308 operated continuously giving rise to extra gas and electricity consumption. The Fuel Cell laboratory (building 301) consumed more gas for steam production due to specific experiments than is normally the case.

The **2013 target** of a 1% reduction in per capita (and per square metre) energy consumption was not met due to the above mentioned cold period. The **2014 target** is to maintain 2013 levels. Initiatives for continued improvement identified in management approved action plans for are summarised below and registered in the IET Environmental plan 2014.

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date (if app) |
|---|---|---|---|
| 2013 | Photovoltaic installation at JRC Petten. Installation of photovoltaic panels on the roof of building 310 - 120 kWp. | Installation of 24 kWp | Installation of 120 kWp to be complete in 2014 |
| 2013 | Assess automated information on energy and water usage by the building management system and introducing a way for evaluation and reporting to the units. | Started | To continue in 2014 |
| 2013 | Study for (additional) environmental measures, with the focus on renewable energy and reduction of the energy and water consumption. The outcome will be ready medium 2014. The results will be translated to concrete projects and carried out in the second half of 2014 and in 2015 and 2016. | Started | To continue in 2014 |

*b) Site vehicles*

Petten has a fleet of just two diesel and one petrol vehicle. There there was no **2013 target** for improved performance. The total energy consumption for vehicles (new indicator 1b) was equivalent to 23 kWh/person, approxiamtely 0.001 % of that for buildings. The **2014 target** is to reduce fleet consumption by 2%.

*c) Renewable energy use in buildings and vehicles*

The **2013 target** for overall renewable energy use of buildings (indicator 1c) represented was 1.6% of total buildings energy consumption to be supplied by photovoltaic cells installed onsite. The **2014 target** is to increase this to 2.3%.

*5.4.2 Water consumption (indicator 1d)*

Figure 5.4 illustrates that water consumption after increasing in 2011 has reduced in 2013. The peak observed in 2011 and 2012 was due to faulty valve control in the water treatment plant of the Fuel cell laboratory in building 310. The Fuel cell laboratory required less water in 2013 leading to lower overall water consumption than in the two previous years. Site water consumption is strongly influenced by activities in building 310, where it is used as process water in technical installations. In 2013 there were periods of very low water consumption on site due to repairs in building 310.

The **2013 target** of not exceeding the 2012 consumption levels was easily achieved with an actual reduction of 34%. The **2014 target** is to not exceed 2013 levels.

*.5.4.3 Office paper (indicators 1e)*

Figure 5.5 shows that paper consumption has reduced considerably since 2010, with the 2013 value representing only 50% of the initial figure. The apparent peak in 2012 may not be real, as paper is purchased infrequently and in large quantities.

The **2013 target** of reducing office paper consumption by 1% was met with an actual reduction of 32%, although as mentioned above this may be due to purchasing patterns rather than those of usage. The **2014 target** is not to exceed the 2013 level of consumption.

The following initiative was identified in a management approved action to more accurately determine paper consumption:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Implement a plan to more accurately measure paper inventory | Started | To continue in 2014 |

## 5.5 Reducing emissions of $CO_2$, other greenhouse gases and air pollutants

*5.5.1 $CO_2$ emissions from buildings*

The following table shows the breakdown of $CO_2$ emissions by source. These are mainly the result of the reduction of buildings emissions. Refrigerants losses and vehicles emissions, expressed as $CO_2$ equivalent, are minor in relation, accounting for less than 1% of buildings emissions.

**Table 5.3: Percentage of $CO_2$ emissions from different sources in 2013 (kg/person)**

| Source | Quantity | % of total |
|---|---|---|
| Buildings (EMAS) | 11.789 | 99,78 |
| Refrigerants loss | 20,25 | 0,17 |
| Vehicles, all Commission | 5,53 | 0,05 |
| Missions (excluding vehicles) | | 0,00 |
| **Total** | **11.815** | **100,00** |

*a) Buildings (energy consumption)*

Figure 5.6 illustrates that $CO_2$ emissions have reduced since 2010; the 2013 per capita value representing 81% of the initial figure. This is in line with the reduction in energy consumption and therefore to be expected.

The **2013 target** of a 1% reduction in $CO_2$ emissions was not met with an actual expansion of 24%, mostly due to extra gas and electricity use in the cold period from January to May 2013. The **2014 target** is to maintain the 2013 level of emissions.

*b) Buildings other greenhouse gases (refrigerants)*

The **2013 target** under the IET environmental plan was to reduce GHG emissions by 1%, and this was not achieved. The **2014 objective** is for these emissions not to exceed the 2013 levels. Petten has the following management approved plan in place to phase out installations with R22:

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2014 | Phase out all the R22 containnig air conditioning units located within the institute before 2014 | Ongoing | To finish in 2014 |

Under this (and previous action plans) the number of equipment units to phase out is as follows:

**Table 5.4: Phase out of equipment (with HCFC, R22), number of units left at end of year**

| | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Total** | 15 | 10 | 7 | 4 |

*5.5.2 $CO_2$ emissions from vehicles*

*a) JRC Petten vehicle fleet*

The **2013 target** of reducing emissions from its five vehicles (of which one electric) by 1% was not met. The manufacturer's actual fleet emissions recorded for 2013 as 242.4 gCO2/km. The **2014 target** for emissions is to reduce the energy consumption of service cars by 2% in relation to 2013.

*b) Missions (excluding Commission vehicle fleet)*

There were no specific targets in 2013 or 2014 or management approved action plans to reduce $CO_2$ emissions from missions.

*c) Commuting (and mobility)*

There were no specific Petten targets in 2013 or 2014 or management approved action plans to reduce $CO_2$ emissions from commuting.

*5.5.3 Total air emissions of other air pollutants ($S0_2$, $NO_2$, PM, VOC)*

The **2013 target** was to reduce atmospheric emissions of $SO_2$, $NO_x$ and PM expressed in kg/year by 1%. The **objective for 2014** is to reduce (or at least not exceed) the 2013 emissions levels. Both PM10 and $SO_2$ were below the limit of detection in 2013, in common with 2012. VOC emissions were 21 kg in 2013, down from 25 kg in 2012 due to reduced use of solvents.

NOx emissions from heating installations were 779 kg in 2013 compared with 660 kg in 2012. This represented an 18% increase due to higher gas consumption of heating installations during the cold period lasting from January to May 2013. The NOx emission factors of the gas heating equipment of buildings 310, 311 and 320 are based on technical documentation and account for about 50% of total NOx emissions as was the case in 2012. The NOx emission factors of the gas heating equipment of all other buildings are based on NOx measurements. The logbooks record measured emissions as being within the legal limits.

For emissions to air of $NO_x$, PM, VOC and $SO_2$, there were no actions implemented in 2013 and no specific actions planned for 2014. The targeted reductions will be achieved through campaigns of general awareness reminding staff of the importance of reducing resource consumption.

## 5.6 Improving waste management and sorting

*5.6.1 General waste*

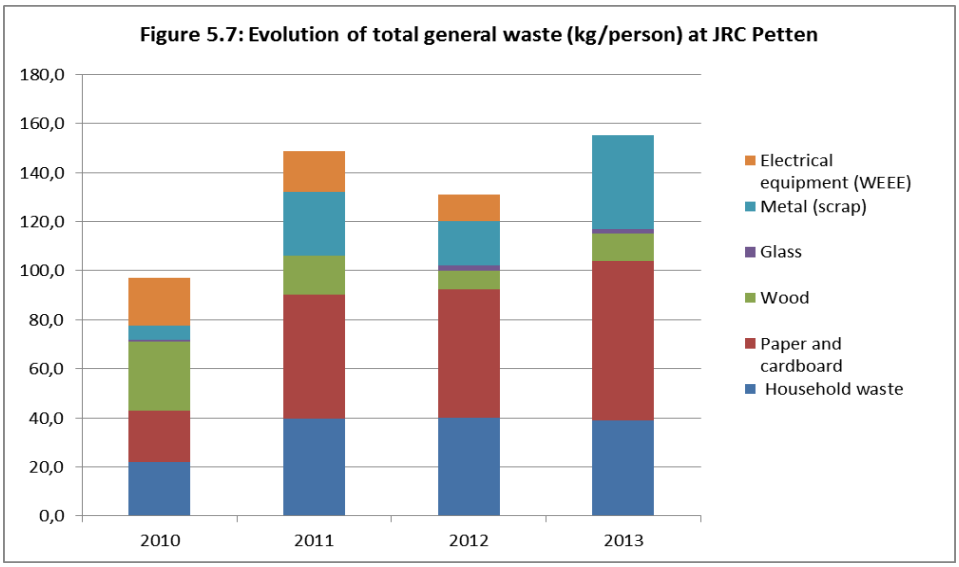



Figure 5.7 shows that household and paper/carton waste make up a large percentage of the waste and with quantities generated remaining almost stable over the last three years. There has been a greater than 20% increase in the total amount of general waste generated in each of the last three years compared with 2011. This is due to the collection of large amounts of scrap (particularly in 2013), as several installations reached the end of their life span. Unlike in previous years no electrical equipment waste was generated in 2013, a large clean up having occurred in 2012. Though some waste electrical equipment was gathered throughout the year, this was placed into temporary warehouse storage and there was no need for waste collection.

The **2013 target** of a 1% reduction in total waste generation was not met with an actual increase of 19%. The **2014 target** is not to exceed the 2013 waste generation levels. There are no specific management approved **actions** for continued improvement.

*5.6.2 Controlled Waste*

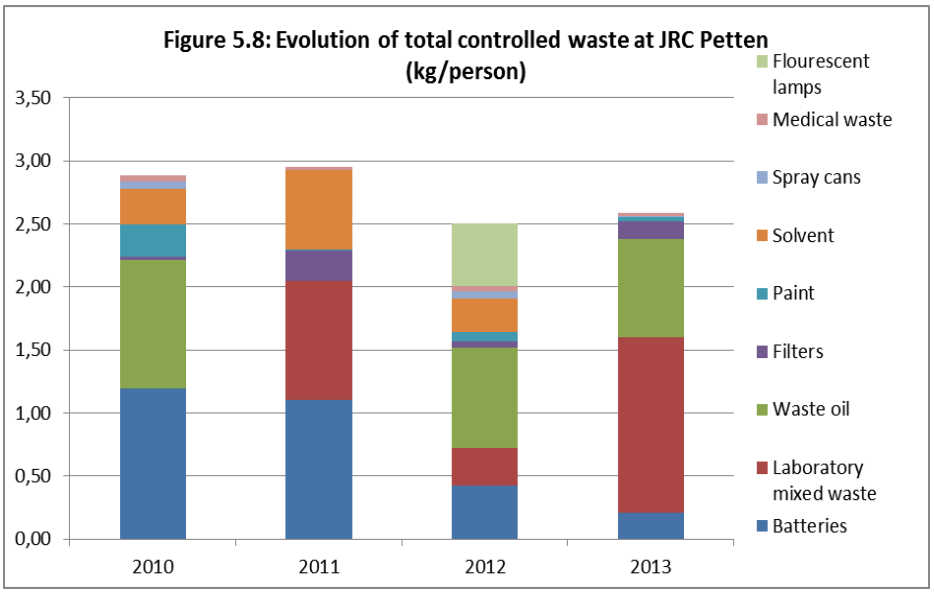



Figure 5.8 indicates total controlled waste has averaged 2kg to 3kg per person in recent years. Laboratory mixed waste became the largest contributor in 2013 because several laboratories were cleaned during the year. There **2013 target** was for a 1% reduction in controlled waste, with the **2014 target** to maintain the level of 2013.

*5.6.3 Waste sorting*

**Table 5.5: Percentage of waste sorted at JRC Petten**

| | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| Percentage of waste sorted | 78,2 | 74,3 | 70,1 | 76,1 |

Table 5.5 shows that the proportion of total waste sorted has remained between 70 and 80% over the last four years, however a 9% improvement was recorded in 2013. There was no specific **2013 target** for sorting waste, and the **2014 target** is to achieve the 2013 level of performance.

*a) Discharges to wastewater*

Petten discharges wastewater under its Environmental Permit and is required to undertake sampling on a regular basis, results of which are shown in Table 5.6.

| **Table 5.6 Control of discharges to wastewater** | | Concentration (mg/m3) | | | |
|---|---|---|---|---|---|
| Substance | Limit mg/m3 | Inorganic emissions to the sewer system | | | |
| | | **2010** | **2011** | **2012** | **2013** |
| Chloride (Cl-) | - | 260 | 200 | 170 | 210 |
| Evolution % | | 0 | -23,1 | -15 | 24 |
| **Release of heavy metals to the sewer system** | **0** | | | | |
| Mercury (Hg) - Limit 10mg/m3 | 10 | <0,3 | 0,14 | <0.1 | <0.1 |
| Δ % | | 0 | 0 | 0 | 0 |
| Cadmium (Cd) - Limit 20mg/m3 | 20 | <0,4 | <0,4 | 0,71 | <0.4 |
| Δ % | 0 | 0 | 0 | 0 | 0 |
| Zinc (Zn) | | 180 | 140 | 300 | 300 |
| Δ % | | 0 | -22 | 114 | 0 |
| Copper (Cu) | | 190 | 220 | 130 | 160 |
| Δ % | | 0 | 16 | -41 | 23 |
| Nickel (Ni) | | 14 | <5,0 | 11 | 5 |
| Δ % | The sum of 5 metals: 5,000 | 0 | 0 | 0 | -55 |
| Chromium (Cr) | | 15 | 6,3 | 5 | 5 |
| Δ % | | 0 | -58 | -21 | 0 |
| Lead (Pb) | | <5 | <5,0 | 14 | 5 |
| Δ % | | 0 | 0 | 0 | -64 |
| Arsenic (As) | | <2 | <1,5 | 1,7 | 1,5 |
| Δ % | | 0 | 0 | 0 | -12 |
| Metals: the sum of the 5 highest values - 5000 mg/m3 | 0 | 399 | 366 | 462 | 475 |
| Δ % | | 0 | -8 | 26 | 3 |

*Exceeding the legal limit as a result of building 113. Corrective actions have been taken.

**collected in separate tanks and emptied by an external certified company, in m3

***Equals the consumption of water plus the water FCTEST facility (489 m3), minus water collected from chemical laboratories in 312

The data indicate the concentrations in wastewater are below license limits, and therefore demonstrate that Petten complies with the sampling requirements of its wastewater licence (which now forms a part of the environmental licence), for the determinants mentioned above. Although the wastewater permit requires sampling once per year, in order to establish a more complete data series and to better be able to evaluate and react more quickly where necessary to adverse trends, Petten carries out the measurements twice per year. The verification audit of 2013 indicated that better on site record keeping was required including maintaining a logbook.

The action planned for 2013 to adjust the scope of analysis to include mineral oil and EOX (Extractable Organic Halogen compounds) was completed.

## 5.7 Protecting biodiversity

The constructed area of buildings (footprint at ground level) in Petten is 13,365 $m^2$, equivalent to 51 $m^2$ for each staff member. The total area of the site is 305,554 $m^2$, so the "natural" proportion of the site represents approximately 97% of the total.

There was no specific **2013 target** in relation to biodiversity at the Petten site: the objective in 2012 having been to report on the Natura 2000 site in the Environmental Statement. The **2014 target** is to develop and implement a Natura 2000 Control Plan with the Dutch authorities according to the following management approved action.

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2014 | Development and implementation of a NATURA 2000 Control Plan with the Dutch authorities | NA | Systematic development and implementation |

## 5.8 Green Public Procurement

### *5.8.1 Incorporating GPP into procurement contracts*

No specific actions have been undertaken in 2013 but environmental criteria have systematically been considered when defining selection and award criteria, mandatory technical requirements, etc. for every relevant tender procedure. The **2014 target** will be to apply GPP measures developed for the EC and all JRC activities as identified in the following management approved action:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2014 | Green Public Procurement will be developed for the EC and all JRC activities. JRC Petten will implement the GPP procedure when ready. | NA | Systematic implementation |

### *5.8.2 Office supplies contract*

There was no specific **2013 target** and no 2014 target for the number of "green" products in the office supply catalogue.

## 5.9 Demonstrating legal compliance

### *5.9.1 Prevention and risk management*

Petten conducts active risk and compliance control on analysis, verification planning, execution, registration and carries out a yearly task oriented full review of all legal requirements. The result is an overview of KPIs, results, effects and the status of compliance along with an appreciation of what is and isn't working well. Employee involvement is important, and several instruments are used including:

- Register of (legal) requirements and obligations;
- Annual licence compliance checks (self-assessments);
- Overview legal maintenance and inspections;
- Assurance matrix (implementation in 2014);

- Safety and Environmental Unit Tours (inspection by Unit Head and Site Safety Officer);
- Inspection, by site fire brigade, of the facilities for fire prevention, detection and of fire fighting equipment;
- Internal and external audits; and
- EMAS overview of accountability (checking that the quantitative and qualitative presented data and information in the EMAS Environmental Statement is correct).

*5.9.2 Maintaining the site's EMAS registration*

The **2013 target** was re-certification of the existing ISO 14001 and EMAS verification for the first time, both of which were achieved. The 2014 target is to maintain the EMAS certification for the entire site. The following management approved action plans were identified to further improve performance.

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Revision of the site's environmental license | Ongoing | Continue in 2014 |
| 2013 | Development and implementation of an overview of all legal requirements and other obligations, and translation of the legal requirements/obligations towards assurance measurements and implement it in the organization. | Ongoing | Continue in 2014 |
| 2013/14 | Environmental tours: include environmental aspects in the safety and environmental tours | Ongoing | Continue in 2014 |
| 2013/14 | Environmental programme 2015-17: review the achievement of the environmental programme 2012-14 and prepare of the new 3 year programme (2015-17). | Ongoing | Continue in 2014 |

*5.9.3 Compliance with EMAS*

The number of (minor) non-conformities generated through EMAS external verifications reduced to one in 2013. Petten monitors the findings of EMAS internal audits and verification audits, and in cooperation with HR COORD ensures that non conformities as well as "scopes for improvement" are followed up.

## 5.10 Internal communication (and training)

*5.10.1 Internal communication*

There have been several internal communication actions such as: EMAS newsletter to all staff in JRC-Petten, presentation of EMAS system during Unit and Management meetings and EMAS posters' campaigns in accordance to the corporate communication campaigns.

*5.10.2 Internal trainings*

Figure 5.9 shows the evolution in site based training. There were specific awareness and training packages available in 2013, and the **2014 target** is to maintain these.

Regarding awareness, in 2013, the SES (safety, environment, security) unit participated in one Management Meeting, eight Unit meetings, seven newcomers trainings and four Health and Safety Committee meetings.

Regarding training: there were two sessions for BHV refreshment, two for lifting weights safely, one on freeing passengers out of lifts, four on ergonomics at PC work places, one each on gas safety awareness, OHSAS 18001 auditing, self-contained breathing apparatuses and four first aid.

## 5.11 Transparent dialogue with external partners

Petten enters into regular external communications, where environmental issues are on the agenda, including participating in meetings with the following stakeholders, contractors and suppliers:

- Gemeente Schagen, relevant in the context of the Omgevingsvergunning (Env.permit)
- Provincie Noord-Holland, relevant in the context of groundwater en 'koude warmte opslag' (Geothermal cooling, cold heat storage)
- Hoogheemraadschap Hollands Noorderkwartier, relevant in the context of wastewater pollution measurements/levy
- GEA Grenco - Maintenance cooling equipment
- SITA - waste
- Victoria - Cleaning
- NUON - Energy supply
- ECN + PWN - water supply
- Cofely - maintenance heating and ventilation equipment
- AMART - wastewater pollution measurements 'afvalwaterputten'

## 5.12 EMAS costs (and savings)

The following table indicates how costs have evolved for running EMAS and for expenditure on energy, water, paper consumption and waste disposal.

| Table 5.7 EMAS costs (and savings) | Costs | | | Cost savings compared to | |
|---|---|---|---|---|---|
| | 2010 | 2012 | 2013 | 2010 | 2012 |
| Total Direct EMAS Cost | 0 | 66.000 | 66.000 | -66.000 | 0 |
| Total Direct Cost per employee | 0 | 248 | 251 | -251 | -3 |
| Total buildings energy cost (Eur) | 430.950 | 324.714 | 399.680 | 31.270 | -74.966 |
| Total buildings energy cost (Eur/person) | 1.858 | 1.221 | 1.520 | 338 | -299 |
| Total fuel costs (vehicles) (Eur) | 0 | 820 | 957 | -957 | -137 |
| Total energy costs (Eur/person) | 0 | 3 | 4 | -4 | -1 |
| Total water costs (Eur) | 5.338 | 15.250 | 10.130 | -4.792 | 5.120 |
| Water (Eur/person) | 23 | 57 | 39 | -16 | 19 |
| Total paper cost (Eur) | 15.632 | 12.912 | 8.805 | 6.827 | 4.107 |
| Total paper cost (Eur/person) | 67 | 49 | 33 | 34 | 15 |
| Waste disposal (general) - unit cost/tonne | 90 | 90 | 90 | 0 | 0 |
| Waste disposal (general) - Eur/person | 9 | 12 | 14 | -5 | -2 |
| Waste disposal (hazardous) - unit cost/ton | 750 | 750 | 750 | 0 | 0 |
| Waste disposal (hazardous) - Eur/person | 2 | 5 | 2 | 0 | 2 |

Costs associated with running EMAS include the combination of staff time and consultancy contracts which are recorded since 2012. In 2013 these were equivalent to 251 EUR per person, little changed from 2012.

Energy expenditure in 2013 was 338 EUR less per person than in it had been in 2010. There had been a larger reduction in energy expenditure between 2010 and 2012 (over 500 EUR per person), but energy costs were significantly higher in 2013 when an additional 299 EUR per person was spent compared with the previous year. Vehicle fuel expenditure in 2013 was 137 EUR per person more than in 2012.

Water and paper costs were both lower in 2013 than they had been in 2012, with water costing 18 EUR less per person (but 16 EUR more than in 2010). Savings per employee for paper over the same period was greater, with paper cost per employee in 2013 being 34 EUR less than it had been in 2010, and 15 EUR less than in 2012.

Per capita costs for general waste disposal have risen to around 14 EUR, and remain far higher than those for hazardous waste disposal equivalent to approximately 2 EUR.

# 6 JRC GEEL – INSTITUTE FOR REFERENCE MATERIALS AND MEASUREMENTS (IRMM)

JRC-Geel (hereafter referred to as Geel) hosts several facilities including laboratories that conduct scientific and technical activities in multidisciplinary areas including aviation security, health diagnostics, food and feed safety, food authenticity, advanced materials, nuclear safeguards, nuclear safety and security. Geel is a recognised provider of quality assurance tools such as certified reference materials, validated analytical methods, proficiency testing and guidelines; thereby helping to improve the measurement capabilities not only of laboratories in EU Member States but also worldwide. The institute leads the market in the provision of Genetically Modified Organisms (GMO) reference materials. It is also the second largest producer of matrix certified reference materials worldwide. The IRMM was the first European reference material producer to obtain accreditation according to ISO Guide 34 and it is accredited by the Belgian Accreditation Body (BELAC) for measurement benchmarks according to ISO guidelines.

Among other activities, Geel staff also contribute significantly to the work of standardisation bodies, amongst those the European Committee for Standardisation (CEN) and the International Organization for Standardization (ISO). Many testing methods validated by Geel together with its collaborators have been approved as standards of CEN and ISO. The Institute's work in the field of metrology and standardisation is widely recognised. For instance, various technical committees of ISO use expert advice from Geel on reference materials for their specific application fields.

The EC owns the Geel Linear Nuclear Accelerator (GELINA) as well as the Van de Graaff (VDG) accelerator, both hosted at the Geel site. The energy consumption of both accelerators varies according to the work programme and activities programmed throughout the year. During periods when neither accelerator is used, the site consume less energy. However, when both are active, significant more energy is needed in order to perform the nuclear data measurements; essential for environmental monitoring activities, safety, security and healthcare.

## 6.1 Overview of core indicators at JRC Geel since 2011

Geel has been reporting on EMAS parameters since 2013 with data mostly dating back to 2011. The variation in indicators is shown below.

**Table 6.1: Percentage changes in core indicators at JRC Geel since 2011**

| Parameter | From: 2011 | To: 2013 | From 2012 | To: 2013 | Target 2013 |
|---|---|---|---|---|---|
| | Overall | % per year | Overall | % per year | % |
| Energy bldgs (KWh/p) | **-6,3** | -3,16 | **-6,2** | **-6,2** | -1 |
| Energy bldgs (KWh/$m^2$) | -1,2 | -0,58 | -0,7 | -0,7 | -1 |
| Water use (l/p) | **-18,4** | **-9,20** | **-11,8** | **-11,8** | -1 |
| Water use (l/$m^2$) | **-13,9** | **-6,94** | **-6,0** | **-6,0** | -1 |
| Office paper (kg/person) | No data | No data | **-12,5** | **-12,5** | -1 |
| Office paper (Shts/person/day) | | | **-12,5** | **-12,5** | -1 |
| $CO_2$ bldgs (kg/p) | **-7,2** | -3,58 | **-6,9** | **-6,9** | -1 |
| $CO_2$ bldgs (kg/$m^2$) | -2,0 | -1,01 | -1,3 | -1,3 | -1 |
| Refrigerants lost | No data | No data | No data | No data 0,0 | |
| Non haz.waste (kg/p) | **-31,3** | **-15,67** | **-44,3** | **-44,3** | -1 |

It is evident that there have been significant reductions since 2011 in all parameters other than energy consumption and $CO_2$ emissions per square metre. These two indicators increased because the total useful surface area of all buildings in the EMAS area ($m^2$) decreased owing to the Acomal (030) and Safety buildings (140) being demolished in the autumn of 2012.

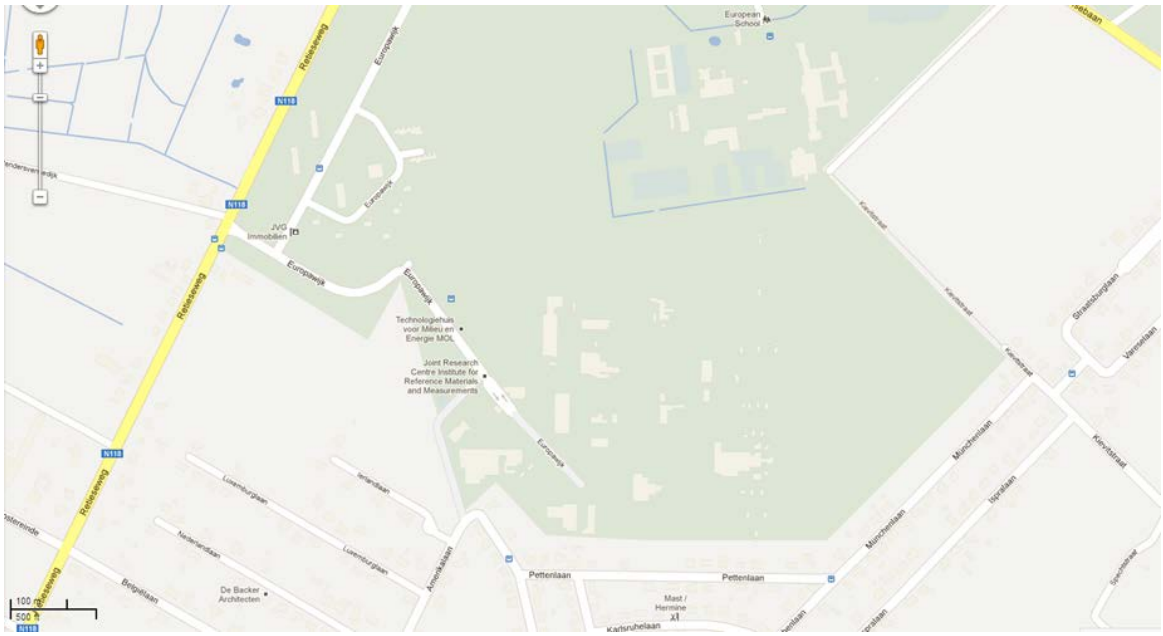
## 6.2 Description of JRC Geel activities

**Figure 6.1a: Location of JRC Geel (North of the city of Geel)**

The site is located in Belgium, 80 km to the north east of Brussels as shown below in Figure 6.1a.

The facility has grown over the years to suit the changing requirements of the research world and IRMM's role. In general site development was organised around the existing infrastructure. Buildings were expanded to meet immediate needs. Parts of the research units were located in existing buildings subject to available space at the time. This led to the accumulation of a "historical deficit" in infrastructure which is now a major hindrance in achieving the vision and objectives for the 2020 strategy. The facilities are spread throughout the site as shown below.

**Figure 6.1b: IRMM site, main access street and surroundings**




### *6.2.1 Analytical laboratories*

Geel has more than 100 analytical laboratories carrying out state-of-the-art chemical, biochemical, microbiological, biotechnological, and physical analytical work on fields such as food safety and quality, environment, clinical measurements, aviation and nuclear safety and security. The laboratories include a clean chemical laboratory for analysis of trace amounts. For biotechnological research, the institute has laboratories operating at biosafety level 2 (BSL 2) allowing work with hazardous materials. A biosafety level 3 (BSL 3) laboratory is currently undergoing commissioning.

Instruments cover the full range of spectrometric including isotopic mass spectrometric, chromatographic and hyphenated techniques in addition to state-of-the-art sample preparation techniques. The IRMM also has mass metrology instrumentation enabling ultra-precise weighting.

### *6.2.2 Reference materials processing and storage facility*

There is increasing worldwide demand for new reference materials for a broadening range of applications and sampling requirements. The IRMM is the second largest certified reference material (CRM) provider worldwide and is the market leader in provision of GMO reference materials. The range of materials analysed at Geel varies from pure chemicals (including nuclear materials) to agricultural, food and environmental samples. In 2006, IRMM renewed its reference materials production facilities and created a scientific and technical facility bridging the gap between laboratory and industrial scale with specialised laboratories and a versatile pilot plant for material processing. Four different reference materials can be processed simulataneously without any risk of cross-contamination. This facility is unique amongst the major producers of reference materials worldwide.

Geel has state-of-the-art storage facilities for reference materials with rooms catering for temperatures ranging from 18°C to -150°C. Storage conditions in the IRMM and at its five authorised distributors are monitored constantly. The IRMM has currently over half a million reference material samples from the 700 different types of materials produced.

### *6.2.3 Nuclear laboratories*

Measurements of neutron-induced reactions and cross-section standards, and absolute measurements of radiation i.e. radionuclide metrology, have been key activities at Geel since it started operations in 1960. It focuses on neutron data for standards, safety of operating reactors, handling of nuclear waste and waste transmutation and investigating alternative reactor systems and fuel cycles. The work includes the preparation of certified nuclear reference materials that are produced in dedicated laboratories.

GELINA, the linear electron accelerator facility, has the best time resolution of its type combining i) a high-power pulsed linear electron accelerator, ii) a post-accelerating beam compression magnet system, iii) a mercury-cooled uranium target, iv) and very long flight paths. It is a multi-user facility serving up to 12 different experiments simultaneously. IRMM hosts a vertical 7 MV Van de Graaff (VDG) accelerator. Furthermore, it operates a laboratory for ultra-sensitive radioactivity measurements inside the 225 m deep underground laboratory HADES, located close by at the premises of the Belgian Nuclear Research Centre (www.sckcen.be), although this shared facility is outside the EMAS scope.

### *6.2.4 Aviation security laboratory*

A new facility to test aviation security detection technologies should open in 2014 and will be equipped with state-of-the-art aviation screening equipment such as that typically found at EU airport security check-points. This includes X-ray screening equipment, body scanners, liquids bottle scanners and trace detectors.

## 6.3 Environmental impact of JRC Geel activities

An analysis of environmental aspects has been made and based on this analysis significant environmental aspects have been identified (Table 6.2). The IRMM is taking measures to

prevent pollution (emissions, waste production) and to achieve more efficient use of natural resources (mainly energy, water and paper).

**Table 6.2 Significant environmental aspects at JRC Geel**

| Aspect group | Environmental aspect | Environmental impact | Location/activity | Indicator / action plan |
|---|---|---|---|---|
| Air and energy | Energy use in accelerators, buildings, machines, equipment etc.<br><br>Air emissions and gas releases<br>Chemical atmospheric release<br>Radioactive atmospheric release (accidents) | Air pollution, climate change, disturbing of living environment and health risks, destruction of ozone layer (HCFC emissions) | All site but in particular: GELINA; VDG; nuclear controlled areas; non-nuclear scientific laboratories; diesel generators and gas burners, storage of reference materials, site management and infrastructure | (1a) Total energy buildings (elec + gas + fuel+ hot water) (MWh/yr) (kWh/person) (kWh/m²)<br>(1c) Total renewable energy use (MWhr/yr) (Renewables as % of total energy use) (Onsite generated renewables as % of total energy use)<br>(2a) Total building emissions $CO_2$ (tonnes/yr)(kg/person) (kg/m²)<br>(2b) Refrigerantst $CO_2$equiv (kg$CO_2$equiv/person) (kg$CO_2$equiv/$m^2$)<br>(2d) Total air emissions bldgs (kg) |
| Waste | Various household-like waste (e.g. packaging, paper, PMD[39])<br>Hazardous non-nuclear waste (chemical, biologic, batteries etc.)<br>Nuclear waste | Exploitation of renewable materials, waste production, disturbing of living environment and health risks | All site, especially central store and administration resource management<br>Non-nuclear scientific laboratories; site management and infrastructure<br>GELINA; VDG; nuclear controlled areas; | (3a) Total general waste (tonnes) (kg/person)<br>(3c) Percentage of waste sorted (%)<br><br>(3b) Total dangerous waste (tonnes)(kg/person)<br><br><br>(3b) Total dangerous waste (tonnes)(kg/person) |
| Waste water | Water emissions<br>Chemical liquid release<br>Soil and groundwater contamination | Water and soil pollution, disturbing of living environment and health risks | Scientific laboratories, site management mechanical services | Emissions to wastewater (Concentration (mg/$m^3$)) |
| Resources | Use of chemicals and consumables, incl. paper<br>Use of water | Exploitation and decrease in natural resources<br>Drying of ground | Scientific laboratories, site management mechanical services, administration resource management | (1e) Paper consumption (tonnes)(kg/person) (Number of sheets total) (Number of sheets per person) (No. of sheets per person/ per day)<br>(1d) Water consumption ($m^3$) (l/person) (l/m²) |

[39] Plastic bottles and flasks, metal packaging and drinks cartons

## 6.4 More efficient use of natural resources

### *6.4.1 Energy consumption*

*a) Buildings*

Geel started renovating its facilties in 2004, and has completed multiple refurbishments and built two new structures: i) the CRM storage buildings, and ii) the reference materials production building. In 2012 Geel established a "Site Development Plan 2012-2020" to gradually refurbish and renew the infrastructure (buildings and technical installations). Currently there are 14 major buildings on the site.

Total energy consumption is subject to annual fluctuation of the work programme according to the type of on-going projects and experiments. Both accelerators consume a substantial fraction of the total energy; thus in periods when the accelerators are not running due to maintenance periods, the site consumes less energy. The main energy sources are electricity, hot water for heating, gas (three buildings) and fuel for the emergency generators (two small generators are permanently running). Two large and one medium sized generators run in emergencies and during annual maintenance of the energy distribution network.

The heating building is owned and managed by VITO, the neighbouring Flemish Institute for Technological Research, who plan to leave the Geel site in 2019/2020 and IRMM will therefore need to find a new source of heat energy. Hot water generated in the building is distributed throughout the site to serve exchangers installed in the plant rooms of the various buildings. Since the building is not owned by JRC-IRMM it is out of scope for EMAS.

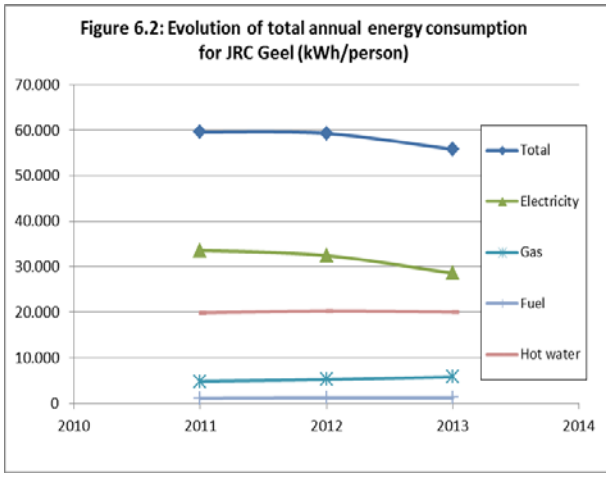


Figure 6.2: Evolution of total annual energy consumption for JRC Geel (kWh/person)

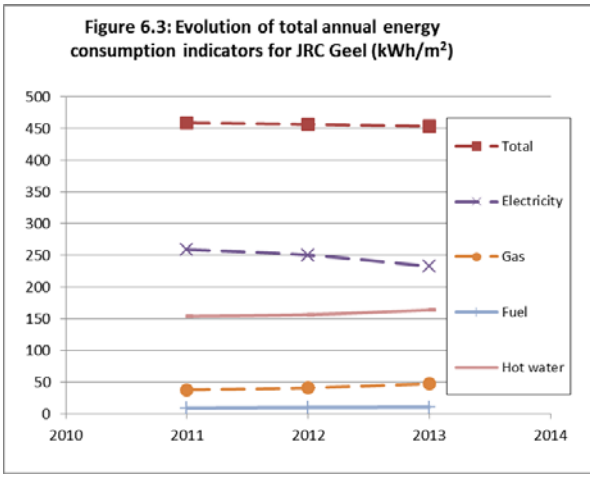


Figure 6.3: Evolution of total annual energy consumption indicators for JRC Geel (kWh/m$^2$)

Figures 6.2 and 6.3 show that total energy consumption has decreased slightly since 2011, although on a per square metre basis the reduction is small. Electricity consumption has decreased while gas and hot water consumption have slightly increased. Per capita energy consumption reduced by 6.2% in 2013, and per square by 0.7%.

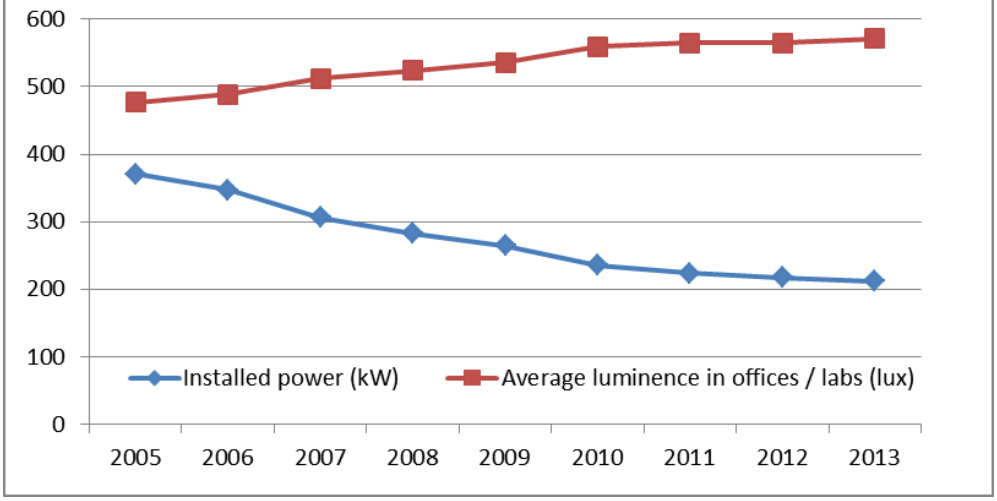
Energy consumption per square metre in 2013 did not quite meet expectations because the total useful surface area (m$^2$) of all buildings in the EMAS area decreased. For instance the Acomal building was demolished in 2012. The **2014 targets** are not to exceed 2013 per capita consumption and to reduce consumption per square metre by 1%.

Initiatives for continued improvement identified in management approved action plans for are summarised below:

| Since | Description[40] | Progress in 2013 | Expectations in 2014, and end date (if app) |
|---|---|---|---|
| 2013 | Perform an in-depth energy study (action 1.1.) | started | |
| 2013 | Emergency generators which were required to run nearly constantly have been discontinued at the beginning of 2014, therefore a reduction in consumption and $CO_2$ emissions is expected (action 1.3.) | Started | To continue in 2014 |
| 2013 | Moving of part of the staff to a new, more energy-efficient building (building 210). This new building will also run partially on renewable (geothermal) energy (action 1.5.) | started | People moved in March 2014 |

Other initiatives undertaken in 2013 include i) refurbishing the Van de Graaff Building renewal of ventilation and cooling system (including heat recuperation, electrical power distribution and gas transfer system, ii) finishing the relighting campaign. Since 2005 this has reduced the total power of the lights today installed at IRMM by 160 kWatts (-42 %), while the average of luminance in the offices and/or labs has been increased by 90 lux (+ 18 %) as shown in Figure 6.4.

**Figure 6.4: Relighting campaign, evolution in power and light consumption since 2005**




*b) Site vehicles*

Geel doesn't operate any service cars, but maintains some vehicles exclusively for use on site (fork lift, small tractor, guard's vehicle and a fire truck). The total combined consumption of petrol and diesel is below 500 litres per year. There is no **2014 target** relating to fuel consumption of site vehicles.

[40]reference: EMAS Objectives, Performance targets and Actions 2014, Ref. Ares(2014)1110123 - 09/04/2014), as with all other actions in this chapter

*c) Renewable energy use in buildings and vehicles*

Geel's electricity supply contract does not specify a minimum amount of renewable energy in the mix. This will change when the contract is renewed. When the heating building stops producing hot water, Geel may consider using geothermal energy supplied by VITO instead who are in the design phase of a geothermal energy plant which could be operational within a few years. Geel will also produce its own geothermal energy for the new administration building (action 1.7.). The **2014 target** is to generate the equivalent of 1% of the total site energy consumption from geothermal energy used for heating the new administration building.

### *6.4.2 Water consumption*

Figure 6.5 indicates that water consumption reduced in 2012 and also again in 2013 (and by more than 5% per capita and per square metre). The **2014 target** is to not exceed 2013 per capita consumption and for a 1% reduction in consumption per square metre.

Management approved **Action plans** for continued improvement include the following measures:

| Since | Description | Progress in 2013 | Expectations in 2014, and end date (if app) |
|---|---|---|---|
| 2013 | Rainwater recycling in the new administrative building (action 2.1.) | Installation completed | Make the rainwater system operational |

An objective planned for 2014 is the further improvement of the water monitoring system on building level which will allow to better control water consumption (action 2.2.).

### *6.4.3 Office paper*

Paper is mainly used for everyday printing in the offices. A very small print shop only produces a few dozen posters per year, and no brochures, and therefore offset paper is not considered further. Office paper consumption (measured actually as "distribution") reduced in 2013 by around 10% from the equivalent of 14.2 to 12.6 sheets per day. The **2014 target** is a further 1% reduction.

The following initiative for continued improvement was identified in a management approved action plan:

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Monitoring paper consumption by different units (action 3.1.) | Started | At least by 31/12/2014 |

| | | | |
|---|---|---|---|
| | | | the totals by building |

There were no specific initiatives undertaken in 2013 in relation to paper consumption but in 2014 in addition to monitoring paper consumption, Geel will promote paperless financial circuits (action 3.3.) and raise awareness through communication campaigns on paper consumption and printing behaviour (action 3.2.).

## 6.5 Reducing emissions of $CO_2$, other greenhouse gases and air pollutants

### *6.5.1 $CO_2$ emissions from buildings*

**Table 6.3: Percentage of $CO_2$ emissions from different sources in 2013 (kg/person)**

| Source | Quantity | % of total |
|---|---|---|
| Buildings (EMAS) | 15.024 | 96,22 |
| Refrigerants loss | 590 | 3,78 |
| Vehicles, not included | 0 | 0,00 |
| Missions (excluding vehicles) | | 0,00 |
| **Total** | **15.614** | **100,00** |

Table 6.3 illustrates that buildings account for over 95% of $CO_2$ emissions in 2013.

*a) Buildings ($CO_2$ from energy consumption)*

$CO_2$ emissions are generated through combustion of the main energy sources i) electricity, ii) hot water for heating, iii) gas (three buildings) and iv) fuel for the emergency generators (two small generators run permanently, two large and one medium sized generators run during emergencies and maintenance of the energy network).

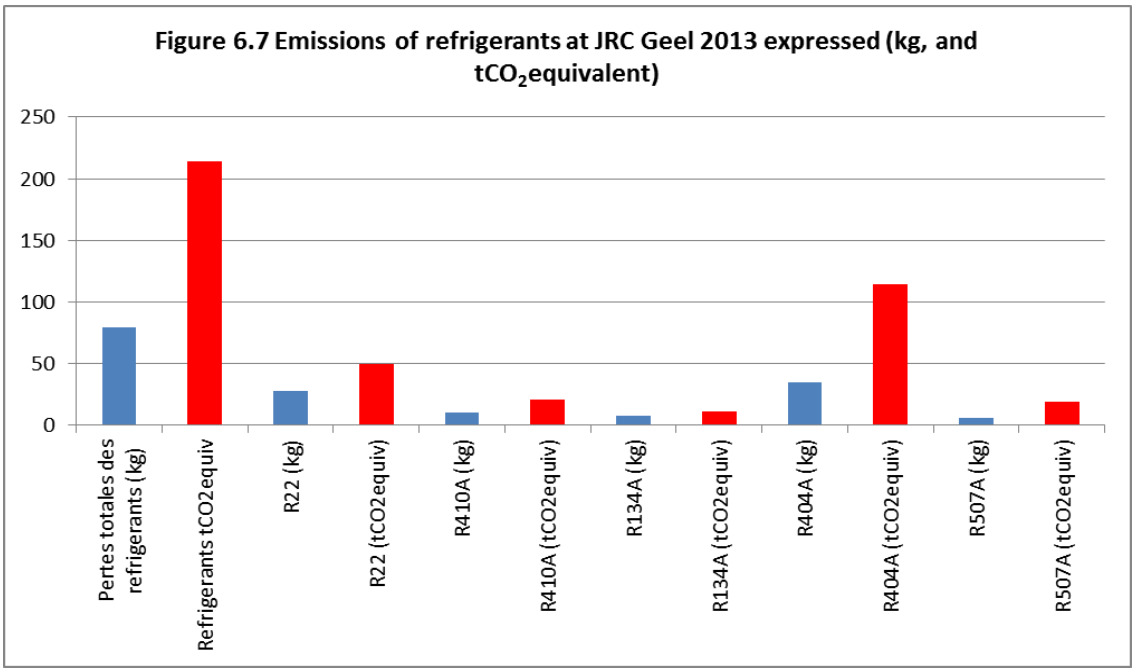
Figure 6.6 shows that, as with energy consumption, per capita $CO_2$ emissions fell in 2013 and the **2014 target** is not to exceed 2013 levels. Consumption per square metre decreased slightly, and the **2014 target** is a 1% reduction.

There are no management approved action plans specifically for reducing buildings $CO_2$ emissions however measures introduced to reduce energy consumption described in section 6.4.1 will inevitably also reduce emissions.

An important **2014 performance target** is the reducing total fuel consumption by 70% by stopping using the two small diesel generators (action 1.3. and 4.1.).

*b) Buildings other greenhouse gases (cooling gases)*

Figure 6.7 shows Geel's recorded losses of cooling gases (in kg), together with equivalent quantity of $CO_2$. Over 200 tonnes equivalent of $CO_2$ were lost, over half of it comprising R404A, with R22 responsible for less than half this amount.




Data for 2011 and 2012 was not recorded in a systematic manner. The **2014 objective** is for emissions of cooling gases not to exceed levels recorded in 2013. Geel has the following management approved action plan to improve performance in this area:

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2014 | Phase out all the R22 containing air conditioning units located within the institute before 2014 (action 4.2.) | Ongoing | To finish before 2015 |

Phasing out R22 may lead to its replacement by other coolants with potentially higher global warming potential (GWP), but with less impact on the ozone layer.

### *6.5.2 $CO_2$ emissions from vehicles*

*a) Commission vehicle fleet*

There are no specific action plans relating to the site vehicle fleet.

*b) Missions and travel within the site (excluding Commission vehicle fleet)*

There were no specific targets in 2013 or 2014 or management approved action plans to reduce $CO_2$ emissions from missions. Geel will promote video conferences whenever possible to replace vehicle travel for missions, and make bicycles available for movement within the site boundaries.

Due to Geel's remote location, public transport is practically non-existent and staff predominantly drive or carpool to work. Around 10% of staff living in the neighbourhood commute by bike every day, and others walk.

*c) Commuting (and mobility)*

There were no specific targets in 2013 or 2014 or management approved action plans to reduce $CO_2$ emissions from missions. In 2014, IRMM will launch a staff survey on commuting.

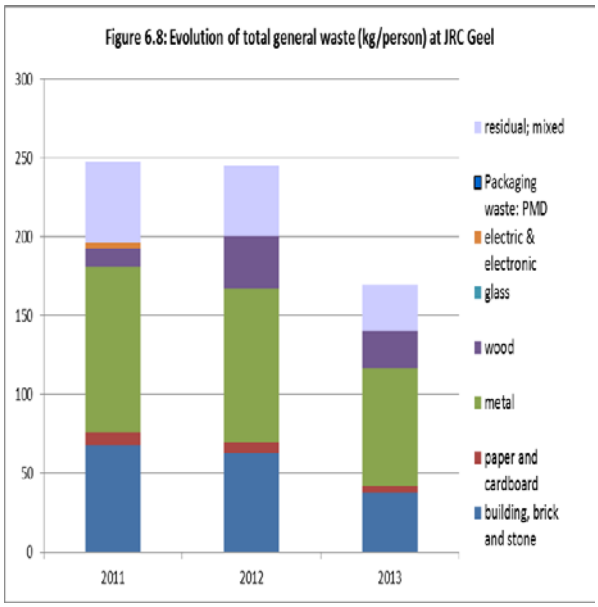
### *6.5.3 Total air emissions of other air pollutants ($S0_2$, $NO_2$, PM)*

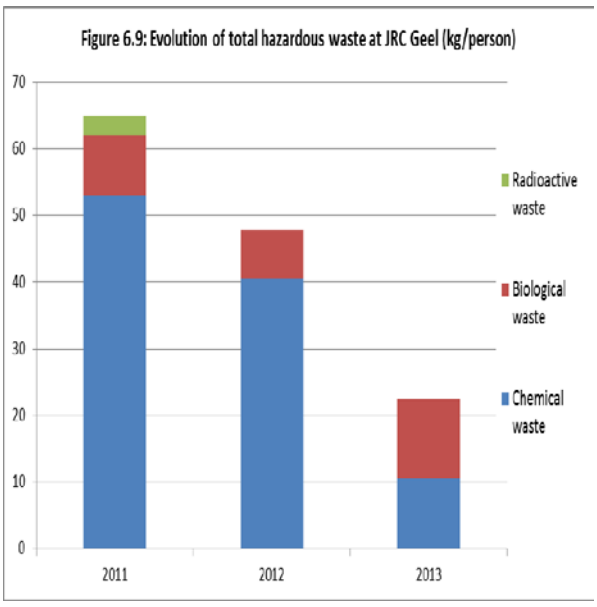
Geel has estimated the quantity of the above air pollutants on the basis of diesel consumed by the emergency generators. In 2013, 45.040 litres of diesel were consumed resulting in 4.183 kg of emissions (11.6kg per person), of which 3.260 kg nitrous oxides, 702 kg sulphur dioxides, and 229 kg particulate matter.

The **2013 target** was to reduce atmospheric emissions of $SO_2$, $NO_x$ and PM by 1%. The **2014 target** is a 70% reduction, to be achieved by stopping the use of two small diesel generators that run permanently (as described in 6.4.1) (action 1.3. and 4.1.).

## 6.6 Improving waste management and sorting (including waste water)

Geel produces many different waste streams which fluctuate according to site activities, and which are sorted as much as possible. Some special waste is not always dispatched in the year of production but collected over several years: some radioactive waste must decay for several years prior to dispatch. Therefore data reported for some waste quantity categories may not necessarily represent annual production. General and hazardous waste generation is shown in the following figures:




### *6.6.1 General waste*

Figure 6.8 indicates that general waste generation fell by a third in 2013, and the **2014 target** is for a further 1% reduction. This waste reduction can be observed for all waste categories. Management approved action plans for general waste management are as follows:

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Construction of a new waste storage area (container park) covered and fenced (action 5.4.) | Ongoing | Contract signed 2014, construction complete and in operation by end of 2015 |
| 2013 | Increase awareness of waste management (reduction and separation) by means of dedicated notes updated 3-4 times a year on IRMM intranet | Ongoing | 3-4 notes on intranet in 2014 |

Other initiatives undertaken in 2013 include the introduction of PMD waste. Since July 2013 plastic waste has been collected separately from household waste. Further actions for 2014 include reducing the number of individual waste bins in the new administration building (action 5.3.). If this is successful it could be deployed across the whole site.

### *6.6.2 Hazardous Waste*

Figure 6.9 shows that production of hazardous waste has reduced considerably between 2011 and 2013. This is attributable to a reduction in the fraction of chemical waste, more specifically of antifreeze. In 2011, 12.5 tonnes of antifreeze were removed; in 2012 this reduced to 7.1 tonnes, while in 2013 there was none. The biological waste has fluctuated from 2011 - 2013. Under the initiatives planned for 2014 presented below, 4.5 tonnes of radioactive waste should be removed in 2014 (action 5.2.). Nevertheless, the **2014 target** is not to exceed the figure for 2013; although this may not be achieved owing to the removal of some waste backlog. One specific management approved action for controlled waste is as follows:

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Monitor the production of hazardous waste produced by the different Units, especially laboratory waste (action 5.1.) | Ongoing | Sytem implementation by end 2014, system review by end 2015 |

Other initiatives planned for 2014 include i) evacuating 56 drums of radioactive waste (3 tonnes), ii) removing HEPA filters from radioactive laboratories (1.5 tonnes) (action 5.2.).

### *6.6.3 Waste sorting*

In 2012 and 2013 85% of waste was sorted out, up from 84% in 2011. This represents the total amount of waste generated minus the unsorted residual which comprises nuclear, hazardous and conventional waste. The **2014 target** is to maintain the sorted proportion at 85%. There are no specific management approved actions related to waste sorting.

### *6.6.4 Wastewater discharges*

Waste water discharge volumes are not monitored. However pH, temperature, nitrogen and phosphorus concentrations, biological and chemical oxygen demand and the concentration of

some heavy metals (Ag, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) are measured annually to ensure legal compliance with the discharge consent.

A peak for silver was observed in September 2013 with a concentration above the license limit.

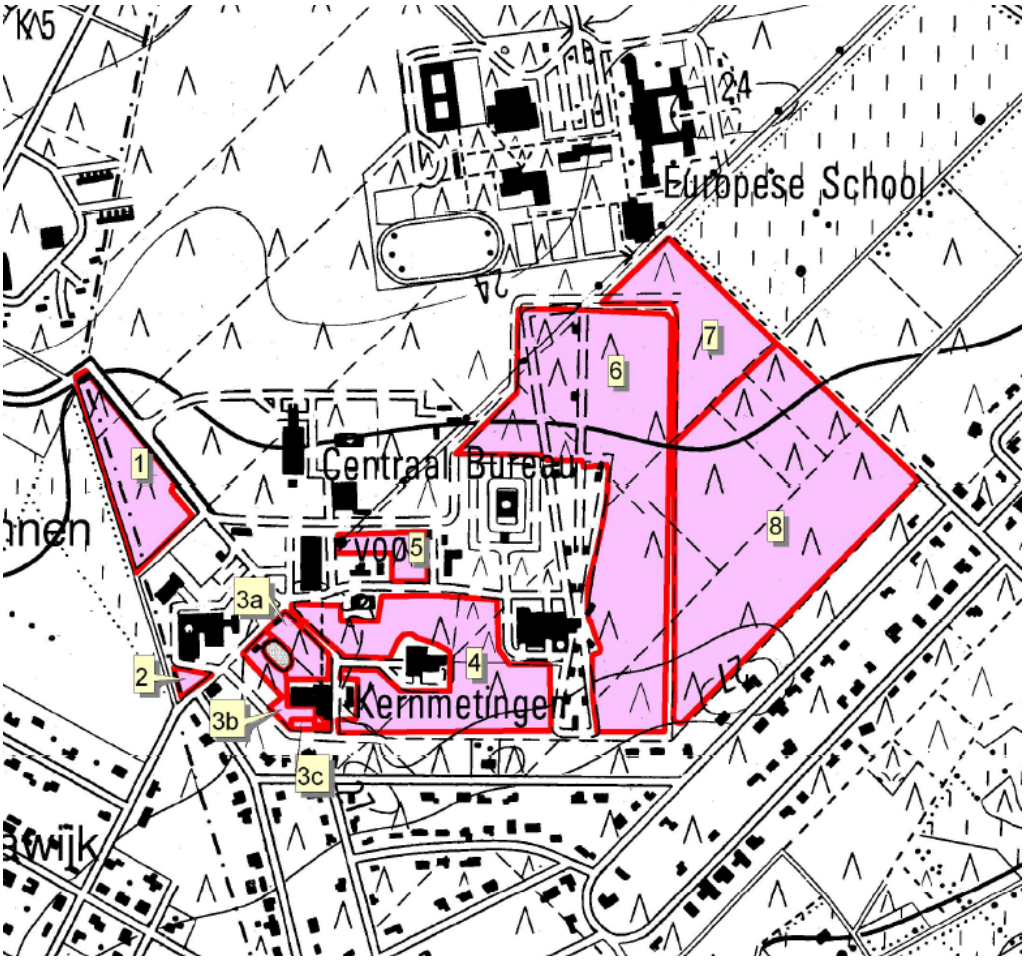
The graph indicates that it was a one-time emission. An inquiry to determine the cause and corrective measures (according to the waste management procedure) suggested that the the peak was due to the careless act of a lab assistant.

A review of the 2013 data indicated that limits of detection for silver and arsenic were too high to be able to prove compliance with the discharge consent. From March 2014 more precise analytical methods with lower detection limits have been used for monitoring the discharge concentration levels.

## 6.7 Protecting biodiversity (Indicator 4a)

The Geel site covers 380.316m², of which 82.079 $m^2$ (21.6 %) is built upon - equivalent to 227 $m^2$ per person. In 2009 IRMM established a forest management plan starting with a clear definition of existing conditions (forest type, species, relationship with nature etc…). Corsican pine is a dominant species in the IRMM forests as is typical for forests in the Kempen area. Such forests are usually created by planting pine trees for exploitation. Subdominant species were removed, resulting in a very high density forest where the trees, typically having with small crowns, (less than 20% of the total height of the tree), are too close together. There are practically no shrubs or herbs, due to the lack of light in the canopy. Development of the IRMM site started in the late 1950s, resulting in buildings and associated infrastructure that reduced the forest to a few isolated forest-plots (as shown in figure 6.10) which were not actively managed. However in most of these, leaf trees established themselves, although pine trees still dominate.

**Figure 6,10 Location of the forest lots (forest management plan)**




There was no specific **2013 target** in relation to biodiversity, but owing to site development, built areas are likely to increase in size by 4% in **2014.** In the long term it is hoped that more native deciduous trees can be re-introduced. Some conifer trees around the buildings will be removed for fire safety. The following management approved action has been presented to improve performance on this issue.

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Implement the "Bosbeheersplan" (forest management plan) coordinating with the local authorities (action 6.1.) | Ongoing | Cutting of pine trees around two buildings in a 16 m perimeter |

## 6.8 Green Public Procurement

### *6.8.1 Incorporating GPP into procurement contracts*

GPP has not been systematically incorporated into procurement procedures at IRMM, but this is under review. The **2014 target** will be to incorporate GPP criteria into more than 5% of contracts exceeding € 60.000. In previous years this information was not systematically

recorded. The following management approved action has been identified to achieve the target.

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Environmental criteria cannot always be included in all procurement procedures. The procedures will be reviewed to ensure if environmental (green) criteria are relevant and if so: is (green) procurement happening in a systematic way or is there a need to change the procedure (action 7.1.) | Ongoing | Further implementation of GPP and reach of 5% of high value contracts (>€ 60k) |
| 2013 | Training courses on GPP are being organised for OIAs (action 7.1.) | Ongoing | Two training organised |
| 2013 | Insertion of GPP criteria in tenders will start to be monitored | Ongoing | Monitoring implemented |

### *6.8.2 Office supplies contract*

Geel has established a new procurement contract for office furniture with all 45 items having some 'eco' designation.

## 6.9 Demonstrating legal compliance

### *6.9.1 Prevention and risk management*

Geel is operated under environmental licence No. MLAV1/1100000514 granted by the Province of Antwerp, Department of Environmental licenses. It was renewed in 2012 and is valid until 28 June 2032. Geel has a service contract with an external environmental coordinator to provide assistance on legal compliance issues. Management approved actions for improved performance include the following:

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Compliance check. Update of the processes for checking environmental legal compliance and consolidation of these processes in a single procedure | Ongoing | Procedure established by 31/12/2014 |
| 2013 | Audits and certification (actions 8.1 and 8.2.) | Ongoing | Audits and inspections done |

Other actions for 2014 include a target for the environmental coordinator to undertake monthly inspections or audits (action 8.3.). In 2013 IRMM also passed the external ISO 14001 recertification audit with the new certificate valid until 20 January 2017. It also was recertified as a radioactive waste producer by the Federal authorities (NIRAS).

### *6.9.2 EMAS registration*

In 2012 and 2013 there were 362 full time permanent staff on site occupying 14 buildings with a useful floor space of 44,535 $m^2$. The **2014 target** is to achieve EMAS registration for the entire site (except VITO's heating building).

### *6.9.3 Compliance with EMAS*

The number of non-conformities generated through EMAS related audits was reduced.

## 6.10 Internal communication (and training)

### *6.10.1 Packaging waste (PMD) campaign*

According to environmental legislation, sorting of PMD waste is mandatory since 1st July 2013. In order to increase awareness on this topic, Safety, Health, Environment and Security (SHES) sector of IRMM has prepared a note to be inserted in the intranet (action executed in summer 2013). Additionally, two messages were sent to all staff explaining what can and cannot be recycled as PMD waste, and why sorting waste is important. Lastly, dedicated containers for PMD waste were purchased and placed in strategic locations at IRMM.

### *6.10.2 Internal training*

There was a large amount of internal trainings in 2012 when EMAS was introduced at the site.

There were two specific training packages available in 2013, and the **2014 target** is to maintain this number (action 9.2.).

## 6.11 Transparent dialogue with external partners

Geel’s policy is to communicate openly with its neighbours (mostly nearby residents of the the "Europesewijk) on activities and impacts. Since 2013 further information on EMAS has been provided by installing information posters banners at the site entrance.

## 6.12 EMAS costs (and savings)

Unit costs for some core parameters such as energy consumption (specifically electricity, gas and fuel) and water consumption have also been used to identify expenditure in 2013 to compare with previous years, as shown in Table 6.4.

**Table 6.4 EMAS costs and savings (EUR)**

| | Costs | | | Savings in 2013 compared to: | |
|---|---|---|---|---|---|
| | **2011** | **2012** | **2013** | **2011** | **2012** |
| Total Direct EMAS Cost | 0 | 0 | 66.000 | -66.000 | -66.000 |
| Total Direct Cost per employee | 0 | 0 | 182 | -182 | -182 |
| Total buildings energy cost (Eur) | 1.812.919 | 1.787.170 | 1.439.414 | 373.505 | 347.756 |
| Total buildings energy cost (Eur/person) | 5.008 | 4.937 | 3.976 | 1.032 | 961 |
| Total water costs (Eur) | 88.394 | 82.856 | 75.986 | 12.408 | 6.870 |
| Water (Eur/person) | 244 | 229 | 210 | 34 | 19 |

Energy costs (including hot water) have fallen by 20%, from the equivalent of just over 5.000 EUR/person in 2011 to just under 4.000 EUR/person in 2013, most of this reduction coming in the last year. Total energy expenditure for the buildings in 2013 was nearly 400.000 EUR less than it was in 2011, and over 300.000 EUR less than in 2012. Expenditure on water consumption has also fallen, from the equivalent of 244 EUR/person in 2011 to 210 EUR/person in 2013 and remains modest in comparison to that for energy consumption.

The EMAS costs and virtual savings have not been systematically recorded in 2013. The target for 2014 is to systematically report these costs.

# 7 JRC SEVILLA – INSTITUTE FOR PROSPECTIVE TECHNOLOGICAL STUDIES (IPTS)

The JRC Sevilla Site (hereafter referred to as Sevilla) comprises the Institute for Prospective Technological Studies (IPTS) and a Resource Management Unit of the JRC Directorate for Resources. IPTS is one of the European Commission's Joint Research Centre's (JRC) seven scientific institutes and was established in Sevilla, Spain in 1994.

The Sevilla premises are located in the "EXPO" building managed by EPGASA, a company held by the regional government of Andalucía, providing office space to multiple tenants. Consequently, a significant number of issues with environmental impact are not under Sevilla's direct control. Sevilla is currently transitioning to EMAS and seeking to be included in the Commission's EMAS registration in 2014.

## 7.1 Overview of core indicators at JRC Sevilla since 2010

Sevilla's location, in a multi-tenant building, complicates the collection of accurate data on core indicators. Tenants do not, for example, have their own energy or water meters and therefore data on core indicators included in this report are estimates based on occupied surface. (The site occupied 51,6% of the EXPO building in 2013). As a result of its limited control over environmental performance, Sevilla decided to set a smaller number of environmental objectives than other sites, and to calculate theoretical consumptions based on occupation rates.

Sevilla has been collecting data on core indicators since 2010. Their variation since then is shown in Table 7.1.

**Table 7.1: Percentage changes in core indicators at JRC Sevilla**

| Parameter | From: 2010 Overall | To: 2013 % per year | From: 2012 Overall | To: 2013 % per year | Target 2013 |
|---|---|---|---|---|---|
| Energy bldgs (KWh/p) | **-14,6** | -4,9 | **-9,0** | **-9,0** | NA |
| Energy bldgs (KWh/$m^2$) | **-2,4** | -0,8 | -4,5 | -4,5 | NA |
| Water use (l/p) | **-36,1** | **-12,0** | -1,3 | -1,3 | NA |
| Water use (l/$m^2$) | **-27,1** | **-9,0** | **3,6** | 3,6 | NA |
| Office paper (kg/person) | **-63,3** | **-21,1** | **-47,2** | **-47,2** | NA |
| Office paper (Shts/person) | **-63,3** | **-21,1** | **-47,2** | **-47,2** | NA |
| $CO_2$ bldgs (kg/p) | **-17,3** | **-5,8** | **-9,1** | **-9,1** | NA |
| $CO_2$ bldgs (kg/$m^2$) | **-5,6** | -1,9 | **-4,6** | -4,6 | NA |
| Refrigerants lost | NA | NA | NA | NA | NA |
| of which R22 | | | | | NA |
| Non haz.waste (kg/p) | NA | NA | NA | NA | NA |

Substantial reductions were recorded in water and office paper consumption from 2010 to 2013, although there was a slight increase in water use in the last year. In 2012 and 2013 Sevilla took specific measures to increase staff awareness on water and paper consumption. $CO_2$ emissions have also fallen consistently over the last three years, although this more a function of the EXPO building than due to specific measures by Sevilla.

Since 2010 Sevilla has substantially increased activity in the field of high performance computing (for economic modelling), and especially since 2012.

## 7.2 Description of JRC Sevilla activities

Sevilla promotes and enables a better understanding of the links between technology, economy and society. Its mission is to provide customer-driven support to the EU policy-making process by developing science-based responses to policy challenges that have both a socio-economic and a scientific/ technological dimension.

In this context, Sevilla's activities are of a classic administrative nature. It has one service car and in addition uses more specific services in the same building, including a canteen and a restaurant which are also open to other "EXPO" tenants.

The EXPO building is located in the Isla de la Cartuja business district within the western part of the urban area of Seville, between the Rio Guadalquivir and the Canal Alphonso XIII as shown in the figure below.

**Figure 7.1: Location of JRC Sevilla**


***Source: Google Maps***

As the name suggests, the building was built specficially for the World Exposition that was held in Sevilla in 1992. It contains a large quantity of recycled material (particularly iron), and is accorded "protected" status by the authorities. It is a square shaped three storey building (ground, first and second floors) with an indorr tree covered courtyard at its centre. It also has two basements mainly for car parking. It is one of landmarks in central Sevilla that the authorities keep partially illuminated at night.

## 7.3 Environmental impact of JRC Sevilla activities

An update of the environmental aspects was undertaken in 2013, the results of which are summarised in the table below which is reviewed and updated every year.

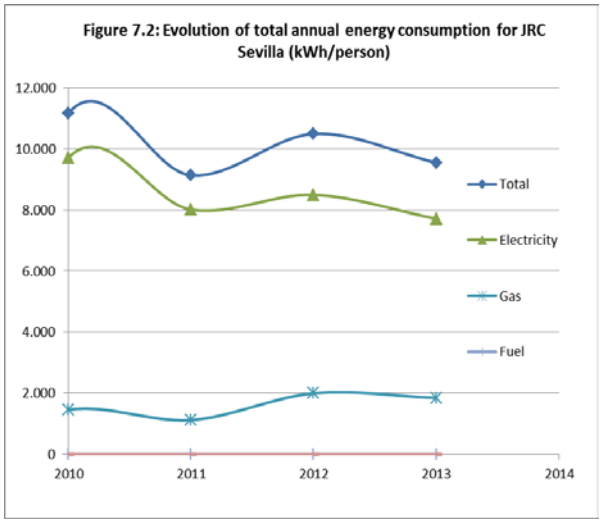
**Table 7.2 – Summary of significant environmental aspects for the Seville site**

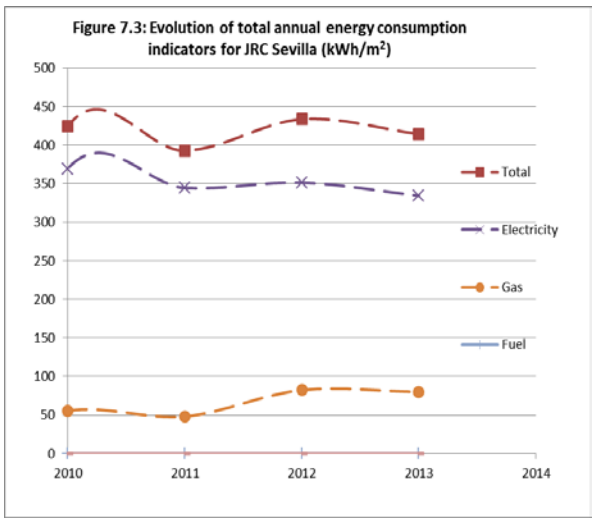
| Aspect group | Environmental aspect | Environmental impact | Activity, product or service | Indicator/Action Plan |
|---|---|---|---|---|
| Air | CO2, SOx, NOx, CO, VOC emissions | Air pollution, climate change<br>Global warming, depletion of ozone layer, deplation of resources, air pollution | For office activities,Heating, cooling, ventilation and electrical equipmen | Indicator 2a |
| | | | Official Car Use | Indicator 2c |
| Waste | Paper Waste Genera | Water pollution, damage to the ecosystem, contamination of land, deplation of resources<br>Air, water and/or soil pollution, biodiversity risks | For office activities, printing, training and communication requirements | Indicator 1f |
| | Inks and toner, waste production | | Use of inks and toners for office activities | Indicator 3a |
| | Hazardous waste production | | Batteries and medical waste | Indicator 3b |

## 7.4 More efficient use of natural resources

### *7.4.1 Energy consumption*

*a) Buildings*




Figures 7.2 and 7.3 indicate broadly similar patterns in energy consumption whether measured per person or per square meter. Total energy consumption for the Sevilla site per

square meter (based Sevilla's share of the EXPO building) has remained relatively stable in the last years fluctuating within 10% of 416 KWh/$m^2$. Global energy consumption (MWh/year) for 2013 decreased by 9%, despite the enlargement of the premises and the rise in staff numbers by 16%. The presence of multiple tenants and diverse activities in the building explains the lack of correlation between staff, surface and consumption figures.

The figures show a decline in electricity consumption compensated by an increase in that of gas. The landlord suggests external causes such as climate could explain the increase in gas consumption, as minimum average temperatures in Seville lowered by 8% and 7% in 2012 and 2013 respectively compared with 2011. The decline in electricity consumption occurred despite significant investment in high performance computing to facilitate new activities, suggesting that this new infrastructure is more efficient than that it replaced. Sevilla's total energy consumption (pro rata of EXPO building's consumption) reduced by 9% as measured in KWh/person and decreased by 4.5% measured in KWh/$m^2$ in 2013.

The **2014 target** for energy consumption is to continue to inform the landlord of opportunities to improve the EXPO building's energy efficiency and to continue to regularly monitor its overall consumption. Initiatives for continued improvement identified in management approved action plans for are summarised below:

| **Since** | **Description (and reference)**[41] | **Progress in 2013** | **Expectations in 2014, and end date (if app)** |
|---|---|---|---|
| 2013 | Corporate software distribution tool configured to shut down all desktop computers under the responsibility of JRC.B.11 in JRC Seville | Completed | To continue to use this feature of the IT infrastructure. |
| 2013 | Hang posters in specific areas to encourage the use of the stairs | Completed | To continue informing staff of this measure. |
| 2013 | Local replication of DG HR EMAS and environmental issues awareness campaigns | Completed | To replicate campaigns timely and widely. |
| 2013 | Provide information/visualisation to staff about consumption trend | Started | Ongoing with transition to EMAS |

The actions seek to influence the way staff use the infrastructure under the overall objective of minimising the environmental impact of their daily work activities. Other initiatives undertaken in 2013 include the installation of light detectors in first floor toilets following the extension of the Sevilla site at the beginning of 2013, and updating the Good Environmental Practices (GEP) guide.

*b) Site vehicle*

Sevilla has just one vehicle whose use in 2011 to 2013 was generally about half that in 2010. The **2014 target** is to reduce diesel consumption by 5%.

[41] Source: Management Review 2013

*c) Renewable energy use in buildings and vehicles*

The grid electricity supplied to the EXPO building contains a mix with 15% from renewable sources, which represent approximately 12% of total energy consumption. The **2014 target** is to continue to bring to the landlord's attention opportunities to increase the proportion of renewable energy in the EXPO building.

*7.4.2 Water consumption (indicator 1d)*

Figure 7.4 shows that water consumption has reduced considerably since 2010, achieving per capita accumulated reductions of 64%, although in 2013 there was an increase of 14%. In 2013 there was a 1% decrease in consumption per square metre.

Sevilla carried out awareness campaigns in 2013 and the clearly descending trend is a sign that staff appreciate the importance of reducing water consumption. However gauging the campaign's real effectiveness is difficult because the site's consumption is based on its theoretical share of the EXPO building consumption.

The **2014 target** is to continue to inform the landlord about the importance of water saving while not exceeding 2013 consumption.

*7.4.3 Office paper (indicators 1e)*

Paper consumption is controlled directly by the Sevilla site. Figure 7.5 shows that total paper consumption has reduced considerably since 2010, in 2013 it was only 38% of the former value. This was due to significantly reduced office paper use, while offset paper consumption remains stable in the last three years. Total offset paper consumption increased 28% in 2013 (10.6% per person) and the 2014 target is a reduction of 1%.

Office paper consumption measured in sheets per person per day is only 27% of the 2010 figure. The **2013 target** for a reduction in office paper consumption of 5% was largely exceeded (47%), and the **2014 target** is for a further 5% reduction. The following initiatives for continued improvement were identified in a management approved action plan:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Training to staff on multifunctional device (copier/printer/scanner) functionality including paper saving directives | Completed | Not applicable |
| 2013 | Provide information/visualisation to staff about consumption trend (e.g. traffic lights) | In progress | Continue the tendency to reduce office paper consumption |
| 2013 | Distribution to all staff a "green cardboard recycle box" | In progress | To increase the volume of recycled paper |
| 2013 | Offer staff a link where to find green signatures that can be added to the e-mail signature in Outlook | In progress | To reduce the amount of printed paper from email |

Performance in 2013 largely exceeded expectations due to the application of several measures, among which:

- The complete renewal of multi-functional devices (printers, scanners, copiers) combined with global staff training on best environmental practice when printing and specific training for technical and administrative staff; and

- The replacement of certain paper based administrative procedures by the electronic equivalent.

### 7.5 Reducing emissions of $CO_2$, other greenhouse gases and air pollutants

The main sources of $CO_2$ emissions considered under EMAS are from buildings (including release of refrigerants), vehicle fleet, missions and commuting. Sevilla has evaluated $CO_2$ emissions for buildings in 2013 at 3458 kg/person while the equivalent figure from the vehicle fleet is 3.61 kg/person (much less than 1% of the combined total).

*7.5.1 $CO_2$ emissions from buildings*

*a) Buildings (energy consumption*

Figure 7.6 illustrates that, in line with energy consumption, $CO_2$ emissions oscillate around stable values with a slightly larger decrease in emissions per person recorded than per square meter.

The **2014 target** is to continue to inform the landlord of the opportunities to improve the environmental efficiency of the building.

There are no management approved action plans specifically for reducing buildings $CO_2$ emissions however it is expected that the measures introduced to reduce energy consumption described in section 7.4.1 will also contribute to reducing emissions.

*b) Buildings other greenhouse gases (refrigerants)*

The EXPO building's landlord manages maintenance of its cooling system and is therefore responsible for the refrigerants life cycle. The **2014 objective** is to monitor the maintenance interventions required by legislation that are undertaken by the landlord.

*7.5.3 $CO_2$ emissions from vehicles (indicator 2c)*

*a) Commission vehicle*

Sevilla directly manages its service car. In 2013 it consumed 381 litres of diesel (37% more than 2012) producing 158 $gCO_2$/km against a manufacturer's technical specification of 136 gCO2/km, with 6455 kms travelled. There are no specific management approved **Action plans** for continued improvement.

*b) Missions (excluding Commission vehicle fleet):*

Sevilla staff are encouraged to use the available videoconferencing infrastructure, which is subject to continuous improvement. In 2013, a total of 802 videoconferences were organised, representing a net 13% increase compared to 2010, once the increase in personnel over this period is taken into account. This shows how improving communications technology has had a positive environmental impact by reducing the number of missions.

## 7.6 Improving waste management and sorting

*7.6.1 General waste*

Since 2010, Sevilla has disposed of 4 tonnes of electrical equipment (WEEE), all in 2012. The site is currently creating a comprehensive waste management procedure, which will include quantification of waste by type.

The **2014 target** is to extend the range of waste types disposed, increasing the ratio of recycled materials against the total. The following specific management approved actions are aimed at improving waste management:

| Since | Description | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 2013 | Promote effective and structured communication channels with the landlord on environmental issues | Started | Monthly meetings with documented and approved action lists |
| 2014 | Propose an amendment to the renting contract including feasible environmental clauses | Not applicable | Ammendment signed before Q3 |
| 2013 | Raise awareness to staff on calculate precisely the number of printed copies of publications needed | Started | Ongoing, transitioning to EMAS |
| 2013 | Replacement of all existing printer devices in alignment with the JRC printing policy | Completed | Done in 2013 |
| 2014 | Analyse the publication process to properly identify those variables that will allow us to monitor it. | Not applicable | Transitioning to EMAS |

*7.6.2 Controlled Waste*

According to Figure 7.7 total controlled waste has averaged less than 1 kg per person per year.

Fluorescent lamps are the largest component of waste generated, although quantities have reduced since 2011. The remainder of waste generated by Sevilla comprises batteries and medical waste, for which production is low and stable.

The **2014 target** is to implement a new waste management procedure aimed first at reducing waste generation but also improving management of generated waste.

*7.6.3 Waste sorting*

Waste sorting will be addressed in the new waste management strategy that will seek to maximise the sorting of waste into potentially useful streams thereby minimising the amount of unsorted (mainly) general waste.

## 7.7 Protecting biodiversity

The constructed area of the EXPO site occupied by Sevilla (its footprint at ground level) is 7.073m$^2$, (including the internal courtyard (2598m$^2$)) which is equivalent to 25m$^2$ per staff member. The total area of the site occupied by the building is 11.669 m$^2$, meaning that the "natural" proportion of the site is approximately 60.6% of the total. There are no specific management approved actions in relation to this indicator.

## 7.8 Green Public Procurement

*7.8.1 Incorporating GPP into procurement contracts*

Sevilla aims to incorporate green public procurement into its contracts in excess of 60.000 EUR and has increased the number of contracts incorporating "green" criteria in the last few years. The following management approved action has been identified to increase the application of green clauses to contracts:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2014 | Designation of a green procurement contact point | NA | Systematic implementation |

*7.8.2 Office supplies contract*

Furniture and office supplies are acquired through Commission framework contracts, where the aspects of green procurement are considered. There are no specific management approved actions in relation to this indicator.

## 7.9 Demonstrating legal compliance

*7.9.1 Prevention and risk management*

Since 2010 Sevilla has recorded statistics relating to incidents on health, safety and environment. There have been no recorded accidents. It contracts yearly external audits of its Management System during which all aspects of emergency preparedness and response are checked and updated if necessary. Particular attention is paid to identifying potential accidents and reacting quickly to emergencies therefore minimising negative impacts.

LRQA's audit in November 2012 detected four minor non conformities (NCs) that were rigorously addressed and closed. No NCs were detected in LRQA's audit of November 2013. The EMAS internal audit held in February 2014, aimed at preparing the site for transition to the EMAS Regulation, raised four major and five minor NCs. All were resolved and closed before the verification exercise. A follow-up internal audit conducted in September 2014 raised five minor NCs three of which were closed, and the remaining two are expected to be resolved in 2015. None of them concern matters of legal compliance.

*7.9.2 Maintaining the site's EMAS registration*

The **2014 target** is to obtain EMAS registration for the space occupied by Sevilla (7017 $m^2$) in the EXPO Building. In 2013, 282 staff occupied this space. The number has risen steadily since 2010 when there were 212 staff. In December 2013, the composition of staff was as follows: 110 permanent, 172 temporary. Staff turnover is very high, reaching approximately 30% annually, which makes continuous efforts necessary to raise awareness on environmental management.

*7.9.3 Compliance with EMAS*

Sevilla monitors the findings of EMAS internal audits and verification audits, and in cooperation with HR COORD ensures that both minor and major non conformities as well as scope for improvements are followed up. Among the last internal audit's positive findings was that the site has a well-developed tracking system for corrective and preventive actions, based on a database. Sevilla is currently addressing the non-conformities raised during the last internal audit. Other than this, there were no specific targets set for 2013 or 2014 and no specific management approved actions are foreseen in relation to this indicator.

## 7.10 Internal communication (and training)

*7.10.1 Internal communication*

The following actions took place during 2013:

- *E-mails to all staff*: These included: a) an e-mail on 20th June concerning the possibility of reducing the number of printed copies of the Commission's Magazine *Commission en Direct* shipped to IPTS. As a result, Seville receives only 110 print copies per issue; and b) an e-mail on 22nd November to all IPTS secretariats concerning waste reduction week, including two main corporate messages.
- *Announcement on intranet:* Corporate EMAS campaigns distributed at a local level, on the intranet. These included.the Green Commission (EMAS) Award, EU Mobility Week - Do the Right Mix, Earth Hour 2013 - EU Institutions go "beyond the hour" and the European Waste reduction week.
- *Earth Hour 2013:* An e-mail to the landlord on 21st February resulted in the partial switching off of the EXPO BUILDING's lighting.

*7.10.2 Internal training*

There were three specific EMAS training packages available in 2013. The **2014 target** will be to extend additional specific training to staff with environmental responsibilities including training on relevant standards and integrated systems. This will be a preparatory step for consolidating management systems. Additionally general staff training will be organised on green public procurement. Sevilla ensures ongoing communication with staff in Brussels through the following management approved actions:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | JRC has subscribed to an information system on environmental legislation much more specifically targeting our activity and facilities | Complete | Not applicable |
| 2013 | Publication of new guidelines for good environmental practices | Complete | Not applicable |
| 2013 | New environmental commitment letter with the cleaning company | Complete | Not applicable |
| 2014 | Organise training on green public procurement for all concerned staff | Not applicable | Training action completed |

## 7.11 Transparent dialogue with external partners

Sevilla constantly seeks to influence its external suppliers to obtain commitments in relation to the environment and to contribute to sustainable development, particularly through its relations with the EXPO building landlord. Under the ongoing transition to satisfy EMAS requirements, this has delivered different actions aimed at promoting energy efficiency saving measures and the co-drafting of an Environmental Commitment letter with the landlord that will allow Sevilla to better monitor the environmental impact of the building and parts thereof.

As a result, Sevilla will improve the monitoring of local environmental impacts related to the building and its activities. Thus, the following management approved actions apply:

| Since | Description (and reference) | Progress in 2013 | Expectations in 2014, and end date |
|---|---|---|---|
| 2013 | Develop an environmental commitment letter with the landlord | Started | Ongoing |
| 2013 | Build up influence with the landlord to carry our concrete actions such as promoting energy and water efficiency measures. | Started | Ongoing |
| 2013 | Raise awareness of stakeholders on EMAS | Started | Ongoing |

## 7.12 EMAS costs (and savings)

Table 7.3 shows how costs have evolved for energy, water, paper consumption and waste disposal since 2010 along with virtual savings (if old consumption patterns had continued, but with 2013 prices).

**Table 7.3: EMAS costs and savings (EUR)**

| Parameter | Costs | | | Savings since: | |
|---|---|---|---|---|---|
| | 2010 | 2012 | 2013 | 2010 | 2012 |
| Total Direct EMAS Cost | 0 | 132.000 | 151.840 | -151.840 | -19.840 |
| Total Direct Cost per employee | 0 | 541 | 538 | -538 | 3 |
| Total buildings energy cost (Eur) | NA | 295.470 | 331.838 | NA | -36.368 |
| Total buildings energy cost (Eur/person) | NA | 1.211 | 1.177 | NA | 34 |
| Total fuel costs (vehicles) (Eur) | NA | 384 | 530 | NA | -146 |
| Total energy costs (Eur/person) | NA | 2 | 2 | NA | -0 |
| Total water costs (Eur) | NA | 11.892 | 13.415 | NA | -1.523 |
| Water (Eur/person) | NA | 49 | 48 | NA | 1 |
| Total paper cost (Eur) | 9.457 | 6.601 | 5.312 | 4.145 | 1.288 |
| Total paper cost (Eur/person) | 45 | 27 | 19 | 26 | 8 |
| Waste disposal (general) - unit cost/tonne | NA | NA | NA | NA | NA |
| Waste disposal (general) - Eur/person | NA | NA | NA | NA | NA |

Staff and consultant costs directly associated with EMAS first arose in 2012. As indicated above, although JRC Sevilla makes a continuous effort to inform the landlord of the opportunities to reduce the building's environmental impact and the activities carried out in it, but does not have direct control over many parameters. In this context, the theoretical EMAS costs for 2014 will be analysed taking into account the approved action plan for the current year.

Paper consumption is the only indicator on which Sevilla has direct control. Expenditure in 2013 was 5312 EUR, 20% less than it had been in 2012, and over 40% less than it had been in 2010 equivalent to a savings of 26 EUR/person since 2010.

# Annex 1.1 Glossary

| | |
|---|---|
| $CO_2$ | Carbon dioxide: A colourless, odourless, incombustible gas, formed during respiration, combustion and organic decomposition and used in food refrigeration, carbonated beverages, inert atmospheres, fire extinguishers, and aerosols |
| DG | Directorate-General: |
| | BUDG (Budget) ; CLIMA (Climate Action); DIGIT (IT); DGT (Translation); ENER (Energy) |
| | ENV (Environment); HR (Human Resources and Security); JRC (Joint Research Centre) |
| | MOVE (Mobility and Transport) |
| EC | European Commission |
| ECF | Elementally chlorine-free. |
| ECOR | EMAS correspondent in the DGs and departments. |
| EMAS | Eco-Management and Audit Scheme. |
| EMS | Environmental management system |
| EMS-SOP | Standard operational procedures relating to the management of environmental aspects at the European Commission Environmental management system |
| EPI | EU Fire picket |
| EU | European Union of 27 Member States since 1 January 2007. |
| GELINA | Geel Electron Linear Accelerator |
| GIME | Inter-insitutional group on Environmental Management (GIME for French equivalent) |
| GPP | Green Public Procurement - Procuring works, goods or services such that the negative impact on the environment reduced beyond that which would be achieved under standard procurement procedures |
| GWP | Global Warming Potential - a number expressing the potential of a gas to contribute to global warming based on $CO_2$ having a value of 1 |
| HCFC | Hydrochlorofluorocarbon. |
| HDD (CDD) | Hot degree days, a measure of the temperature conditions in winter, describes the amount of time below a reference temperature and for which heating is therefore required. CDD applies to summer, and reflects the amount of time above the reference temperature when cooling may be necessary |
| HVAC | Heating, ventilation and air conditioning |
| IBGE | Institut bruxellois pour la gestion de l'environnement (Brussels Institute for Environmental Management) |
| ICT | Information and communication technologies |
| ISO 14001 | Internationally-agreed standard for environmental management |
| KIT | Karlsruhe Insitute of Technology |
| NOx | Nitrous oxides, gases released to the atmosphere as a result of combustion of fossil fuels |
| OIB | Office for Infrastructure and Logistics in Brussels |
| OIL | Office for Infrastructure and Logistics in Luxembourg |
| OP (OPOCE) | Office for Official Publications of the European Communities |
| OXFAM | Development, relief and campaigning organisation that works to find solutions to poverty around the world |
| PAG | Annual Management Plan (Plan Annuel de Gestion) for EMAS |
| PC | Personal computer |
| PMC | Paper, metal and cartons (for drinks) = packaging |
| PM | Particulate matter, usually referring to particles released to the atmosphere as the result of combustion of fossil fuels, especially diesel |
| RFI | Radiative Forcing Index: A factor applied to $CO_2$ emissions to take into account their greater impact at higher atmospheric levels |
| R22 | Hydrochlorofluorocarbon (HCFC-22), an ozone depleting gas used as a refrigerant. It has a smaller ozone-depleting potential than CFC-12. It is a temporary replacement for CFC-12 and its use in the EU will be banned in 2015. |
| SECT | Service externe de contrôle technique – authorised external inspection body |
| SG | Secretariat-General. |
| SIN | First-aid officers |
| SIPP | Internal service for accident prevention and protection at work |
| SMEs | Small and Medium Enterprises |
| $SO_2$ | Sulphur dioxide, a gas produced by combustion of fossil fuels which can have harmful consequence for the environment by forming acid rain |
| STIB | Société des Transports Intercommunaux de Bruxelles (Intercommunal Transport Company in Brussels) |
| TCF | Totally chlorine-fee |
| VOC | Volatile Organic Compounds: Often associated with combustion of fossil fuels but produced through other chemical processes are air pollutants |

# Annex 2.1 Summary of conversion factors

| No | Factor | Factor value and reference | | | | |
|---|---|---|---|---|---|---|
| | | OIB | OIL | JRC | | |
| | | Brussels | Luxem-bourg | Petten | Geel | Sevilla |
| 1 | kWh of energy provided by one litre diesel | 11,1 [1a] | 10,89 [1b] | 10,89 | 10,89 | 10,89 |
| 2 | kWh of energy provided by one litre petrol | 9,4 [2a] | 9,42 [2b] | 9,42 | 9,42 | 9,42 |
| 3 | Working days in the year | 211 [3] | 211 | 211 | 211 | 211 |
| 4 | Kgs CO2 from 1 kWh of electricity | 0,014 [4a] | 0 [4b] | 0,671 [4c] | 0,285 [4d] | 0,4 [4e] |
| 5 | Kgs CO2 from 1 kWh natural gas | 0,201 [5a] | 0,19 [5b] | 0,204 [5c] | 0,202 [5d] | 0,204 |
| 6 | Kgs CO2 from 1 kWh diesel | 0,264 [6a] | | 0,264 | 0,267 [6b] | 0,264 |
| 7 | Kgs CO2 from district heating (hot water) | | 0,328 [7a] | | 0,267 [7b] | |
| 8 | Kgs CO2 from 1 litre diesel (vehicle fleet) | 2,6 [8a] | 2,67 [8b] | 2,67 | 2,67 | 2,67 |
| 9 | Kgs CO2 from 1 litre petrol (vehicle fleet) | 2,3 [9a] | 2,28 [9b] | 2,28 | 2,28 | 2,28 |
| 10 | Global Warming Potential of R22 | 1.810 [10] | 1.810 | 1.810 | 1.810 | 1.810 |
| 11 | Global Warming Potential of R410a | 2.090 [11] | 2.090 | 2.090 | 2.090 | 2.090 |
| 12 | Global Warming Potential of R134a | 1.430 [12] | 1.430 | 1.430 | 1.430 | 1.430 |
| 13 | Global Warming Potential of R404a | 3.920 [13a] | 3.260 [13b] | | 3.300 [13c] | |
| 14 | Global Warming Potential of R407c | 1.770 [14a] | 1.256 [14b] | 1.775 [14c] | | |
| 15 | Global Warming Potential of R507a | | | | 3.300 [15] | |
| 16 | Annual cost of one FTE (EUR) | 132.000 [16] | 132.000 | 132.000 | 132.000 | 132.000 |

| Notes | |
|---|---|
| 1a, 2a | By Neil Packer, Staffordshire University UK - 2011 |
| 1b, 2b | www.carbontrust.com, Conversion factors 2013 |
| 3 | DG-HR data (Email El-Bourai - Rourke 13/03/2014) |
| 4a | As 95% of electricity in Brussels is renewable, factor presented is 0,05 x 0,275 (0,275 value a referenced in note 5a/6a) |
| 4b | 100 % electricity from renewable sources, considered to not generate CO2 emissions |
| 4c | Conversion factors: = m3 natural gas x 31,65/3,6, 1kWh=0,671 kgCO2/kWh, 1m3 natural gas = 1,791 kg CO2/m3 from ES 2012 (footnote 39) |
| 4d | EU Covenant of Mayors, recommendation for Belgium, www.covenantofmayors.eu/IMG/pdf/technical_annex_en.pdf (2/02/2014) |
| 4e | Kgs CO2 generated by consuming 1 kWh of electricity: data rectified: 0.40 kg CO2 by KW/h ENDESA Energía XXI |
| (4a), 5a, 6a | Email of 27/03/2013 de l'IGBE (Institut Bruxellois pour la Gestion de l'Environnement), l'Administration de l'Environnement et de l'Energie de la Région de Bruxelles-Capitale. Facteur pour le gaz : 0.201 kg/kWh, pour l'electricité 0.275 kg/kWh, pour le fuel : 0.264 kg/kWh » |
| 5b | www.enovos.eu -reference from Environmental Statement (data for 2012) |
| 5c | Kgs CO2 generated by consuming 1 kWh natural gas (ES for 2012 data, footnote 39: 1,791/8,792) |
| 5d | EU Covenant of Mayors, recommendation for Belgium, www.covenantofmayors.eu/IMG/pdf/technical_annex_en.pdf (2/02/2014) |
| 6b | www.restscreen.net/ang/emission_factors_for_diesel_generator_image.php presented 2,6 which is higher than other sites, (eg IGBE have proposed for fuel - propose lower value more coherent with other sites |
| 7a | From Email from Pierette Karges to Jean Haas 14/04/2014 (District heating for DROSBACH only) |
| 8a, 9a | Internal data OIB (calculated from basic chemical principles) |
| 8b, 9b | Internal data OIL (from Ecofleet management software) |
| 10, 12 | IPPC, 4th annual report 100 year value |
| 11 | Global Warming Potential (GWP) for R410A (Handboek CO2 Prestatieladder, Version 2,1, ES data 2012 footnote 41) |
| 13a, 14a | http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html<br>values of the GWP 100-yr, weighted average of the different components of the gas |
| 13b, 14b | Internation Insitute for Refrigeration (www.iifiir.org data sheets for 404A and 407C) but no losses data recorded for OIL for these refrigerants |
| 13c, 14c | Source: 20120718_Handboek_CO2_Prestatieladder_Versie_2_1 (Bijlagen, par. 6.2) |
| 15 | http://www.engineeringtoolbox.com/Refrigerants-Environment-Properties-d_1220.html |
| 16 | Note Circulaire of RUF of 8th August 2013, BUDG D4 |

Annex 3.1 Characteristics of Brussels EMAS buildings

| Building [3] | Area (m²) | Occup. staff on 31/12/13 | Address | Occupying Services | Activities [2] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | a | b | c | d | e | f |
| **Office Buildings** | | | | | | | | | | |
| MO34 | 12.820 | 333 | Rue Montoyer 34 | DIGIT, HR | | X | | | | |
| SC11 | 9.002 | 182 | Rue de la Science 11 | HR | X | | | | | |
| GUIM | 10.810 | 111 | Rue Guimard 10 | HR, DIGIT, COMM | X | | | | | |
| BRE2 | 18.747 | 537 | Avenue d'Auderghem 19 | HR, BUDG | X | | | | X | |
| BU-5 | 11.843 | 275 | Avenue de Beaulieu 5-7 | ENV, REGIO | X | X | | | | |
| BU-9 | 13.039 | 430 | Avenue de Beaulieu 9-11 | ENV, OIB | | | X | | | |
| BERL | 151.410 | 2.156 | Rue de la Loi 200 | Collège, SG, SJ, COMM, OIB, CA, BEPA, HR | X | X | | | | |
| BU-1 | 13.911 | 429 | Avenue Beaulieu 1-3 | REGIO | | | X | | | |
| B-28 | 14.987 | 607 | Rue Belliard 28 | DIGIT | X | | | | | |
| J-54 | 19.739 | 505 | Rue Joseph II 54 | DIGIT, DEVCO, EMPL | X | | | | | |
| L-86/L-84 | 13.355 | 417 | Rue de la Loi 86 | ECHO, DIGIT | X | | | | | |
| BREY (2009) | 35.198 | 963 | Avenue d'Auderghem 45 | BUDG, ENTR, HR | X | X | | | | |
| B232 (2009) | 11.584 | 428 | Rue Breydel 4 | SANCO | | | | | | |
| CDMA (2009) | 19.096 | 633 | Rue du Champ de Mars 21 | RTD, JRC | X | | | | | |
| DM24 (2009) | 15.827 | 518 | Rue Demot 24 | MOVE, ENER, EAS, SANCO, EPSO | X | | | | | |
| J-27 (2009) | 13.265 | 477 | Rue Joseph II 27 | EMPL | X | | | | | |
| J-30 (2009) | 18.157 | 472 | Rue Joseph II 30 | OLAF | X | | | | | |
| J-79 (2009) | 16.134 | 316 | Rue Joseph II 79 | CDP-OSP , MARE, TAXUD | X | | | | | |
| L-41 (2009) | 27.864 | 851 | Rue de la Loi 41 | DEVCO | X | X | | | | |
| LX46 (2010) | 17.478 | 493 | Rue de Luxembourg 46 | HOME, JUST | | | | | | |
| MO59 (2010) | 8.671 | 248 | Rue Montoyer 59 | JUST | X | | | | | |
| N105 (2010) | 9.546 | 291 | Avenue des Nerviens 105 | ECFIN, ENTR, TRADE | | | | | | |
| B100 (2010) | 5.952 | 191 | Rue Belliard 100 | ENTR, SCIC | | | | | | |
| VM18 (2010) | 9.330 | 134 | Rue Van Maerlant 18 | EAC, SCIC, OIB | X | | X | | | |
| J-70 (2010) | 20.082 | 673 | Rue Joseph II 70 | EAC | X | | | | | |
| J-59 (2010) | 9.396 | 301 | Rue Joseph II 59 | DEVCO, MARKT | | | | | | |
| F101 (2010) | 8.351 | 221 | Rue Froissart 101 | SANCO | X | | | | | |
| AN88 (2011) | 7.815 | 240 | Rue d'Arlon 88 | PMO | | | | | | |
| SC27/29 (2011) | 9.533 | 209 | Rue de la Science 27-29 | PMO, | X | X | | | | |
| BU29 (2011) | 6.131 | 248 | Avenue de Beaulieu 29 | REGIO | X | | | | | |
| BU31 (2011) | 6.185 | 253 | Avenue de Beaulieu 31 | CNECT | | | | | | |
| BU33 (2011) | 6.843 | 227 | Avenue de Beaulieu 33 | CNECT | | | | | | |
| G--1 (2011) | 12.580 | 295 | Avenue de Genève 1 | DGT, OIB | | | X | | | |
| G--6 (2011) | 17.240 | 450 | Avenue de Genève 6 | DGT | X | X | | | | |
| G-12 (2011) | 16.946 | 491 | Avenue de Genève 12 | DGT | X | | | | | |
| C-25 (2011) | 8.574 | 156 | Avenue de Cortenbergh 25 | EPSO | | | | | | |
| DM28 (2012) | 11.277 | 409 | Rue Demot 28 | MOVE | | | | | | |
| L-56 (2012) | 9.666 | 274 | Rue de la Loi 56 | COMP ,Galileo | | | | | | |

Annex 3.1 Characteristics of Brussels EMAS buildings

| Building [3] | Area (m²) | Occup. staff on 31/12/13 | Address | Occupying Services | Activities [2] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SPA3 (2012) | 12.288 | 435 | Rue de Spa 3 | TAXUD, EMPL | | | | | | |
| BU24 (2012) | 6.425 | 208 | Avenue de Beaulieu 24 | CLIMA | | | | | | |
| BU25 (2012) | 18.130 | 612 | Avenue de Beaulieu 25 | CNECT, RTD | | | | | | |
| SPA2 (2012) | 19.567 | 537 | Rue de SPA 2 | MARKT | X | | | | | |
| CSM1 (2013) | 12.276 | 356 | Rue Père de Deken 23 | OIB | X | | | | | |
| CHAR (2013) | 55.342 | 1.139 | Rue de la Loi 170 | ECFIN, COMM, TRADE | X | X | | | | |
| CCAB (2013) | 18.634 | 578 | Rue Froissart 36 | SCIC | X | X | | | | |
| LX40 (2013) | 7.803 | 228 | Rue de Luxembourg 40 | TAXUD | | | | | | |
| L102 (2013) | 4.935 | 142 | Rue de la Loi 102 | AGRI | | | | | | |
| L-15(3) (2013) | 16.877 | 388 | Rue de la Loi 15 | ELARG | X | | | | | |
| COVE-COV2 (2014) | 50.968 | 1.700 | Placer Rogier 16 | RTD + Agencies | X | X | | | | |
| J-99 (2014) | 8.281 | 277 | Rue Joseph II 99 | MARE | | | | | | |
| L130 (2014) | 37.043 | 984 | rue de la Loi, 130 | AGRI | X | X | | | | |
| MADO (2014) | 40.716 | 1.070 | Place Madou, 1 | DIGT, COMP, IAS | X | X | | | | |
| ORBN (2014) | 25.141 | 720 | square Frère Orban, 8 | RTD | X | X | | | | |
| **Total** | **982.810** | **25.818** | | | | | | | | |
| **Non office buildings** | | | | | | | | | | |
| HTWG (2) | 4.145 | Depot | Houtweg, 23 | DIGIT (?) | | | | | | X |
| CLOV (2) | 6.274 | Crèche | Boulevard Clovis 75 | OIB | X | X | X | | | |
| DAV1 (2) | 12.600 | Printing/ mail | Avenue de Bourget 1-3 | OIB | X | | | X | | |
| WILS (2) | 2.544 | Child care | Rue Wilson 16, | OIB | | | X | | | |
| VM-2 (2010) (2) | 15.960 | Café Restaurant | Rue Van Maerlant 2 | Cercles de Loisirs, le Foyer, Brasserie | X | X | | | | |
| COLE (2011) (2) | 8.850 | Crèche – child care | ~~Rue du Cornet 41-45~~ Rue G.Leman 60 | OIB | X | | X | | | |
| **Total** | **50.373** | | | | | | | | | |
| **Overal total** | **1.033.183** | | **Office and non office building** | | | | | | | |

[1] A technical modification has been applied to the ES data for 2010, concerning , J-70, F101 and VM-2) F101 et VM-2).

[2] other than office activities: a) cafés, b) restaurants-selfs, c) crèches-child care, d) printing and central mail, e) medical service et f) depot.

[3] and year of EMAS registration, buildings registered from 2009 only

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| (Basic EMAS | **Population: staff 'EMAS area-offices'** | **4.033** | **5.238** | **5.702** | **10.393** | **13.014** | **15.527** | **17.586** | **20.663** | **25.818** |
| parameters) | *Δ %* | | *30* | *9* | *82* | *25* | *19* | *13,3* | *17,5* | *24,9* |
| | **Population: total staff** | **21.203** | **22.635** | **23.760** | **24.936** | **24.937** | **25.750** | **26.305** | **28.681** | **26.499** |
| | *Δ %* | | *6,8* | *5,0* | *5,0* | *0,0* | *3,3* | *2,2* | *9,0* | *-7,6* |
| | **No. buildings seeking EMAS registration** | **8** | **13** | **15** | **23** | **32** | **42** | **48** | **54** | **59** |
| | *Δ %* | | | | | *39,1* | *31,3* | *14,3* | *12,5* | *9,3* |
| | **Total no. of buildings** | | | | | | | | | *61* |
| | *Δ %* | | | | | | | | | |
| | **Useful surface area offices in EMAS area, ($m^2$)** | **206.166** | **253.525** | **268.292** | **421.965** | **508.688** | **599.725** | **677.078** | **776.068** | **982.810** |
| | *Δ %* | | *23,0* | *5,8* | *57,3* | *20,6* | *17,9* | *12,9* | *14,6* | *26,6* |
| | **Total useful surface area for all buildings, (m2)** | | | | | | | | | **1.051.557** |
| **I) Efficient use of resources** | | | | | | | | | | |
| Ia | **Total energy office buildings (elec+gas +fuel) - MWh/yr** | **76.856** | **87.169** | **82.220** | **109.920** | **122.669** | **139.218** | **135.761** | **159.499** | **197.731** |
| | *Δ %* | | *13,4* | *-5,7* | *33,7* | *11,6* | *13,5* | *-2,5* | *17,5* | *24,0* |
| | **kWh/person** | **19.057** | **16.642** | **14.420** | **10.576** | **9.426** | **8.966** | **7.720** | **7.719** | **7.659** |
| | *Δ %* | | *-12,7* | *-13,4* | *-26,7* | *-10,9* | *-4,9* | *-13,9* | *0,0* | *-0,8* |
| | **kWh/m²** | **373** | **344** | **306** | **260** | **241** | **234** | **201** | **206** | **201** |
| | *Δ %* | | *-7,8* | *-11,0* | *-15,0* | *-7,3* | *-2,9* | *-14,1* | *2,5* | *-2,3* |
| | **i) of which total supplied electricity (MWh/yr)** | 40.749 | 39.909 | 40.427 | 60.445 | 64.247 | 75.666 | 81.656 | 91.498 | 109.254 |
| | *Δ %* | | *-2,1* | *1,3* | *49,5* | *6,3* | *17,8* | *7,9* | *12,1* | *19,4* |
| | **kWh/person** | **10.104** | **7.619** | **7.090** | **5.816** | **4.937** | **4.872** | **4.643** | **4.428** | **4.232** |
| | *Δ %* | | *-24,6* | *-6,9* | *-18,0* | *-15,1* | *-1,3* | *-4,7* | *-4,6* | *-4,4* |
| | **kWh/m²** | **198** | **157** | **151** | **143** | **126** | **127** | **121** | **118** | **111** |
| | *Δ %* | | *-20,7* | *-3,8* | *-5,3* | *-11,9* | *0,8* | *-4,7* | *-2,5* | *-5,8* |
| | **comprising "green" (MWh/yr)** | **0** | **0** | **0** | **0** | **38.548** | **71.883** | **77.573** | **86.923** | **103.791** |
| | *Δ %* | | | | | | *86,5* | *7,9* | *12,1* | *19,4* |
| | **Percentage of green electricity in mix** | 0 | 0 | 0 | 0 | 60 | 95 | 95 | 95 | 95 |
| | *Δ %* | | | | | | *58,3* | *0,0* | *0,0* | *0,0* |
| | **kWh/person** | **0** | **0** | **0** | **0** | **2.962** | **4.629** | **4.411** | **4.207** | **4.020** |
| | *Δ %* | | | | | | *56,3* | *-4,7* | *-4,6* | *-4,4* |
| | **kWh/m²** | **0** | **0** | **0** | **0** | **76** | **120** | **115** | **112** | **106** |
| | *Δ %* | | | | | | *58,2* | *-4,4* | *-2,2* | *-5,7* |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | **comprising non "green" (MWh/yr)** | **40.749** | **39.909** | **40.427** | **60.445** | **25.699** | **3.783** | **4.083** | **4.575** | **5.463** |
| | *Δ %* | | *-2,1* | *1,3* | *49,5* | *-57,5* | *-85,3* | *7,9* | *12,1* | *19,4* |
| | **% of non green electricity in mix** | **100** | **100** | **100** | **100** | **40** | **5** | **5** | **5** | **5** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* | *-60,0* | *-87,5* | *0,0* | *0,0* | *0,0* |
| | **kWh/person** | **10.104** | **7.619** | **7.090** | **5.816** | **1.975** | **244** | **232** | **221** | **212** |
| | *Δ %* | | *-24,6* | *-6,9* | *-18,0* | *-66,0* | *-87,7* | *-4,7* | *-4,6* | *-4,4* |
| | **kWh/m²** | **198** | **157** | **151** | **143** | **51** | **6** | **6** | **6** | **6** |
| | *Δ %* | | *-20,4* | *-4,3* | *-4,9* | *-64,7* | *-87,5* | *-4,4* | *-2,2* | *-5,7* |
| | **ii) of which supplied gas (MWh/yr)** | **33.931** | **44.754** | **39.824** | **47.309** | **56.410** | **61.311** | **52.633** | **66.264** | **86.501** |
| | *Δ %* | | *-14,9* | *-14,9* | *-14,9* | *-14,9* | *-14,9* | *-14,9* | *25,7* | *30,5* |
| | **kWh/person** | **8.953** | **9.023** | **7.330** | **4.760** | **4.489** | **4.094** | **3.077** | **3.291** | **3.350** |
| | *Δ %* | | *0,8* | *-18,8* | *-35,1* | *-5,7* | *-8,8* | *-24,8* | *7,0* | 1,8 |
| | **kWh/m²** | **175** | **186** | **156** | **117** | **115** | **107** | **80** | **88** | **88** |
| | *Δ %* | | *6,3* | *-16,1* | *-25,0* | *-1,7* | *-7,0* | *-25,2* | *10,0* | 0,0 |
| | **iii) of which supplied diesel (MWh/yr)** | **2.176** | **2.506** | **1.969** | **2.166** | **2.011** | **2.240** | **1.471** | **1.737** | **1.933** |
| | *Δ %* | | *15,1* | *-21,4* | *10,0* | *-7,1* | *11,4* | *-34,3* | *18,1* | *11,2* |
| | **kWh/person** | **540** | **478** | **345** | **208** | **155** | **144** | **84** | **84** | **75** |
| | *Δ %* | | *-11,3* | *-27,8* | *-39,6* | *-25,8* | *-6,6* | *-42,0* | *0,5* | *-11,0* |
| | **kWh/m²** | **10,6** | **9,9** | **7,3** | **5,1** | **4,0** | **3,7** | **2,2** | **2,2** | **2,0** |
| | *Δ %* | | *-6,4* | *-25,8* | *-30,1* | *-23,0* | *-5,5* | *-41,8* | *3,0* | *-12,2* |
| | **iv) of which site generated "green"** | | | | | | | | **43,4** | **43,4** |
| | *Δ %* | | | | | | | | | *0,0* |
| | **Installed peak capacity (kWhp)** | | | | | | | | | **10** |
| | *Δ %* | | | | | | | | | |
| | **Assumed output (% of peak capacity)** | | | | | | | | | **50** |
| | *Δ %* | | | | | | | | | |
| | **kWh/person** | | | | | | | | **2,10** | **1,68** |
| | *Δ %* | | | | | | | | | *-20,0* |
| | **kWh/m²** | | | | | | | | **0,056** | **0,044** |
| | *Δ %* | | | | | | | | | *-21,0* |
| 1b | **Total energy service vehicles (petrol + diesel) - MWh/yr** | | | | | | | | **2.180.429** | **2.115.255** |
| | *Δ %* | | | | | | | | | *-3,0* |
| | **kWh/person** | | | | | | | | **105.522** | **81.929** |
| | *Δ %* | | | | | | | | | *-22,4* |
| | **kWh/m²** | | | | | | | | **2.809,6** | **2.152,3** |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Δ %* | | | | | | | | | *-23,4* |
| | **Diesel used (litres)** | | | | | | | | **219.371** | **215.396** |
| | *Δ %* | | | | | | | | | *-1,8* |
| | kWh of energy provided by one litre diesel | | | | | | | | | 11,1 |
| | **Petrol used (litres)** | | | | | | | | **10.629** | **8.156** |
| | *Δ %* | | | | | | | | | *-23,3* |
| | kWh of energy provided by one litre petrol | | | | | | | | | **9,4** |
| | **Other fuel used if applicable (propane?)** | | | | | | | | **0** | **0,0** |
| | *Δ %* | | | | | | | | | *-3,0* |
| 1c | **Total renewable energy use (MWhr/yr)** | | | | | | | | **86.967** | **103.835** |
| | *Δ %* | | | | | | | | | *19,4* |
| | **Renewables as % of total energy use** | | | | | | | | **54,52** | **52,51** |
| | *Δ %* | | | | | | | | | *-3,7* |
| | **Onsite generated renewables as % of total energy use** | | | | | | | | **0,03** | **0,02** |
| | *Δ %* | | | | | | | | | *-19,3* |
| 1d | **Water consumption (EMAS offices) ($m^3$)** | **114.702** | **140.616** | **133.791** | **195.664** | **195.186** | **227.907** | **211.568** | **232.114** | **307.188** |
| | *Δ %* | | *22,6* | *-4,9* | *46,2* | *-0,2* | *16,8* | *-7,2* | *9,7* | *32,3* |
| | **l/person** | **28.441** | **26.845** | **22.493** | **18.827** | **14.998** | **14.700** | **12.030** | **11.233** | **11.898** |
| | *Δ %* | | *-5,6* | *-16,2* | *-16,3* | *-20,3* | *-2,0* | *-18,2* | *-6,6* | *5,9* |
| | **l/m²** | **556** | **555** | **499** | **464** | **384** | **384** | **312** | **299** | **313** |
| | *Δ %* | | *-0,2* | *-10,1* | *-7,0* | *-17,2* | *0,0* | *-18,8* | *-4,2* | *4,5* |
| 1e | **Paper consumption (tonnes)** | **1.727** | **1.703** | **1.681** | **1.557** | **1.412** | **1.376** | **1.271** | **1.212** | **1.150** |
| | *Δ %* | | *-1,4* | *-1,3* | *-7,4* | *-9,3* | *-2,5* | *-7,6* | *-4,6* | *-5,1* |
| | **Paper consumption (kg/person)** | **81** | **75** | **71** | **62** | **57** | **53** | **48** | **42** | **43** |
| | *Δ %* | | *-7,6* | *-6,0* | *-11,7* | *-9,3* | *-5,6* | *-9,6* | *-12,5* | *2,7* |
| | **Paper Density ($g/m^2$)** | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 77,5 |
| | *Δ %* | | *0,0* | *0,0* | *0,0* | *0,0* | *0,0* | *0,0* | *0,0* | *-3,1* |
| | **Sheets/kg** | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 207 |
| | *Δ %* | | *0,0* | *0,0* | *0,0* | *0,0* | *0,0* | *0,0* | *0,0* | *3,2* |
| | **Total No. of sheets** | 346.119.929 | 341.309.925 | 336.900.754 | 312.049.062 | 282.928.491 | 275.773.609 | 254.729.838 | 242.905.243 | 237.914.216 |
| | *Δ %* | | *-1,4* | *-1,3* | *-7,4* | *-9,3* | *-2,5* | *-7,6* | *-4,6* | *-2,1* |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Sheets/person** | 16.324 | 15.079 | 14.180 | 12.514 | 11.346 | 10.710 | 9.684 | 8.469 | 8.978 |
| | *Δ %* | | *-7,6* | *-6,0* | *-11,7* | *-9,3* | *-5,6* | *-9,6* | *-12,5* | *6,0* |
| | **Working days in the year** | 211 | 211 | 211 | 211 | 211 | 211 | 211 | 211 | 211 |
| | **Sheets/person/day** | **77** | **71** | **67** | **59** | **54** | **51** | **46** | **40** | **43** |
| | *Δ %* | | *-7,6* | *-6,0* | *-11,7* | *-9,3* | *-5,6* | *-9,6* | *-12,5* | *6,0* |
| 1f | **Offset paper consumption (tonnes)** | **370,7** | **217,8** | **252,3** | **268,0** | **248,0** | **284,6** | **274,1** | **224,2** | **249,9** |
| | *Δ %* | | *-41,2* | *15,8* | *6,2* | *-7,5* | *14,7* | *-3,7* | *-18,2* | *11,4* |
| | **Paper consumption (kg/person)** | 17 | 10 | 11 | 11 | 10 | 11 | 10 | 8 | 9 |
| | *Δ %* | | *-45,0* | *10,3* | *1,2* | *-7,5* | *11,1* | *-5,7* | *-25,0* | *20,6* |
| **II) Reduction in CO2 (including CO2 equivalent of greenhouse gases) and other air pollutants** | | | | | | | | | | |
| 2a | **Total office building emissions $CO_2$ (tonnes/yr)** | **19.238** | **20.514** | **18.897** | **25.531** | **28.285** | **33.723** | **33.424** | **38.931** | **47.942** |
| | *Δ %* | | *6,6* | *-7,9* | *35,1* | *10,8* | *19,2* | *-0,9* | *16,5* | *23,1* |
| | **$kgCO_2$/person** | **4.770** | **3.916** | **3.314** | **2.457** | **2.173** | **2.172** | **1.901** | **1.884** | **1.857** |
| | *Δ %* | | *-17,9* | *-15,4* | *-25,9* | *-11,6* | *0,0* | *-12,5* | *-0,9* | *-1,4* |
| | **$kgCO_2/m^2$** | **93** | **81** | **70** | **61** | **56** | **57** | **49** | **50** | **49** |
| | *Δ %* | | *-12,9* | *-13,6* | *-12,9* | *-8,2* | *1,8* | *-14,0* | *2,0* | *-2,4* |
| | **i) of which from electricity (tonnes/yr)** | **11.206** | **10.975** | **11.117** | **16.622** | **17.668** | **20.808** | **22.455** | **25.162** | **30.045** |
| | *Δ %* | | *-2,1* | *1,3* | *49,5* | *6,3* | *17,8* | *7,9* | *12,1* | *19,4* |
| | Kgs CO2 from 1 kWh of electricity | 0,275 | 0,275 | 0,275 | 0,275 | 0,275 | 0,275 | 0,275 | 0,275 | 0,275 |
| | **kgCO2/person** | **2.779** | **2.095** | **1.950** | **1.599** | **1.358** | **1.340** | **1.277** | **1.218** | **1.164** |
| | *Δ %* | | *-24,6* | *-6,9* | *-18,0* | *-15,1* | *-1,3* | *-4,7* | *-4,6* | *-4,4* |
| | **$kgCO2/m^2$** | **54** | **43** | **41** | **39** | **35** | **35** | **33** | **32** | **31** |
| | *Δ %* | | *-20,4* | *-4,3* | *-4,9* | *-11,8* | *-0,1* | *-4,4* | *-2,2* | *-5,7* |
| | **ii) of which from gas (tonnes/yr)** | **6.820** | **8.996** | **8.005** | **9.509** | **11.338** | **12.324** | **10.579** | **13.319** | **17.387** |
| | *Δ %* | | *31,9* | *-11,0* | *18,8* | *19,2* | *8,7* | *-14,2* | *25,9* | *30,5* |
| | Kgs CO2 from 1 kWh natural gas | 0,201 | 0,201 | 0,201 | 0,201 | 0,201 | 0,201 | 0,201 | 0,201 | 0,201 |
| | **kgCO2/person** | **1.691** | **1.717** | **1.404** | **915** | **871** | **794** | **602** | **645** | **673** |
| | *Δ %* | | *1,6* | *-18,3* | *-34,8* | *-4,8* | *-8,9* | *-24,2* | *7,1* | *4,5* |
| | **$kgCO2/m^2$** | **33** | **35** | **30** | **23** | **22** | **21** | **16** | **17** | **18** |
| | *Δ %* | | *7,3* | *-15,9* | *-24,5* | *-1,1* | *-7,8* | *-24,0* | *9,8* | *3,1* |
| | **iii) of which from diesel (tonnes/yr)** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **459** | **510** |
| | *Δ %* | | | | | | | | | *11,2* |
| | Kgs CO2 from 1 kWh diesel | | | | | | | | 0,264 | 0,264 |
| | **kgCO2/person** | | | | | | **0** | **0** | **0** | **20** |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | **kgCO2/m²** | | | | | | **0** | **0** | **0** | **1** |
| Basic refrigerant | **Total quantity of refrigerants (kg)** | | | | | | | | | **18.805** |
| data | **Total refrigerant losses (kg)** | | | | | | | | | **540,48** |
| 2b | **Emissions of other gases as $CO_2$ equivalent (tonnes)** | **1.777,1** | **1.822,5** | **1.369,8** | **995,0** | **770,7** | **154,0** | **268,2** | **127,0** | **914,1** |
| | *Δ %* | | *2,6* | *-24,8* | *-27,4* | *-22,5* | *-80,0* | *74,1* | *-52,7* | *619,8* |
| Refrigerants | **kgCO2equiv/person** | **83,81** | **80,52** | **57,65** | **39,90** | **30,91** | **5,98** | **10,20** | **4,43** | **34,50** |
| coolants | *Δ %* | | *-3,9* | *-28,4* | *-30,8* | *-22,5* | *-80,6* | *70,5* | *-56,6* | *679,1* |
| with high | **kgCO2equiv/m2** | **0,009** | **0,007** | **0,005** | **0,002** | **0,002** | **0,000** | **0,000** | **0,000** | **0,001** |
| Global | *Δ %* | | *-16,6* | *-29,0* | *-53,8* | *-35,7* | *-83,0* | *54,3* | *-58,7* | *468,4* |
| Warming | **i) of which R22 (kg)** | **982** | **1.007** | **757** | **550** | **426** | **85** | **148** | **70,3** | **46,80** |
| Potential | GWP | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 |
| (GWP) | **as tCO2equiv** | 1777,1 | 1822,5 | 1369,8 | 995,0 | 770,7 | 154,0 | 268,2 | 127,2 | 84,7 |
| | **ii) of which R410A (kg)** | | | | | | | | 0,00 | **12,50** |
| | GWP | | | | | | | | | 2090 |
| | **as tCO2equiv** | | | | | | | | 0,00 | 26,13 |
| | **iii) of which R134A (kg)** | | | | | | | | 0,00 | **227,78** |
| | GWP | | | | | | | | | 1430 |
| | **as tCO2equiv** | | | | | | | | 0,00 | 325,73 |
| | **iv) of which R404A (kg)** | | | | | | | | 0,00 | **69,50** |
| | GWP | | | | | | | | | 3920 |
| | **as tCO2equiv** | | | | | | | | 0,00 | 272,44 |
| | **v) of which R407C (kg)** | | | | | | | | 0,00 | **115,90** |
| | GWP | | | | | | | | | 1770 |
| | **as tCO2equiv** | | | | | | | | 0,00 | 205,14 |
| 2c | **Site vehicle CO2 emissions (tonnes)** | | | | | | | | **594,9** | **578,8** |
| | *Δ %* | | | | | | | | | *-2,7* |
| | **kgCO2/person** | | | | | | | | **20,7** | **21,8** |
| | *Δ %* | | | | | | | | | *5,3* |
| | **i) of which from diesel (tonnes)** | | | | | | | | | **560** |
| | Kgs CO2 from one litre of diesel | | | | | | | | | 2,6 |
| | **ii) of which from petrol** | | | | | | | | | **18,8** |
| | Kgs CO2 from one litre of petrol | | | | | | | | | 2,3 |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | **gCO2/km (manufacturer)** | **249** | **240** | **213** | **196** | **184** | **173** | **169** | **160** | **155,0** |
| | *Δ %* | | *-3,6* | *-11,3* | *-8,0* | *-6,1* | *-6,0* | *-2,3* | *-5,3* | *-3,1* |
| | Vehicle kms travelled | | | | | | | | 2.638.992 | 2.603.297 |
| | **gCO2/km (actual)** | | | | | | | **235,7** | **226,6** | **217** |
| | *Δ %* | | | | | | | | *-3,9* | *-4,2* |
| | **Number of vehicles** | | | | | | | | **160** | **120** |
| | *Δ %* | | | | | | | | | *-25,0* |
| | **kms/vehicle** | | | | | | | | **16.494** | **21.694** |
| | *Δ %* | | | | | | | | | *31,5* |
| 2d | **Total air emissions bldgs (kg)** | | | | | | | | **NR** | **21.120** |
| (SO2, NOx, PM) | of which NOx | | | | | | | | | 18.254 |
| and others? | of which SO2 | | | | | | | | | 673 |
| | of which PM10 | | | | | | | | | 125 |
| | others (VOC) | | | | | | | | | 2.068 |
| **III) Waste management** | | | | | | | | | | |
| 3a | **Total general waste (tonnes)** | **6.358,5** | **6.580,6** | **6.692,1** | **7.229,7** | **6.935,7** | **6.423,2** | **6.528,8** | **6.442,9** | **5.561,5** |
| | *Δ %* | | *3,5* | *1,7* | *8,0* | *-4,1* | *-7,4* | *1,6* | *-1,3* | *-13,7* |
| | **Total general waste (kg/person)** | **299,9** | **290,7** | **281,7** | **289,9** | **278,1** | **249,4** | **248,2** | **224,6** | **209,9** |
| | *Δ %* | | | | | | | *-0,5* | *-9,5* | *-6,6* |
| | **Unsorted waste** | 2.950,9 | 2.799,0 | 2.929,5 | 3.366,4 | 3.126,9 | 2.803,8 | 2.813,4 | 2.746,7 | 2.515,6 |
| | *Δ %* | | *-5,1* | *4,7* | *14,9* | *-7,1* | *-10,3* | *0,3* | *-2,4* | *-8,4* |
| | **Paper and card** | 3.264,6 | 3.437,6 | 3.420,3 | 3.500,0 | 3.453,6 | 3.237,5 | 3.248,6 | 3.219,3 | 2.590,4 |
| | *Δ %* | | *5,3* | *-0,5* | *2,3* | *-1,3* | *-6,3* | *0,3* | *-0,9* | *-19,5* |
| | **PMC** | 46,9 | 35,8 | 42,0 | 49,8 | 54,5 | 101,7 | 121,5 | 126,9 | 120,6 |
| | *Δ %* | | *-23,6* | *17,2* | *18,4* | *9,6* | *86,5* | *19,5* | *4,5* | *-5,0* |
| | **Organics** | 83,7 | 292,7 | 281,3 | 292,0 | 273,2 | 247,7 | 314,0 | 312,7 | 301,6 |
| | *Δ %* | | *249,9* | *-3,9* | *3,8* | *-6,4* | *-9,4* | *26,8* | *-0,4* | *-3,6* |
| | **Glass** | 12,5 | 15,5 | 19,1 | 21,5 | 27,4 | 32,5 | 31,4 | 37,4 | 33,3 |
| | *Δ %* | | *24,4* | *23,0* | *12,8* | *27,5* | *18,4* | *-3,4* | *19,2* | *-10,9* |
| 3b | **Total dangerous waste (tonnes)** | **42,888** | **43,035** | **63,878** | **99,290** | **57,888** | **59,871** | **53,477** | **77,462** | **107,103** |
| | *Δ %* | | | | | | | *-10,7* | *44,9* | *38,3* |
| | **Total dangerous waste (kg/person)** | **2,02** | **1,90** | **2,69** | **3,98** | **2,32** | **2,33** | **2,03** | **2,70** | **4,04** |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Δ %* | | | | | | | *-12,6* | *32,9* | *49,7* |
| | **Maintenance of buildings/lifts** | **0,000** | **0,000** | **21,600** | **65,000** | **25,304** | **20,566** | **16,590** | **43,950** | **82,595** |
| | *Δ %* | | | | *200,9* | *-61,1* | *-18,7* | *-19,3* | *164,9* | *87,9* |
| | **Microfiches** | **0,004** | **0,000** | **0,001** | **0,115** | **0,000** | **1,330** | **0,000** | **0,000** | **0,000** |
| | *Δ %* | | *-100* | | *11.400* | *-100* | | *-100* | | |
| | **Chemical-fixer-developing agents** | **0,002** | **3,195** | **1,244** | **2,378** | **2,059** | **1,855** | **2,446** | **0,150** | **0,126** |
| | *Δ %* | | *159.650,0* | *-61,1* | *91,2* | *-13,4* | *-9,9* | *31,9* | *-93,9* | *-16,0* |
| | **Chemical batteries** | **1,470** | **1,589** | **1,836** | **1,563** | **1,913** | **1,927** | **2,002** | **1,748** | **2,120** |
| | *Δ %* | | *8,1* | *15,5* | *-14,9* | *22,4* | *0,7* | *3,9* | *-12,7* | *21,3* |
| | **Paint - toner** | **1,466** | **2,456** | **2,514** | **1,075** | **0,772** | **1,369** | **1,207** | **1,194** | **0,271** |
| | *Δ %* | | *67,5* | *2,4* | *-57,2* | *-28,2* | *77,3* | *-11,8* | *-1,1* | *-77,3* |
| | **Cartriges laserjet-inkjet** | **25,720** | **21,217** | **19,231** | **16,190** | **15,287** | **15,625** | **14,331** | **12,526** | **11,100** |
| | *Δ %* | | *-17,5* | *-9,4* | *-15,8* | *-5,6* | *2,2* | *-8,3* | *-12,6* | *-11,4* |
| | **Oil and fat** | **13,038** | **12,123** | **14,393** | **11,874** | **12,554** | **17,200** | **12,200** | **17,824** | **10,751** |
| | *Δ %* | | *-7,0* | *18,7* | *-17,5* | *5,7* | *37,0* | *-29,1* | *46,1* | *-39,7* |
| | **Mineral Oil** | **0,000** | **2,121** | **0,015** | **0,003** | **0,000** | **0,000** | **0,000** | **0,000** | **0,000** |
| | *Δ %* | | | *-99,3* | *-80,0* | *-100,0* | | | | |
| | **Diverse chemical waste** | **1,188** | **0,334** | **3,044** | **1,092** | **0,000** | **0,000** | **4,701** | **0,071** | **0,140** |
| | *Δ %* | | *-71,9* | *811,4* | *-64,1* | *-100,0* | | | *-98,5* | *97,2* |
| 3c | **Percentage of waste sorted** | **53,902** | **57,742** | **56,639** | **54,067** | **55,289** | **56,752** | **57,258** | **57,876** | **55,623** |
| | *Δ %* | | *7,1* | *-1,9* | *-4,5* | *2,3* | *2,6* | *0,9* | *1,1* | *-3,9* |
| **IV) Protecting biodiversity** | | | | | | | | | | |
| | Built surface area (m2) | | | | | | | | | NA |
| | **Built surface area m2/person** | | | | | | | | | NA |
| | **Built surface area as % of site** | | | | | | | | | NA |
| **V) Green procurement** | | | | | | | | | | |
| 5a for contracts | **% contracts siged, with "eco" criteria** | | | | | | | | | 94 |
| 5b office supplies | **Green products in catalogue (%)** | | | | | | | **26,8** | **26,7** | **36,2** |
| | *Δ %* | | | | | | | | *-0,2* | *35,5* |
| | **Green products in catalogue (fraction)** | | | | | | | **171 / 639** | **169 / 633** | **186 / 514** |
| **VI) Legal conformity** | | | | | | | | | | |
| | **% of EMAS registered buildings** | | | | | | | | | **96,7** |
| | **$m^2$ of EMAS registered useful floorspace (%)** | | | | | | | | | **93,5** |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EMAS verification non conformities** | | | | | | | **21** | **5** | **3** |
| | *Δ %* | | | | | | | | *-76,2* | *-40,0* |
| **VII) Communication** | | | | | | | | | | |
| 7b | **No. of difft trainings on offer** | | | | | | **6** | **5** | **4** | **3** |
| training at | *Δ %* | | | | | | | *-16,7* | *-20,0* | *-25,0* |
| site level | **No of training beneficiaries** | | | | | | **2036** | **2037** | **1866** | **1648** |
| | *Δ %* | | | | | | | *0,0* | *-8,4* | *-11,7* |
| | **Beneficiaries as % of staff** | | | | | | **7,9** | **7,7** | **6,5** | **6,2** |
| | *Δ %* | | | | | | | *-2,1* | *-16,0* | *-4,4* |
| **VIII) Promoting dialogue with external partners** | | | | | | | | | | |
| **XX) ECONOMIC COSTS of EMAS and Virtual Value of Identified Savings** | | | | | | | | | | |
| **Direct costs** | **Total Direct EMAS Cost** | **0** | | | | | | | **132.000** | **132.000** |
| | Total Direct Cost per employee | | | | | | | | 5 | 5 |
| | **of which i) Annual direct staff costs (EUR)** | **0** | | | | | | | **132.000** | **132.000** |
| | Annual direct staff costs (time FTE) | | | | | | | | 1 | 1 |
| | Annual cost of one FTE (EUR) | 100.000 | | | | | | | 132.000 | 132.000 |
| | **of which ii) Annual contract costs (EUR)** | **0** | | | | | | | **0** | **0** |
| | **of which iii) Annual Misc costs** | **0** | | | | | | | **0** | **0** |
| **Energy (Bldgs)** | **Total energy unit cost** | | | | | | | | | |
| | Electricity unit cost (Eur/kWh) | 0,09 | 0,09 | 0,08 | 0,13 | 0,09 | 0,10 | 0,10 | 0,09 | 0,10 |
| | Gas (Eur/kWh) | 0,03 | 0,03 | 0,03 | 0,04 | 0,04 | 0,04 | 0,04 | 0,04 | 0,04 |
| | Fuel (Eur/kWh) | 0,03 | 0,03 | 0,05 | 0,05 | 0,05 | 0,06 | 0,06 | 0,07 | 0,07 |
| | Total buildings energy cost (Eur/person) | **1.194** | **994** | **844** | **961** | **634** | **623** | **579** | **550** | **552** |
| | Electricity (Eur/person) | 909 | 670 | 576 | 737 | 456 | 465 | 452 | 415 | 409 |
| | Gas (Eur/person) | 269 | 309 | 251 | 214 | 171 | 150 | 122 | 130 | 137 |
| | Fuel (Eur/person) | 16,19 | 14,45 | 16,68 | 9,40 | 7,73 | 7,93 | 5,02 | 5,46 | 5,09 |
| | **Total buildings energy cost (Eur)** | **4.815.907** | **5.208.605** | **4.811.195** | **9.983.744** | **8.250.735** | **9.673.107** | **10.189.199** | **11.372.245** | **14.242.833** |
| **Water** | Water unit cost (Eur/m3) | | | | | | | | 3,59 | 3,63 |
| | Water (Eur/person) | **0,00** | **0,00** | **0,00** | **0,00** | **0,00** | **0,00** | **0,00** | **40,33** | **43,19** |
| | **Total water costs (Eur)** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **833.289** | **1.115.092** |
| **Paper** | Paper (office) - unit cost/kg | | | | | | | | 1,22 | 0,77 |
| | Paper (offset) - unit cost/kg | | | | | | | | | |
| | Paper (office) - Eur/person | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 51,55 | 33,42 |
| | Paper (offset) - Eur/person | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| | Total paper (office) cost (Eur) | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 62,90 | 25,73 |
| | Total paper cost (Eur/person) | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 51,55 | 33,42 |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Total paper cost (Eur)** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1.478.640** | **885.500** |
| **Waste** | Waste disposal (general) - unit cost/tonne | | | | | | | | | 163,00 |
| | **Waste disposal (general) - Eur/person** | | | | | | | | | **34,21** |
| | Waste disposal (hazardous) - unit cost/tonne | | | | | | | | | 780,00 |
| | **Waste disposal (hazardous) - Eur/person** | | | | | | | | | **3,15** |
| | **Total waste cost (Eur)** | | | | | | | | | **906.525** |
| **Other site specific data** | | | | | | | | | | |
| **Paper wastage** | **Offset paper (paper wastage %)** | | | | | | | 25,8 | 12,9 | 5,4 |
| **Population** | **EMAS area population** | 4033 | 5238 | 5702 | 10393 | 13014 | 15527 | 17586 | 20663 | 26336 |
| | *Δ %* | | *29,9* | *8,9* | *82,3* | *25,2* | *19,3* | *13,3* | *17,5* | *27,5* |
| **Surfaces used:** | **EMAS surface (all buildings)** | **206.166** | **257.557** | **272.324** | **446.562** | **533.285** | **633.228** | **721.038** | **820.028** | **1.033.183** |
| (breakdown) | Δ % | | *24,9* | *5,7* | *64,0* | *19,4* | *18,7* | *13,9* | *13,7* | *26,0* |
| | **EMAS surfaces (non offices)** | | **4.032** | **4.032** | **24.597** | **24.597** | **33.503** | **43.960** | **43.960** | **50.373** |
| | **evolution %** | | | *0,0* | *510,0* | *0,0* | *36,2* | *31,2* | *0,0* | *14,6* |
| **Refrigeration continued** | **A) Loss of refrigerant gases in all buildings (except catering)** | | | | | | | | | |
| | **Total quantity (kg)** | 16.807 | 16.222 | 17.156 | 17.109 | 17.681 | 19.432 | 19.680 | 18.973 | 17.164 |
| | *Δ %* | | *-3,5* | *5,8* | *-0,3* | *3,3* | *9,9* | *1,3* | *-3,6* | *-9,5* |
| | **Total losses (kg)** | 1.130 | 1.135,0 | 762,0 | 696,0 | 937,0 | 470,0 | 594,0 | 431,0 | 472,5 |
| | *Δ %* | | *0,4* | *-32,9* | *-8,7* | *34,6* | *-49,8* | *26,4* | *-27,4* | *9,6* |
| | **of which losses of R22** | 965 | 974 | 741 | 543 | 414 | 80 | 144 | 65 | 65 |
| | *Δ %* | | *0,9* | *-23,9* | *-26,7* | *-23,8* | *-80,7* | *80,0* | *-54,9* | *0,0* |
| | **B) Phase out of equipment containing HCFC (excluding catering)** | | | | | | | | | |
| | **Pieces of equipment to replace (at end of year)** | | | | | 153 | 138 | 119 | 85 | 65 |
| | *Δ %* | | | | | | *-9,8* | *-13,8* | *-28,6* | *-23,5* |
| | **Losses of R22 ( kg)** | | | | | 414,0 | 80,0 | 144,0 | 65,0 | 46,8 |
| | *Δ %* | | | | | | *-80,7* | *80,0* | *-54,9* | *-28,0* |
| | **C) Phase out of equipment containing HCFC (catering)** | | | | | | | | | |
| | **Pieces of equipment to replace (at end of year)** | 211 | 133 | 79 | 40 | 35 | 31 | 28 | 3 | 0 |
| | *Δ %* | | *-37,0* | *-40,6* | *-49,4* | *-12,5* | *-11,4* | *-9,7* | *-89,3* | *-100,0* |
| | **Losses of R22 (kg)** | 17 | 32,9 | 15,8 | 6,7 | 11,8 | 5,1 | 4,2 | 5,3 | 0,0 |
| | *Δ %* | | *95,8* | *-52,0* | *-57,6* | *76,1* | *-56,8* | *-17,6* | *26,2* | *-100,0* |
| **Mobility bikes** | **Bike trips on Commission bikes** | | | | | | | | **20.434** | **17.139** |
| | | | | | | | | | | *-16,1* |
| | Jan | | | | | | | | 1.650 | 1.026 |

| Indicator | Description | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Feb | | | | | | | | 1.414 | 1.087 |
| | Mars | | | | | | | | 2.401 | 1.206 |
| | Avr | | | | | | | | 1.455 | 1.485 |
| | Mai | | | | | | | | 1.838 | 1.266 |
| | Juin | | | | | | | | 1.909 | 1.787 |
| | Juil | | | | | | | | 1.938 | 1.729 |
| | Août | | | | | | | | 1.303 | 1.099 |
| | Sept | | | | | | | | 2.086 | 1.885 |
| | Oct | | | | | | | | 1.999 | 1.935 |
| | Nov | | | | | | | | 1.637 | 1.422 |
| | Dec | | | | | | | | 804 | 1.212 |
| **2a** | **Total building emissions CO2 (tonnes/yr)** | **19.238** | **20.514** | **18.897** | **25.531** | **21.618** | **13.364** | **11.702** | **15.036** | **19.399** |
| | *Evolution %* | | *6,6* | *-7,9* | *35,1* | *-15,3* | *-38,2* | *-12,4* | *28,5* | *29,0* |
| | **kg/person (95% renewable electricity since 08/2009)** | **4.770** | **3.916** | **3.314** | **2.457** | **1.661** | **861** | **665** | **728** | **751** |
| **new calculation** | *Evolution %* | | *-17,9* | *-15,4* | *-25,9* | *-32,4* | *-48,2* | *-22,7* | *9,4* | *3,3* |
| **with no emissions** | **kg/m² (95% renewable electricity since 08/2009)** | **93** | **81** | **70** | **61** | **42** | **22** | **17** | **19** | **20** |
| **from renewable** | *Δ %* | | *-12,9* | *-13,6* | *-12,9* | *-30,3* | *-47,6* | *-22,4* | *12,1* | *1,9* |
| **energy since** | **of which from electricity (tonnes/yr)** | **11.206** | **10.975** | **11.117** | **16.622** | **10.280** | **1.040** | **1.123** | **1.258** | **1.502** |
| **Aug-09** | *Δ %* | | *-2,1* | *1,3* | *49,5* | *-38,2* | *-89,9* | *7,9* | *12,1* | *19,4* |
| | **Kgs $CO_2$ from 1 kWh of electricity** | **0,275** | **0,275** | **0,275** | **0,275** | **0,16** | **0,014** | **0,014** | **0,014** | **0,014** |
| | **kg/person** | **2.779** | **2.095** | **1.950** | **1.599** | **790** | **67** | **64** | **61** | **58** |
| | *Δ %* | | *-24,6* | *-6,9* | *-18,0* | *-50,6* | *-91,5* | *-4,7* | *-4,6* | *-4,4* |
| | **kg/m²** | **54** | **43** | **41** | **39** | **20** | **2** | **2** | **2** | **2** |
| | *Δ %* | | *-20,4* | *-4,3* | *-4,9* | *-48,7* | *-91,4* | *-4,4* | *-2,2* | *-5,7* |
| **Gas plus fuel** | **Total gas +fuel - (MWh/yr) to 2012** | **36.107** | **47.260** | **41.793** | **49.475** | **58.421** | **63.551** | **54.104** | **68.001** | |
| **Evolution** | % de rapports en Non conformité | | | | 36,0 | 40,0 | 38,0 | 38,0 | 43,0 | 48,0 |
| **of** | ***Δ %*** | | | | | *11,1* | *-5,0* | *0,0* | *13,1* | *11,6* |
| **non conformities** | % de rapports avec Non-conformité majeur | | | | 2,0 | 1,0 | 0,0 | 1,0 | 2,0 | 4,0 |
| | ***Δ %*** | | | | | *-50,0* | *-100,0* | | *50,0* | *50,0* |

| Indicator | Description | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| (Basic EMAS parameters) | **Population: total staff 'EMAS area'** | **759** | **1.315** | **1.422** |
| | *Δ %* | | *73,3* | *8,1* |
| | **Population: total staff** | **3.999** | **3.997** | **4.050** |
| | *Δ %* | | *-0,1* | *1,3* |
| | **No. buildings seeking EMAS registration** | **2** | **3** | **4** |
| | *Δ %* | | *50,0* | *33,3* |
| | **Total number of buildings** | **13** | **14** | **14** |
| | *Δ %* | *30,0* | *7,7* | *0,0* |
| | **Total useful surface area all buildings in EMAS area, ($m^2$)** | **27.710** | **49.938** | **64.703** |
| | *Δ %* | | *80,2* | *29,6* |
| | **Total useful surface area for all buildings, ($m^2$)** | **180.818** | **191.713** | **191.713** |
| | *Δ %* | | *6,0* | *0,0* |
| **I) Efficient use of resources** | | | | |
| Ia | **Total energy buildings (elec+gas +fuel) - MWh/yr** | **6.335** | **14.124** | **15.230** |
| | *Δ %* | | *123,0* | *7,8* |
| | **kWh/person** | **8.347** | **10.741** | **10.710** |
| | *Δ %* | | *28,7* | *-0,3* |
| | **kWh/m²** | **229** | **283** | **235** |
| | *Δ %* | | *23,7* | *-16,8* |
| | **i) of which total supplied electricity (MWh/yr)** | **3.425** | **8.289** | **8.167** |
| | *Δ %* | | *142,0* | *-1,5* |
| | **kWh/person** | **4.513** | **6.303** | **5.743** |
| | *Δ %* | | *39,7* | *-8,9* |
| | **kWh/m²** | **124** | **166** | **126** |
| | *Δ %* | | *34,3* | *-24,0* |
| | **comprising "green" (MWh/yr)** | **3.425** | **8.289** | **8.167** |
| | *Δ %* | | *142,0* | *-1,5* |
| | **Percentage of green electricity in mix** | 100 | 100 | 100 |
| | *Δ %* | | *0,0* | *0,0* |
| | **kWh/person** | **4.513** | **6.303** | **5.743** |
| | *Δ %* | | *39,7* | *-8,9* |
| | **kWh/m²** | **124** | **166** | **126** |
| | *Δ %* | | *34,3* | *-24,0* |
| | **comprising non "green" (MWh/yr)** | **0** | **0** | **0** |
| | **Percentage of non green electricity in mix** | **0** | **0** | **0** |
| | **kWh/person** | **0** | **0** | **0** |
| | **kWh/m²** | **0** | **0** | **0** |
| | **ii) of which supplied gas (MWh/yr)** | **618** | **4.020** | **4.149** |
| | *Δ %* | | *550,5* | *3,2* |
| | **kWh/person** | **814** | **3.057** | **2.918** |
| | *Δ %* | | *275,5* | *-4,6* |
| | **kWh/m²** | **22** | **80,5** | **64,1** |
| | *Δ %* | | *260,9* | *-20,3* |
| | **iii) of which fuel (MWh/yr)** | **0** | **0** | **0** |
| | **kWh/person** | **0** | **0** | **0** |
| | **kWh/m²** | **0** | **0** | **0** |
| | **iv) of which site generated "green"** | | **0,0** | **539,0** |
| | **Installed peak capacity (kWhp)** | | | 0 |
| | **Assumed output (% of peak capacity)** | | | 50 |
| | **kWh/person** | | 0 | 379 |
| | **kWh/m²** | | 0 | 8,3 |
| 1b | **Total energy service vehicles (petrol + diesel) - MWh/yr** | | | **534,6** |
| | *Δ %* | | | |

| Indicator | Description | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| | **kWh/person** | | **0** | **387** |
| | **kWh/m²** | | **0,0** | **9,9** |
| | **Diesel used (litres)** | | | **48.472** |
| | kWh of energy provided by one litre diesel | | | 10,89 |
| | **Petrol used (litres)** | | | **713** |
| | kWh of energy provided by one litre petrol | | | 9,42 |
| | **Other fuel used if applicable (propane?)** | | 0 | **0,0** |
| 1c | **Total renewable energy use (MWhr/yr)** | | **8.289** | **8.040** |
| | *Δ %* | | | *-3,0* |
| | **Renewables as % of total energy use** | | **58,7** | **57,2** |
| | *Δ %* | | | *-2,6* |
| | **Onsite generated renewables as % of total energy use** | | **0,00** | **3,54** |
| 1d | **Water consumption (m3)** | **24.752** | **22.069** | **21.674** |
| | *Δ %* | | *-10,8* | *-1,8* |
| | **l/person** | **12.258** | **16.783** | **15.242** |
| | *Δ %* | | *36,9* | *-9,2* |
| | **l/m²** | **352** | **442** | **335** |
| | *Δ %* | | *25,6* | *-24,2* |
| 1e | **Paper consumption (tonnes)** | **135,00** | **115,08** | **114,03** |
| | *Δ %* | | *-14,8* | *-0,9* |
| | **Paper consumption (kg/person)** | **34** | **29** | **28** |
| | *Δ %* | | *-14,7* | *-2,2* |
| | **Paper Density (g/m²)** | 80 | 80 | 80 |
| | **Number of sheets per kg** | 200 | 200 | 200 |
| | **Number of sheets total** | 27.056.277 | 23.063.973 | 22.853.535 |
| | *Δ %* | | *-14,8* | *-0,9* |
| | **Number of sheets per person** | **6.766** | **5.770** | **5.643** |
| | *Δ %* | | *-14,7* | *-2,2* |
| | Working days in the year | 211 | 211 | 211 |
| | **No. of sheets per person/ per day** | **32** | **27** | **27** |
| | *Δ %* | | *-14,7* | *-2,2* |
| 1f | **Offset paper consumption (tonnes)** | **31,99** | **23,1** | **0,0** |
| | *Δ %* | | *-27,9* | *-100,0* |
| | **Paper consumption (kg/person)** | 8 | 5,77 | 0,00 |
| | *Δ %* | | *-27,8* | *-100,0* |
| **II) Reduction in CO2 (including CO2 equivalent of greenhouse gases) and other air pollutants** | | | | |
| 2a | **Total building emissions $CO_2$ (tonnes/yr)** | **869** | **1.359** | **1.567** |
| | *Δ %* | | *56,4* | *15,3* |
| | **kg$CO_2$/person** | **1.145** | **1.034** | **1.102** |
| | *Δ %* | | *-9,7* | *6,6* |
| | **kg$CO_2$/m²** | **31** | **27** | **24** |
| | *Δ %* | | *-13,2* | *-11,0* |
| | **i) of which from electricity (tonnes/yr)** | **0** | **0** | **0** |
| | Kgs $CO_2$ from 1 kWh of electricity | 0 | 0 | 0 |
| | **kgCO2/person** | **0** | **0** | **0** |
| | **kgCO2/m²** | **0** | **0** | **0** |
| | **ii) of which from gas (tonnes/yr)** | **117** | **764** | **788** |
| | *Δ %* | | *550,5* | *3,2* |
| | Kgs $CO_2$ from 1 kWh natural gas | 0,190 | 0,190 | 0,190 |
| | **kgCO2/person** | **155** | **581** | **554** |
| | *Δ %* | | *275,5* | *-4,6* |

| Indicator | Description | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| | **kgCO2/m²** | **4** | **15** | **12** |
| | *Δ %* | | *260,9* | *-20,3* |
| | **iii) of which hot water (tonnes/yr)** | **752** | **595** | **779** |
| | *Δ %* | | *-20,8* | *30,9* |
| | Kgs $CO_2$ from 1 kWh hot water | 0,328 | 0,328 | 0,328 |
| | **kgCO2/person** | **0** | **453** | **548** |
| | *Δ %* | | | *21,0* |
| | **kgCO2/m²** | **0** | **12** | **12** |
| | *Δ %* | | | *1,0* |
| 2b | **Charge total des refrigerants (kg)** | | | **164,70** |
| | **Pertes totales des refrigerants (kg)** | | | 0,00 |
| | **Emissions des autres gas en CO2 equivalent (tonnes)** | **NR** | **NR** | **0,0** |
| Refrigerants | **kgCO2equiv/person** | | | **0,00** |
| with high | **kgCO2equiv/m²** | | | **0,000** |
| Warming | **i) of which R22 (kg)** | | **0,0** | **0,00** |
| Potential | GWP | | | 1810 |
| (GWP) | **tCO2equiv** | | | 0,0 |
| | **ii) of which R410A (kg)** | | **0,00** | **0,00** |
| | GWP | | | 2090 |
| | **tCO2equiv** | | | 0,00 |
| | **iii) of which R134A (kg)** | | **0,00** | **0,00** |
| | GWP | | | 1430 |
| | **tCO2equiv** | | | 0,00 |
| | **iv) of which R404A (kg)** | | **0,00** | **0,00** |
| | GWP | | | 3260 |
| | **tCO2equiv** | | | 0,00 |
| | **v) of which R407C (kg)** | | **0,00** | **0,00** |
| 2c | **Site vehicle $CO_2$ emissions (tonnes)** | **132** | **119** | **131,0** |
| | *Δ %* | | *-9,6* | *10,2* |
| | **kgCO2/person** | **32,9** | **29,7** | **32,4** |
| | *Δ %* | | *-9,6* | *8,8* |
| | **of which from diesel** | | 0,00 | **129,42** |
| | Kgs CO2 from one litre of diesel | | 2,67 | 2,67 |
| | **of which from petrol** | | 0,00 | **1,63** |
| | Kgs CO2 from one litre of petrol | | 2,28 | 2,28 |
| | **gCO2/km (manufacturer)** | **191** | **182** | **179** |
| | *Δ %* | | *-4,7* | *-1,6* |
| | **Vehicle kms travelled** | **548.074** | **521.537** | **602.927** |
| | *Δ %* | | *-4,8* | *15,6* |
| | **gCO2/km (actual)** | **240,0** | **228,0** | **217,0** |
| | *Δ %* | | *-5,0* | *-4,8* |
| | **Number of vehicles** | **29** | **28** | **27** |
| | *Δ %* | | *-3,4* | *-3,6* |
| | **kms/vehicle** | | | **24.117** |
| | *Δ %* | | | |
| 2d | **Total air emissions bldgs (kg)** | | **NR** | **NR** |
| (SO2, NOx, PM) | **i) of which NOx** | | | NR |
| and others? | **ii) of which $SO_2$** | | | NR |
| | **iii) of which $PM_{10}$** | | | NR |
| | **iv) others (VOC)** | | | NR |
| **III) Waste management** | | | | |
| 3a | **Total general waste (tonnes)** | **186,1** | **145,1** | **175,8** |
| | *Δ %* | | *-22,0* | *21,1* |
| | **Total general waste (kg/person)** | **245,3** | **110,4** | **123,6** |
| | *Δ %* | | *-55,0* | *12,0* |
| | **Mixed waste** | **115,880** | **86,009** | **106,828** |
| | *Δ %* | | *-25,8* | *24,2* |
| | **Paper and cardboard** | **56,150** | **48,530** | **57,750** |
| | *Δ %* | | *-13,6* | *19,0* |

| Indicator | Description | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| | **Plastic** | **3,865** | **3,058** | **3,004** |
| | *Δ %* | | *-20,9* | *-1,8* |
| | **Metals** | **0,715** | **0,382** | **0,510** |
| | *Δ %* | | *-46,6* | *33,5* |
| | **Storage tins** | **1,084** | **0,811** | **0,619** |
| | *Δ %* | | *-25,2* | *-23,7* |
| | **Wood** | **3,081** | **1,496** | **1,385** |
| | *Δ %* | | *-51,4* | *-7,4* |
| | **Glass** | **4,080** | **3,600** | **3,460** |
| | *Δ %* | | *-11,8* | *-3,9* |
| | **Metal drinks cans** | **0,102** | **0,221** | **0,221** |
| | *Δ %* | | *116,7* | *0,0* |
| | **Varolux** | **1,189** | **1,029** | **1,977** |
| | *Δ %* | | *-13,5* | *92,1* |
| 3b | **Total dangerous waste (tonnes)** | **1,322** | **1,658** | **1,370** |
| | *Δ %* | | *25,4* | *-17,4* |
| | **Total dangerous waste (kg/person)** | **1,74** | **1,26** | **0,96** |
| | *Δ %* | | *-27,6* | *-23,6* |
| | **Medical waste** | **0,346** | **0,259** | **0,271** |
| | *Δ %* | | *-25,1* | *4,6* |
| | **Used batteries** | **0,275** | **0,286** | **0,238** |
| | *Δ %* | | *4,0* | *-16,8* |
| | **Used containers** | **0,053** | **0,046** | **0,000** |
| | *Δ %* | | *-13,2* | *-100,0* |
| | **Data support** | **0,0** | **0,0** | **0,150** |
| | **Cartridges** | **0,0** | **0,0** | **0,000** |
| | **Electric cables** | **0,0** | **0,0** | **0,000** |
| | **Oils, greases** | **0,648** | **1,067** | **0,711** |
| | *Δ %* | | *64,7* | *-33,4* |
| 3c | **Percentage of waste sorted** | **38,2** | **41,4** | **39,7** |
| | *Δ %* | | *8,4* | *-4,2* |
| **IV) Protecting biodiversity** | | | | |
| 4a | **Built surface area ($m^2$)** | | | |
| | **Built surface area $m^2$/person** | | | |
| | **Built surface area as % of site** | | | |
| **V) Green procurement** | | | | |
| 5a for contracts over 60k EUR | **% contrats signé, critères "eco"** | **32** | **65** | **92** |
| | *Δ %* | | *103,1* | *41,5* |
| 5b | **produits verts en catalogue (%)** | **19** | **18** | **28** |
| | *Δ %* | | *-3,2* | *51,5* |
| | **produits verts en catalogue fraction** | **89 / 458** | **99 / 537** | **88 / 391** |
| **VI) Legal conformity** | | | | |
| | **% of EMAS registered buildings** | **15,4** | **21,4** | **28,6** |
| | **% $m^2$ of EMAS registered useful floorspace** | **15,3** | **26,0** | **33,7** |
| | **EMAS verification non conformities** | **19** | **3** | **0** |
| | *Δ %* | | *-84,2* | *-100,0* |
| **VII) Communication** | | | | |
| 7b | **No. of difft trainings on offer** | **4** | **3** | **5** |
| training at | *Δ %* | | *-25,0* | *66,7* |
| site level | **No of beneficiaries of training** | 201 | 351 | 408 |
| | *Δ %* | | *74,6* | *16,2* |
| | **Beneficiaries as % of staff** | 26,5 | 26,7 | 28,7 |
| | *Δ %* | | *0,8* | *7,5* |
| **VIII) Promoting dialogue with external partners** | | | | |
| **XX) ECONOMIC COSTS of EMAS and Virtual Value of Identified Savings** | | | | |
| **Direct costs** | **Total Direct EMAS Cost** | | **396.000** | **462.000** |
| | Total Direct Cost per employee | | 99 | 114 |
| Of which | **i) Annual direct staff costs (EUR)** | | **396.000** | **462.000** |
| | Annual direct staff costs (time FTE) | | 3 | 3,5 |
| | Annual cost of one FTE (EUR) | | 132.000 | 132.000 |
| | **ii) Annual contract costs (EUR)** | | **0** | **0** |

| Indicator | Description | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| | **iii) Annual Misc costs** | | **0** | **0** |
| Energy (Bldgs) | Total energy unit cost | | | |
| | Electricity unit cost (Eur/kWh) | | | 0,0874 |
| | Gas (Eur/kWh) | | | 0,065 |
| | Fuel (Eur/kWh) | | | 0,10 |
| | **Total buildings energy cost (Eur/person)** | | | **746,11** |
| | Electricity (Eur/person) | | | 501,68 |
| | Gas (Eur/person) | | | 189,65 |
| | Fuel (Eur/person) | | | 54,78 |
| | Total buildings energy cost (Eur) | | | 1.060.972 |
| Energy (vehicles) | Diesel unit cost- (Eur/litre) | | | **1,30** |
| | Petrol unit cost- (Eur/litre) | | | 1,50 |
| | Total cost Diesel (Eur) | | | 63.014 |
| | Total cost petrol (Eur) | | | 1.070 |
| | **Total energy costs (Eur/person)** | | | **15,82** |
| | Total fuel costs (vehicles) (Eur) | | | 64.083 |
| Water | Water unit cost (Eur/$m^3$) | | | 2,00 |
| | **Water (Eur/person)** | | | **30,48** |
| | Total water costs (Eur) | | | 43.348 |
| Paper | Paper (office) - unit cost/kg | | | 0,72 |
| | Paper (offset) - unit cost/kg | | | |
| | **Paper (office) - Eur/person** | | | **20,27** |
| | Paper (offset) - Eur/person | | | 0,00 |
| | Total paper (office) cost (Eur) | | | 14,60 |
| | Total paper cost (Eur/person) | | | 20,27 |
| | Total paper cost (Eur) | | | 82.102 |
| Waste | Waste disposal (general) - unit cost/tonne | | | 334,81 |
| | **Waste disposal (general) - Eur/person** | | | **41,38** |
| | Waste disposal (hazardous) - unit cost/tonne | | | 3.641 |
| | **Waste disposal (hazardous) - Eur/person** | | | **3,51** |
| | Total waste cost (Eur) | | | 58.844 |
| **Other site specific data** | | | | |
| **Printers etc** | **Imprimante local couleur** | **24** | **0** | **0** |
| | *Δ %* | | *-100,0* | |
| | **Imprimante locale N&B** | **5** | **0,0** | **0,0** |
| | *Δ %* | | *-100,0* | |
| | **Reseau N&B** | **30** | **20** | **20** |
| | *Δ %* | | *-33,3* | *0,0* |
| | **Reseau couleurs** | **9** | **14** | **17** |
| | *Δ %* | | *55,6* | *21,4* |
| | **Photocopier N&B** | **10** | **8** | **8** |
| | *Δ %* | | *-20,0* | *0,0* |
| | **Photocopier Couleur** | **1** | **1** | **1** |
| | *Δ %* | | *0,0* | *0,0* |
| | **Fax** | **5** | **3** | **3** |
| | *Δ %* | | *-40,0* | *0,0* |
| | **Total number of units** | **84** | **46** | **49** |
| **Energy consumption continued** | **v) of which site generated by wood combustion** | | 0,0 | **539,0** |
| | **kWh/person** | | **0** | **379** |
| | **kWh/m²** | | **0** | **8,3** |
| | **vi) of which district heating** | *2.292,0* | **1.815** | **2.375** |
| | *Δ %* | | | *20,7* |
| | **kWh/person** | | **1.380** | **1.670** |
| | *Δ %* | | | *11,6* |
| | **kWh/m²** | | **36,3** | **36,7** |
| | *Δ %* | | | *-6,9* |

NotesNR: Not reported

| Indicator | Definition | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| (Basic EMAS parameters) | **Population: total staff 'EMAS area'** | **232** | **229** | **266** | **263** |
| | *Δ %* | | *-1,3* | *16,2* | *-1,1* |
| | **Population: total staff** | **232** | **229** | **266** | **263** |
| | *Δ %* | | *-1,3* | *16,2* | *-1,1* |
| | **No. buildings seeking EMAS registration** | **14** | **14** | **14** | **14** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | **Total number of buildings** | **14** | **14** | **14** | **14** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | **Total useful surface area all buildings in EMAS area, ($m^2$)** | **18.400** | **18.400** | **19.150** | **19.150** |
| | *Δ %* | | *0,0* | *4,1* | *0,0* |
| | **Total useful surface area for all buildings, ($m^2$)** | **18.400** | **18.400** | **19.150** | **19.150** |
| | *Δ %* | | *0,0* | *4,1* | *0,0* |
| | **Total site area, ($m^2$)** | **305.554** | **305.554** | **305.554** | **305.554** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| **I) Efficient use of resources** | | | | | |
| Ia | **Total energy buildings (elec+gas +fuel) - MWh/yr** | **8.690** | **6.665** | **6.746** | **8.373** |
| | *Δ %* | *13,5* | *-2,5* | *17,5* | *24,1* |
| | **kWh/person** | **37.457** | **29.105** | **25.214** | **31.836** |
| | *Δ %* | *-4,9* | *-13,9* | *0,0* | *26,3* |
| | **kWh/m²** | **472** | **362** | **350** | **437** |
| | *Δ %* | *-2,9* | *-14,1* | *2,5* | *24,9* |
| | **i) of which total supplied electricity (MWh/yr)** | **3.400** | **2.990** | **2.426** | **3.082** |
| | *Δ %* | | *-12,1* | *-18,9* | *27,0* |
| | **kWh/person** | **14.655** | **13.057** | **9.120** | **11.719** |
| | *Δ %* | | *-10,9* | *-30,1* | *28,5* |
| | **kWh/m²** | **185** | **163** | **127** | **161** |
| | *Δ %* | | *-12,1* | *-22,0* | *27,0* |
| | **comprising "green" (MWh/yr)** | **0** | **0** | **0** | **0** |
| | **Percentage of green electricity in mix** | **0** | **0** | **0** | **0** |
| | **kWh/person** | **0** | **0** | **0** | **0** |
| | **kWh/m²** | **0** | **0** | **0** | **0** |
| | **comprising non "green" (MWh/yr)** | **3.400** | **2.990** | **2.426** | **3.082** |
| | *Δ %* | | *-12,1* | *-18,9* | *27,0* |
| | **Percentage of non green electricity in mix** | **100** | **100** | **100** | **100** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | **kWh/person** | **14.655** | **13.057** | **9.120** | **11.719** |
| | *Δ %* | | *-10,9* | *-30,1* | *28,5* |
| | **kWh/m²** | **185** | **163** | **127** | **161** |
| | *Δ %* | | *-12,1* | *-22,0* | *27,0* |
| | **ii) of which supplied gas (MWh/yr)** | **5.290** | **3.675** | **4.281** | **5.061** |
| | *Δ %* | | *-14,9* | *25,7* | *18,2* |
| | **kWh/person** | **22.802** | **16.048** | **16.094** | **19.243** |
| | *Δ %* | | *-29,6* | *0,3* | *19,6* |
| | **kWh/m²** | **288** | **200** | **224** | **264** |
| | *Δ %* | | *-30,5* | *11,9* | *18,2* |
| | **iii) of which supplied diesel (MWh/yr)** | **0** | **0** | **0** | **0** |
| | **kWh/person** | **0** | **0** | **0** | **0** |
| | **kWh/m²** | **0** | **0** | **0** | **0** |
| | **iv) of which site generated "green" (MWh/yr)** | **0,0** | **0,0** | **38,7** | **230,0** |
| | *Δ %* | | | | *495* |
| | **Installed peak capacity (kWhp)** | **0** | **0** | **24,5** | **145,75** |
| | *Δ %* | | | | *495* |
| | **Assumed output (% of peak capacity)** | **18** | **18** | **18** | **18** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | **kWh/person** | **0** | **0** | **145** | **874** |
| | *Δ %* | | | | *502* |
| | **kWh/m²** | **0** | **0** | **2** | **12** |
| | *Δ %* | | | | *494,9* |
| 1b | **Total energy service vehicles (petrol + diesel) - MWh/yr** | **0** | **0** | **6,2** | **6,0** |

| Indicator | Definition | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | *Δ %* | | | | *-3,7* |
| | **kWh/person** | **0** | **0** | **23** | **23** |
| | *Δ %* | | | | *-2,6* |
| | **kWh/m²** | **0** | **0** | **0,3** | **0,3** |
| | *Δ %* | | | | *-3,7* |
| | **Diesel used (litres)** | | | **400** | **0** |
| | *Δ %* | | | | *-100,0* |
| | kWh of energy provided by one litre diesel | 10,89 | 10,89 | 10,89 | 10,89 |
| | **Petrol used (litres)** | | | **200** | **638** |
| | *Δ %* | | | | *219,0* |
| | kWh of energy provided by one litre petrol | 9,42 | 9,42 | 9,42 | 9,42 |
| | **Other fuel used if applicable (propane?)** | **0** | **0** | **0** | **0** |
| 1c | **Total renewable energy use (MWhr/yr)** | **0** | **0** | **39** | **230** |
| | *Δ %* | | | | *494,9* |
| | **Renewables as % of total energy use** | **0,00** | **0,00** | **0,57** | **2,75** |
| | *Δ %* | | | | *379,3* |
| 1d | **Onsite generated renewables as % of total energy use** | **0,00** | **0,00** | **0,57** | **2,75** |
| | *Δ %* | | | | *379,3* |
| | **Water consumption (m3)** | **2.669** | **6.520** | **7.625** | **5.065** |
| | *Δ %* | | *144,3* | *16,9* | *-33,6* |
| | **l/person** | **11.504** | **28.472** | **28.665** | **19.259** |
| | *Δ %* | | *147,5* | *0,7* | *-32,8* |
| | **l/m²** | **145** | **354** | **398** | **264** |
| | *Δ %* | | *144,3* | *12,4* | *-33,6* |
| 1e | **Paper consumption (tonnes)** | **9,770** | **4,832** | **8,070** | **5,503** |
| | *Δ %* | | *-50,5* | *67,0* | *-31,8* |
| | **Paper consumption (kg/person)** | **42** | **21** | **30** | **21** |
| | *Δ %* | | *-49,9* | *43,8* | *-31,0* |
| | Paper Density ($g/m^2$) | 80 | 80 | 80 | 80,0 |
| | Number of sheets per kg | 200 | 200 | 200 | 200 |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | Number of sheets total | 1.958.073 | 968.414 | 1.617.364 | 1.102.894 |
| | *Δ %* | | *-50,5* | *67,0* | *-31,8* |
| | Number of sheets per person | 8.440 | 4.229 | 6.080 | 4.194 |
| | *Δ %* | | *-49,9* | *43,8* | *-31,0* |
| | Working days in the year | 211 | 211 | 211 | 211 |
| | **No. of sheets per person/ per day** | **40** | **20** | **29** | **20** |
| | *Δ %* | | *-49,9* | *43,8* | *-31,0* |
| 1f | **Offset paper consumption (tonnes)** | **0,0** | **0,0** | **0,0** | **0,0** |
| | **Paper consumption (kg/person)** | 0 | 0 | 0 | 0 |
| **II) Reduction in CO2 (including CO2 equivalent of greenhouse gases) and other air pollutants** | | | | | |
| 2a | **Total building emissions $CO_2$ (tonnes/yr)** | **3.359** | **2.755** | **2.500** | **3.100** |
| | *Δ %* | | *-18,0* | *-9,3* | *24,0* |
| | **kg$CO_2$/person** | **14.478** | **12.031** | **9.398** | **11.789** |
| | *Δ %* | | *-16,9* | *-21,9* | *25,4* |
| | **kg$CO_2$/m²** | **183** | **150** | **131** | **162** |
| | *Δ %* | | *-18,0* | *-12,8* | *24,0* |
| | **of which from electricity (tonnes/yr)** | **2.281** | **2.006** | **1.628** | **2.068** |
| | *Δ %* | | *-12,1* | *-18,9* | *27,0* |
| | Kgs $CO_2$ from 1 kWh of electricity | 0,671 | 0,671 | 0,671 | 0,671 |
| | **kgCO2/person** | **9.834** | **8.761** | **6.120** | **7.863** |
| | *Δ %* | | *-10,9* | *-30,1* | *28,5* |
| | **kgCO2/m²** | **124** | **109** | **85** | **108** |
| | *Δ %* | | *-12,1* | *-22,0* | *27,0* |
| | **of which from gas (tonnes/yr)** | **1.079** | **750** | **873** | **1.032** |
| | *Δ %* | | *-30,5* | *16,5* | *18,2* |
| | Kgs $CO_2$ from 1 kWh natural gas | 0,204 | 0,204 | 0,204 | 0,204 |
| | **kgCO2/person** | **4.652** | **3.274** | **3.283** | **3.926** |
| | *Δ %* | | *-29,6* | *0,3* | *19,6* |

| Indicator | Definition | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | **kgCO2/m²** | **59** | **41** | **46** | **54** |
| | *Δ %* | | *-30,5* | *11,9* | *18,2* |
| | **of which from diesel (tonnes/yr)** | **0** | **0** | **0** | **0** |
| | Kgs $CO_2$ from 1 kWh diesel | 0,264 | 0,264 | 0,264 | 0,264 |
| | **kgCO2/person** | **0** | **0** | **0** | **0** |
| | **kgCO2/m²** | **0** | **0** | **0** | **0** |
| 2b | **Charge total des refrigerants (kg)** | | | | **382** |
| | **Pertes totales des refrigerants (kg)** | | | | **3** |
| data | **Emissions des autres gas en CO2 equivalent (tonnes)** | **26,0** | **26,0** | **2,0** | **5,3** |
| | *Δ %* | | *0,0* | *-92,3* | *166,3* |
| Refrigerants | **kgCO2equiv/person** | **112,07** | **113,54** | **7,52** | **20,25** |
| coolants | *Δ %* | | *1,3* | *-93,4* | *169,3* |
| with high | **kgCO2equiv/m²** | **0,001** | **0,001** | **0,000** | **0,000** |
| Global | *Δ %* | | *0,0* | *-92,6* | *166,3* |
| Warming | **i) of which R22 (kg)** | | | 0,00 | 0,00 |
| Potential | GWP | | | 1.810 | 1.810 |
| (GWP) | **tCO2equiv** | 0,0 | 0,0 | 0,0 | 0,0 |
| | **ii) of which R410A (kg)** | | | 1,20 | 0,00 |
| | GWP | | | 2.090 | 2.090 |
| | **tCO2equiv** | | | 2,51 | 0,00 |
| | **iii) of which R134A (kg)** | | | 0,00 | 0,00 |
| | GWP | | | 1.430 | 1.430 |
| | **tCO2equiv** | | | 0,00 | 0,00 |
| | **iv) of which R404a (kg)** | | | 0,00 | 0,00 |
| | **tCO2equiv** | | | 0,00 | 0,00 |
| | **v) of which R407c (kg)** | | | 0,00 | 3,00 |
| | GWP | | | 1.000 | 1.775 |
| | **tCO2equiv** | | | 0,00 | 5,33 |
| 2c | **Site vehicle $CO_2$ emissions (tonnes)** | **16** | **16** | **2** | **1,5** |
| | *Δ %* | | | | *-27,3* |
| | **kgCO2/person** | **69,0** | **69,9** | **7,5** | **5,5** |
| | *Δ %* | | | | *-26,4* |
| | **of which from diesel** | | | 1,07 | 0,00 |
| | *Δ %* | | | | *-100,0* |
| | Kgs CO2 from one litre of diesel | | | 2,67 | 2,67 |
| | **of which from petrol** | | | 0,46 | 1,45 |
| | *Δ %* | | | | *219,0* |
| | Kgs CO2 from one litre of petrol | | | 2,28 | 2,28 |
| | **of which other fuel (eg propane)** | | | 0,00 | 0,00 |
| | **gCO2/km (manufacturer)** | | | | **180,00** |
| | **Vehicle kms travelled** | | | 6.000 | 6.000 |
| | **gCO2/km (actual)** | | | **333,3** | **242,4** |
| | *Δ %* | | | | *-27,3* |
| | **(Number of vehicles)** | | | **5** | **5** |
| | *Δ %* | | | | *0,0* |
| | **(kms/vehicle)** | | | **1.200** | **1.200** |
| | *Δ %* | | | | *0,0* |
| 2d | **Total air emissions bldgs (kg)** | **805** | **540** | **685** | **800** |
| (SO2, NOx, PM) | *Δ %* | | *-32,9* | *26,9* | *16,8* |
| and others? | **of which NOx** | 772 | 540 | 660 | 779 |
| | *Δ %* | | *-30,1* | *22,2* | *18,0* |
| | **of which $SO_2$** | NM | NM | NM | NM |
| | **of which $PM_{10}$** | NM | NM | NM | NM |
| | **others (VOC)** | 33 | | 25 | 21 |
| **III) Waste management** | | | | | |
| 3a | **Total general waste (tonnes)** | **22,550** | **34,070** | **34,830** | **40,847** |
| | *Δ %* | *-7,4* | *1,6* | *-1,3* | *17,3* |
| | **Total general waste (kg/person)** | **97** | **149** | **131** | **155** |
| | *Δ %* | | *53,1* | *-12,0* | *18,6* |
| | **Household waste (tonnes)** | 5,080 | 9,120 | 10,630 | 10,208 |
| | *Δ %* | | *79,5* | *16,6* | *-4,0* |

| Indicator | Definition | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | **Paper and cardboard (tonnes)** | 4,890 | 11,550 | 13,940 | 17,087 |
| | *Δ %* | | *136,2* | *20,7* | *22,6* |
| | **Wood (tonnes)** | 6,520 | 3,600 | 2,050 | 2,945 |
| | *Δ %* | | *-44,8* | *-43,1* | *43,7* |
| | **Glass (tonnes)** | 0,200 | 0,000 | 0,570 | 0,532 |
| | *Δ %* | | *-100,0* | *n.a* | *-6,7* |
| | **Metal (scrap)** | 1,300 | 6,000 | 4,800 | 10,075 |
| | *Δ %* | | *361,5* | *-20,0* | *109,9* |
| | **Electrical equipment (WEEE)** | 4,560 | 3,800 | 2,840 | 0,000 |
| | *Δ %* | | *-16,7* | *-25,3* | *-100,0* |
| 3b | **Total dangerous waste (tonnes)** | **0,731** | **1,376** | **0,722** | **1,950** |
| | *evolution %* | | *88,2* | *-47,5* | *170,1* |
| | **Total dangerous waste (kg/person)** | **3,15** | **6,01** | **2,71** | **7,41** |
| | *Δ %* | | *90,7* | *-54,8* | *173,2* |
| | **Batteries (tonnes)** | **0,278** | **0,253** | **0,113** | **0,055** |
| | *Δ %* | | *-9,0* | *-55,3* | *-51,3* |
| | **Laboratory mixed waste (tonnes)** | **0,000** | **0,216** | **0,080** | **0,365** |
| | *Δ %* | | *n.a.* | *-63,0* | *356,3* |
| | **Waste oil (tonnes)** | **0,235** | **0,000** | **0,210** | **0,207** |
| | *Δ %* | | *-100,0* | *n.a.* | *-1,4* |
| | **Filters (tonnes)** | **0,007** | **0,056** | **0,015** | **0,035** |
| | *Δ %* | | *700,0* | *n.a* | *133,3* |
| | **Paint (tonnes)** | **0,060** | **0,001** | **0,018** | **0,010** |
| | *Δ %* | | *-98,3* | *1.700,0* | *-44,4* |
| | **Solvent (tonnes)** | **0,064** | **0,144** | **0,072** | **0,000** |
| | *Δ %* | | *125,0* | *-50,0* | *0,0* |
| | **Spray cans (tonnes)** | **0,014** | **0,000** | **0,014** | **0,003** |
| | *Δ %* | | *-100,0* | *n.a.* | *-78,6* |
| | **Medical waste (tonnes)** | **0,012** | **0,007** | **0,011** | **0,006** |
| | *Δ %* | | *-41,7* | *57,1* | *-45,5* |
| | **Flourescent lamps (tonnes)** | **0,000** | **0,000** | **0,134** | **0,000** |
| | *Δ %* | | *n.a.* | *n.a* | *-100,0* |
| | **Fire extinguisher (tonnes)** | **0,043** | **0,000** | **0,000** | **0,000** |
| | *Δ %* | | *-100,0* | *n.a.* | |
| | **Lead-acid battery (tonnes)** | **0,018** | **0,000** | **0,032** | **0,477** |
| | *Δ %* | | *-100,0* | *n.a.* | *1.390,6* |
| | **Mercury containing objects (tonnes)** | **0,000** | **0,004** | **0,000** | **0,006** |
| | *Δ %* | | *n.a.* | *-100,0* | |
| | **Asbestos material (tonnes)** | **0,000** | **0,000** | **0,023** | **0,000** |
| | *Δ %* | | *n.a.* | *n.a* | *-100,0* |
| | **Developer (tonnes)** | **0,000** | **0,665** | **0,000** | **0,769** |
| | *Δ %* | | *n.a.* | *-100,0* | |
| | **Cleanser (tonnes)** | **0,000** | **0,030** | **0,000** | **0,017** |
| | *Δ %* | | *n.a.* | *-100,0* | |
| 3c | **Percentage of waste sorted** | **78,2** | **74,3** | **70,1** | **76,15** |
| | *Δ %* | | *-5,0* | *-5,6* | *8,6* |
| **IV) Protecting biodiversity** | | | | | |
| 4a | **Built surface area ($m^2$)** | | **13.365** | **13.365** | **13.365** |
| | *Δ %* | | | *0,0* | *0,0* |
| | **Built surface area $m^2$/person** | | **58** | **50** | **51** |
| | *Δ %* | | | *-13,9* | *1,1* |
| | **Built surface area as % of site** | | **4,4** | **4,4** | **4,4** |
| | *Δ %* | | | *0,0* | *0,0* |
| **V) Green procurement** | | | | | |
| 5a | **% contrats signé, critères "eco"** | | | NR | NR |
| 5b | **produits verts en catalogue (%)** | | | NR | NR |
| | **produits verts en catalogue fraction** | | | NR | NR |
| | **Valeur total de produits commandés du catalogue (EUR)** | | | NR | NR |
| | **Valeur de produits verts commandés (EUR)** | | | NR | NR |
| **VI) Legal conformity** | | | | | |
| | **% of EMAS registered buildings** | | | | **100** |

| Indicator | Definition | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | **$m^2$ of EMAS registered useful floorspace** | | | | **100** |
| | **EMAS verification non conformities** | | | | **1** |
| **VII) Communication** | | | | | |
| 7b training at site level | **No. of difft trainings on offer** | | | **5** | **3** |
| | *Δ %* | | | | *-40,0* |
| | **No of beneficiaries of training** | | | **78** | **77** |
| | *Δ %* | | | | *-1,3* |
| | **Beneficiaries as % of staff** | | | **29,3** | **29,3** |
| | *Δ %* | | | | *-0,2* |
| **VIII) Promoting dialogue with external partners** | | | | | |
| **XX) ECONOMIC COSTS of EMAS and Virtual Value of Identified Savings** | | | | | |
| **Direct costs** | **Total Direct EMAS Cost** | **0** | **0** | **66.000** | **66.000** |
| | Total Direct Cost per employee | 0 | 0 | 248 | 251 |
| Of which | **i) Annual direct staff costs (EUR)** | **0** | **0** | **66.000** | **66.000** |
| | Annual direct staff costs (time FTE) | 0 | 0 | 0,5 | 0,5 |
| | Annual cost of one FTE (EUR) | 132.000 | 132.000 | 132.000 | 132.000 |
| | **ii) Annual contract costs (EUR)** | **0** | **0** | **0** | **0** |
| | **iii) Annual Misc costs** | **0** | **0** | **0** | **0** |
| | **Total energy unit cost** | | | | |
| Energy (Bldgs) | Electricity unit cost (Eur/kWh) | 0,074 | 0,074 | 0,074 | 0,074 |
| | Gas (Eur/kWh) | 0,034 | 0,034 | 0,034 | 0,034 |
| | Fuel (Eur/kWh) | 0,10 | 0,10 | 0,10 | 0,10 |
| | **Total buildings energy cost (Eur/person)** | **1.858** | **1.510** | **1.221** | **1.520** |
| | Electricity (Eur/person) | 1082 | 964 | 674 | 865 |
| | Gas (Eur/person) | 775 | 546 | 547 | 654 |
| | Fuel (Eur/person) | 0,00 | 0,00 | 0,00 | 0,00 |
| | Total buildings energy cost (Eur) | 430.950 | 345.762 | 324.714 | 399.680 |
| Energy (vehicles) | Diesel unit cost- (Eur/litre) | 1,30 | 1,30 | 1,30 | 1,30 |
| | Petrol unit cost- (Eur/litre) | 1,50 | 1,50 | 1,50 | 1,50 |
| | Total cost Diesel (Eur) | 0 | 0 | 520 | 0 |
| | Total cost petrol (Eur) | 0 | 0 | 300 | 957 |
| | **Total energy costs (Eur/person)** | **0** | **0** | **3,08** | **3,64** |
| | Total fuel costs (vehicles) (Eur) | 0,00 | 0,00 | 820 | 957 |
| Water | Water unit cost (Eur/$m^3$) | 2,00 | 2,00 | 2,00 | 2,00 |
| | Water (Eur/person) | **23,01** | **56,94** | **57,33** | **38,52** |
| | Total water costs (Eur) | 5.338 | 13.040 | 15.250 | 10.130 |
| Paper | Paper (office) - unit cost/kg | 1,60 | 1,60 | 1,60 | 1,60 |
| | Paper (offset) - unit cost/kg | 8,00 | 8,00 | 8,00 | 8,00 |
| | **Paper (office) - Eur/person** | **67,38** | **33,76** | **48,54** | **33,48** |
| | **Paper (offset) - Eur/person** | **0,00** | **0,00** | **0,00** | **0,00** |
| | Total paper (office) cost (Eur) | 107,81 | 54,02 | 77,67 | 53,57 |
| | Total paper cost (Eur/person) | 67,38 | 33,76 | 48,54 | 33,48 |
| | Total paper cost (Eur) | 15.632 | 7.731 | 12.912 | 8.805 |
| Waste | Waste disposal (general) - unit cost/tonne | 90,00 | 90,00 | 90,00 | 90,00 |
| | **Waste disposal (general) - Eur/person** | **8,75** | **13,39** | **11,78** | **13,98** |
| | Waste disposal (hazardous) - unit cost/tonne | 750 | 750 | 750 | 750 |
| | **Waste disposal (hazardous) - Eur/person** | **2,36** | **4,51** | **2,04** | **5,56** |
| | Total waste cost (Eur) | 2.030 | 3.066 | 3.135 | 3.676 |
| **Other site specific data** | | | | | |
| | *Δ %* | | *-6,1* | *-15,1* | *15,9* |
| | **Staff …..non statutory** | **35** | **44** | **109** | **81** |
| | *Δ %* | | *25,7* | *147,7* | *-25,7* |
| **Phase out of equipment (with HCFC, R22), number of units left at end of year** | | | | | |
| | Phase out of equipment by the end of the year | 15 | 10 | 7 | 4 |
| **Notes** | **NM: Not Measured** | | | | |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| (Basic EMAS parameters) | **Population: total staff 'EMAS area'** | | **362** | **362** | **362** |
| | *Δ %* | | | *0,0* | *0,0* |
| | **Population: total staff** | | **362** | **362** | **362** |
| | *Δ %* | | | *0,0* | *0,0* |
| | **No. buildings seeking EMAS registration** | | **14** | **14** | **14** |
| | *Δ %* | | | *0,0* | *0,0* |
| | **Total number of buildings** | | *14* | *14* | *14* |
| | *Δ %* | | | *0,0* | *0,0* |
| | **Total useful surface area all buildings in EMAS area, ($m^2$)** | | **46.996** | **46.996** | **44.535** |
| | *Δ %* | | | *0,0* | *-5,2* |
| | **Total useful surface area for all buildings, ($m^2$)** | | **46.996** | **46.996** | **44.535** |
| | *Δ %* | | | *0,0* | *-5,2* |
| | **Total site area, ($m^2$)** | | **380.316** | **380.316** | **380.316** |
| | *Δ %* | | | *0,0* | *0,0* |
| **I) Efficient use of resources** | | | | | |
| Ia | **Total energy buildings (elec+gas +fuel) - MWh/yr** | | **21.549** | **21.443** | **20.185** |
| | *Δ %* | | | *-0,5* | *-5,9* |
| | **kWh/person** | | **59.527** | **59.234** | **55.761** |
| | *Δ %* | | | *-0,5* | *-5,9* |
| | **kWh/m²** | | **459** | **456** | **453** |
| | *Δ %* | | | *-0,5* | *-0,7* |
| | **i) of which total supplied electricity (MWh/yr)** | | **12.158** | **11.745** | **10.348** |
| | *Δ %* | | | *-3,4* | *-11,9* |
| | **kWh/person** | | **33.586** | **32.446** | **28.586** |
| | *Δ %* | | | *-3,4* | *-11,9* |
| | **kWh/m²** | | **259** | **250** | **232** |
| | *Δ %* | | | *-3,4* | *-7,0* |
| | **comprising "green" (MWh/yr)** | | 0 | 0 | 0 |
| | **Percentage of green electricity in mix** | | 0 | 0 | 0 |
| | **kWh/person** | | 0 | 0 | 0 |
| | **kWh/m²** | | 0 | 0 | 0 |
| | **comprising non "green" (MWh/yr)** | | **12.158** | **11.745** | **10.348** |
| | *Δ %* | | | *-3,4* | *-11,9* |
| | **Percentage of non green electricity in mix** | | **100** | **100** | **100** |
| | *Δ %* | | | *0,0* | *0,0* |
| | **kWh/person** | | **33.586** | **32.446** | **28.586** |
| | *Δ %* | | | *-3,4* | *-11,9* |
| | **kWh/m²** | | **259** | **250** | **232** |
| | *Δ %* | | | *-3,4* | *-7,0* |
| | **ii) of which supplied gas (MWh/yr)** | | **1.759** | **1.902** | **2.108** |
| | *Δ %* | | *-14,9* | *25,7* | *10,8* |
| | **kWh/person** | | **4.860** | **5.253** | **5.822** |
| | *Δ %* | | | *8,1* | *10,8* |
| | **kWh/m²** | | **37** | **40** | **47** |
| | *Δ %* | | | *8,1* | *16,9* |
| | **iii) of which supplied diesel (MWh/yr)** | | **416** | **455** | **455** |
| | *Δ %* | | | *9,3* | *0%* |
| | **kWh/person** | | **1.150** | **1.257** | **1.257** |
| | *Δ %* | | | *9,3* | *0%* |
| | **kWh/m²** | | **8,86** | **9,68** | **10,21** |
| | *Δ %* | | | *9,3* | *5,5* |
| | **iv) of which site generated "green"** | | **0,0** | **0,0** | **0,0** |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | **Installed peak capacity (kWp)** | | 0 | 0,0 | 0,00 |
| | **Assumed output (% of peak capacity)** | | 50 | 50 | 50 |
| | *Δ %* | | | *0,0* | *0,0* |
| | **kWh/person** | | 0 | 0 | 0 |
| | **kWh/m²** | | 0 | 0 | 0 |
| 1b | **Total energy service vehicles (petrol + diesel+other) - MWh/yr** | | | Not avail | Not avail |
| | **kWh/person** | | | Not avail | Not avail |
| | **kWh/m²** | | | Not avail | Not avail |
| | **Diesel used (litres)** | Not avail | Not avail | Not avail | Not avail |
| | kWh of energy provided by one litre diesel | 10,89 | 10,89 | 10,89 | 10,89 |
| | **Petrol used (litres)** | Not avail | Not avail | Not avail | Not avail |
| | kWh of energy provided by one litre petrol | 9,42 | 9,42 | 9,42 | 9,42 |
| | **Other fuel used if applicable (propane?)** | Not avail | Not avail | Not avail | Not avail |
| | kWh of energy provided by one…… | 5,0 | 5,0 | 5,0 | 5,0 |
| | **Total renewable energy use (MWhr/yr)** | | **0,0** | **0,0** | **0,0** |
| 1c | **Renewables as % of total energy use** | | **0,0** | **0,0** | **0,0** |
| | **Onsite generated renewables as % of total energy use** | | **0,0** | **0,0** | **0,0** |
| 1d | **Water consumption (m3)** | | **26.339** | **24.041** | **21.494** |
| | *Δ %* | | | *-8,7* | *-10,6* |
| | **l/person** | | **72.760** | **66.412** | **59.376** |
| | *Δ %* | | | *-8,7* | *-10,6* |
| | **l/m²** | | **560** | **512** | **483** |
| | *Δ %* | | | *-8,7* | *-5,7* |
| 1e | **Paper consumption (tonnes)** | | **Not avail** | **5,400** | **4,800** |
| | *Δ %* | | | | *-11,1* |
| | **Paper consumption (kg/person)** | | | **14,9** | **13,3** |
| | *Δ %* | | | | *-11,1* |
| | **Paper Density (g/m²)** | | 80 | 80 | 80,0 |
| | | | | *0,0* | *0,0* |
| | **Number of sheets per kg** | | 200 | 200 | 200 |
| | *Δ %* | | | *0,0* | *0,0* |
| | **Number of sheets total** | | | **1.082.251** | **962.001** |
| | *Δ %* | | | | *-11,1* |
| | **Number of sheets per person** | | | **2.990** | **2.657** |
| | *Δ %* | | | | *-11,1* |
| | Working days in the year | | 211 | 211 | 211 |
| | **No. of sheets per person/ per day** | | **0** | **14,2** | **12,6** |
| | *Δ %* | | | | *-11,1* |
| 1f | **Offset paper consumption (tonnes)** | | **0,0** | **0,0** | **0,0** |
| | **Paper consumption (kg/person)** | | 0 | 0 | 0 |
| **II) Reduction in CO2 (including CO2 equivalent of greenhouse gases) and other air pollutants** | | | | | |
| 2a | **Total building emissions $CO_2$ (tonnes/yr)** | | **5.858** | **5.813** | **5.439** |
| | *Δ %* | | | *-0,8* | *-6,4* |
| | **kg$CO_2$/person** | | **16.182** | **16.058** | **15.024** |
| | *Δ %* | | | *-0,8* | *-6,4* |
| | **kg$CO_2$/m²** | | **125** | **124** | **122** |
| | *Δ %* | | | *-0,8* | *-1,3* |
| | **of which from electricity (tonnes/yr)** | | **3.465** | **3.347** | **2.949** |
| | *Δ %* | | | *-3,4* | *-11,9* |
| | Kgs $CO_2$ from 1 kWh of electricity | | 0,285 | 0,285 | 0,285 |
| | **kgCO2/person** | | **9.572** | **9.247** | **8.147** |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | *Δ %* | | | *-3,4* | *-11,9* |
| | **kgCO2/m²** | | **74** | **71** | **66** |
| | *Δ %* | | | *-3,4* | *-7,0* |
| | **of which from gas (tonnes/yr)** | | **355** | **384** | **426** |
| | *Δ %* | | | *8,1* | *10,8* |
| | Kgs $CO_2$ from 1 kWh natural gas | | 0,202 | 0,202 | 0,202 |
| | **kgCO2/person** | | **982** | **1.061** | **1.176** |
| | *Δ %* | | | *8,1* | *10,8* |
| | **kgCO2/m²** | | **8** | **8** | **10** |
| | *Δ %* | | | *8,1* | *16,9* |
| | **of which from diesel (tonnes/yr)** | | **111** | **121** | **121** |
| | *Δ %* | | | *9,3* | *0,0* |
| | Kgs $CO_2$ from 1 kWh diesel | | 0,267 | 0,267 | 0,267 |
| | **kgCO2/person** | | **307** | **336** | **336** |
| | *Δ %* | | | *9,3* | *0,0* |
| | **kgCO2/m²** | | **0** | **0** | **3** |
| Basic refrigerant | **Charge total des refrigerants (kg)** | | | | |
| | **Pertes totales des refrigerants (kg)** | | | | **79,40** |
| 2b | **Refrigerants tCO2equiv** | | **0,0** | **0,0** | **213,6** |
| Refrigerants | **kgCO2equiv/person** | | **0,00** | **0,00** | **590,17** |
| with high | **kgCO2equiv/m²** | | **0,000** | **0,000** | **0,005** |
| Warming | **i) of which R22 (kg)** | 0,00 | 0,00 | 0,00 | **27,50** |
| Potential | GWP | 1.810 | 1.810 | 1.810 | 1.810 |
| (GWP) | **tCO2equiv** | 0,0 | 0,0 | 0,0 | **49,8** |
| | **ii) of which R410A (kg)** | | | | **9,80** |
| | GWP | 2.090 | 2.090 | 2.090 | 2.090 |
| | **tCO2equiv** | 0,00 | 0,00 | 0,00 | **20,48** |
| | **iii) of which R134A (kg)** | 0,00 | 0,00 | 0,00 | **7,50** |
| | GWP | 1.430 | 1.430 | 1.430 | 1.430 |
| | **tCO2equiv** | 0,00 | 0,00 | 0,00 | **10,73** |
| | **iv) of which R404A (kg)** | 0,00 | 0,00 | 0,00 | **34,60** |
| | GWP | 3.300 | 3.300 | 3.300 | 3.300 |
| | **tCO2equiv** | 0,00 | 0,00 | 0,00 | **114,18** |
| | **v) of which R407C (kg)** | 0,00 | 0,00 | 0,00 | **0,00** |
| | GWP | 3.300 | 3.300 | 3.300 | |
| | **tCO2equiv** | 0,00 | 0,00 | 0,00 | **0,00** |
| 2c | **Site vehicle $CO_2$ emissions (tonnes)** | | | | **Not avail.** |
| | **kgCO2/person** | | | | |
| | **of which from diesel** | | | | **Not avail** |
| | Kgs CO2 from one litre of diesel | 2,67 | 2,67 | 2,67 | 2,67 |
| | **of which from petrol** | | | | **Not avail** |
| | **gCO2/km (manufacturer)** | | | | **Not avail** |
| | **(Vehicle kms travelled)** | | | | **Not avail** |
| | **gCO2/km (actual)** | | | | **Not avail** |
| | **(Number of vehicles)** | | | 4 | **4** |
| | **(kms/vehicle)** | | | 0 | **Not avail** |
| 2d | **Total air emissions bldgs (kg)** | | **0** | **4190,0** | **4190,7** |
| and others? | **of which NOx** | | | **3259,0** | **3259,8** |
| | **of which $SO_2$** | | | **701,6** | **701,6** |
| | **of which $PM_{10}$** | | | **229,4** | **229,4** |
| | **others (VOC)** | | | | |
| **III) Waste management** | | | | | |
| 3a | **Total general waste (tonnes)** | | **89,564** | **88,720** | **61,500** |
| | *Δ %* | | *130,0* | *-1,3* | *-30,7* |
| | **Total general waste (kg/person)** | | **247** | **245** | **170** |
| | *Δ %* | | | *-0,9* | *-30,7* |
| | **building, brick and stone (tonnes)** | | **24,660** | **22,640** | **13,660** |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | *Δ %* | | | *-8,2* | *-39,7* |
| | **paper and cardboard (tonnes)** | | **2,720** | **2,620** | **1,620** |
| | *Δ %* | | | *-3,7* | *-38,2* |
| | **metal (tonnes)** | | **38,180** | **35,280** | **26,980** |
| | *Δ %* | | | *0,0* | *-23,5* |
| | **wood (tonnes)** | | **4,200** | **12,020** | **8,540** |
| | *Δ %* | | | *n.a* | *-29,0* |
| | **glass (tonnes)** | | **0,000** | **0,000** | **0,000** |
| | *Δ %* | | | *-100,0* | |
| | **Packaging waste: PMD (tonnes)** | | **0,000** | **0,000** | **0,000** |
| | **residual; mixed (tonnes)** | | **18,574** | **16,160** | **10,700** |
| 3b | **Total dangerous waste (tonnes)** | | **23,506** | **17,344** | **8,121** |
| | *Δ %* | | | *-26,2* | *-53,2* |
| | **Total dangerous waste (kg/person)** | | **64,93** | **47,91** | **22,43** |
| | *Δ %* | | | *-26,2* | *-53,2* |
| | **Chemical waste (tonnes)** | | **19,174** | **14,668** | **3,820** |
| | *Δ %* | | | *-23,5* | *-74,0* |
| | **Biological waste (tonnes)** | | **3,293** | **2,676** | **4,301** |
| | *Δ %* | | | *-18,7* | *60,7* |
| | **Radioactive waste (tonnes)** | | **1,039** | **0,000** | **0,000** |
| 3c | **Percentage of waste sorted** | | **84,0** | **85,0** | **85,0** |
| | *Δ %* | | | *1,2* | *0,0* |
| **IV) Protecting biodiversity** | | | | | |
| 4a | **Built surface area ($m^2$)** | | 0 | 0 | **82.079** |
| | **Built surface area $m^2$/person** | | 0 | 0 | **227** |
| | **Built surface area as % of site** | | 0,0 | 0,0 | **21,6** |
| **V) Green procurement** | | | | | |
| 5a for contracts | **% contrats signé, critères "eco"** | | NR | NR | NR |
| 5b | **produits verts en catalogue (%)** | | NR | NR | NR |
| | **produits verts en catalogue fraction** | | NR | NR | NR |
| **VI) Legal conformity** | | | | | |
| | **% of EMAS registered buildings** | | **0** | **0** | **100** |
| | **EMAS registered useful floorspace as %** | | **0** | **0** | **100** |
| | **EMAS verification non conformities** | | **NA** | **NA** | **NA** |
| **VII) Communication** | | | | | |
| 7b | **No. of difft trainings on offer** | | | 5 | 2 |
| training at | *Δ %* | | | | *-60,0* |
| site level | **No of beneficiaries of training** | | | **78** | **49** |
| | *Δ %* | | | | *-37,2* |
| | **Beneficiaries as % of staff** | | | **21,5** | **13,5** |
| | *Δ %* | | | | *-37,2* |
| **VIII) Promoting dialogue with external partners** | | | | | |
| **XX) ECONOMIC COSTS of EMAS and Virtual Value of Identified Savings** | | | | | |
| **Direct costs** | **Total Direct EMAS Cost** | | | | **66.000** |
| | Total Direct Cost per employee | | | | 182 |
| | **i) of which annual direct staff costs (EUR)** | | | | **66.000** |
| | Annual direct staff costs (time FTE) | | | | 0,5 |
| | Annual cost of one FTE (EUR) | | | | 132.000 |
| | **ii) of which annual contract costs (EUR)** | | | | **0** |
| | **iii) of which annual Misc costs** | | | | **0** |
| Energy (Bldgs) | **Total energy unit cost** | | | | |
| | Electricity unit cost (Eur/kWh) | | 0,110 | 0,110 | 0,090 |
| | Gas (Eur/kWh) | | 0,050 | 0,053 | 0,054 |
| | Fuel (Eur/kWh) | | 0,264 | 0,276 | 0,273 |
| | **Total buildings energy cost (Eur/person)** | | **5.008** | **4.937** | **3.976** |
| | Electricity (Eur/person) | | 3704 | 3566 | 2566 |
| | Gas (Eur/person) | | 242 | 280 | 313 |
| | Fuel (Eur/person) | | 81,11 | 92,61 | 91,73 |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | **Total buildings energy cost (Eur)** | | **1.812.919** | **1.787.170** | **1.439.414** |
| Energy (vehicles) | Total cost Diesel (Eur) | | Not available | Not available | Not available |
| | Total cost petrol (Eur) | | Not available | Not available | Not available |
| | **Total energy costs (Eur/person)** | | **Not available** | **Not available** | **Not available** |
| | **Total fuel costs (vehicles) (Eur)** | | **Not available** | **Not available** | **Not available** |
| Water | Water unit cost (Eur/$m^3$) | | 3,36 | 3,45 | 3,54 |
| | **Water (Eur/person)** | | **244,18** | **228,88** | **209,91** |
| | **Total water costs (Eur)** | | **88.394** | **82.856** | **75.986** |
| | Paper (office) - unit cost/kg | | | | Not available |
| | Paper (offset) - unit cost/kg | | | | Not available |
| Paper | **Total paper cost (Eur/person)** | | | | **Not available** |
| | **Total paper cost (Eur)** | | | | **Not available** |
| Waste | Waste disposal (general) - unit cost/tonne | | | | Not available |
| | **Waste disposal (general) - Eur/person** | | | | **Not available** |
| | Waste disposal (hazardous) - unit cost/tonne | | | | Not available |
| | **Waste disposal (hazardous) - Eur/person** | | | | **Not available** |
| | **Total waste cost (Eur)** | | **0** | **0** | **Not available** |
| **Other site specific data** | | | | | |
| energy for bldgs | **iv) of which supplied hot water (MWh/yr)** | | **7.215** | **7.341** | **7.275** |
| (hot water) | *Δ %* | | *-14,9* | *25,7* | *-0,9* |
| | **kWh/person** | | **19.931** | **20.278** | **20.096** |
| | *Δ %* | | | *1,7* | *-0,9* |
| | **kWh/m²** | | **154** | **156** | **163** |
| | *Δ %* | | | *1,7* | *4,6* |
| | **of which from hot water (tonnes/yr)** | | **1.926** | **1.960** | **1.942** |
| | *Δ %* | | | *1,7* | *-0,9* |
| | Kgs $CO_2$ from 1 kWh hot water | | 0,267 | 0,267 | 0,267 |
| | **kg/person** | | **5.322** | **5.414** | **5.366** |
| | *Δ %* | | | *1,7* | *-0,9* |
| | **kg/m²** | | **0** | **0** | **44** |
| | Total energy unit cost | | | | |
| | **Hot water unit cost (Eur/kWh)** | | **0,049** | **0,049** | **0,050** |
| Hot water | Hot water cost (EUR) | | 355.101 | 361.283 | 363.979 |
| costs | *Δ %* | | | *1,7* | *0,7* |
| | Hot water costs (EUR/person) | | **981** | **998** | **1005** |
| | *Δ %* | | | *1,7* | *0,7* |
| | **Emissions to wastewater** | | | | |
| | **Substance** | **Concentration (mg/$m^3$)** | | | |
| | | **Inorganic emissions to the sewer system** | | | |
| | | **2010** | **2011** | **2012** | **2013** |
| | **Suspended solids** | | | **82.500** | **149.400** |
| | *Δ %* | | | | *81,1* |
| | **Mercury (Hg)** | | | **0,95** | **2,02** |
| | *Δ %* | | | | *112,6* |
| | **Cadmium (Cd)** | | | **1,00** | **1,04** |
| | *Δ %* | | | | *4,0* |
| | **Zinc (Zn)** | | | **365** | **756,8** |
| | *Δ %* | | | | *107,3* |
| | **Copper (Cu)** | | | **35,5** | **66,0** |
| | *Δ %* | | | | *85,9* |
| | **Nickel (Ni)** | | | **10,0** | **11,8** |
| | *Δ %* | | | | *18,0* |
| | **Chromium (Cr)** | | | **10,0** | **11,6** |
| | *Δ %* | | | | *16,0* |
| | Lead (Pb) | | | **10,0** | **18,4** |
| | ***Δ %*** | | | | *84,0* |
| | **Arsenic (As)** | | | **10,0** | **9,0** |
| | *Δ %* | | | | *-10,0* |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | **Silver** | | | **10,0** | **11,4** |
| | *Δ %* | | | | *14,0* |
| | **Kjeldahl-nitrogen** | | | **61.000** | **75.400** |
| | *Δ %* | | | | *23,6* |
| | **Nitrite** | | | **20,00** | **20,0** |
| | *Δ %* | | | | *0,0* |
| | **Nitrate** | | | **110** | **100** |
| | *Δ %* | | | | *-9,1* |
| | **Total nitrogen** | | | **61.000** | **75.400** |
| | *Δ %* | | | | *23,6* |
| | **Total phosphorus** | | | **8.950** | **13.860** |
| | *Δ %* | | | | *54,9* |
| | **Relighting campaign data** | | | | |
| | **Installed power (kW)** | **235,3** | **223,5** | **217,6** | **211,8** |
| | *Δ %* | *-11,1* | *-5,0* | *-2,6* | *-2,7* |
| | **Average luminence in offices / labs (lux)** | **558,8** | **564,7** | **564,7** | **570,6** |
| | *Δ %* | *4,4* | *1,1* | *0,0* | *1,0* |
| Additional | **R507A (kg)** | 0,00 | 0,00 | 0,00 | **5,60** |
| Refrigerants | Global Warming Potential (GWP) | 3.300 | 3.300 | 3.300 | 3.300 |
| | **R507A (tCO2equiv)** | 0,00 | 0,00 | 0,00 | **18,48** |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| (Basic EMAS parameters) | **Population: total staff 'EMAS area'** | **212** | **240** | **244** | **282** |
| | *Δ %* | *0,0* | *13,2* | *1,7* | *15,6* |
| | **Population: total staff** | **212** | **240** | **244** | **282** |
| | *Δ %* | | *13,2* | *1,7* | *15,6* |
| | **No. buildings seeking EMAS registration** | **0** | **0** | **0** | **1** |
| | *Δ %* | | | | |
| | **Total number of buildings** | 1 | 1 | 1 | 1 |
| | **Total useful surface area all buildings in EMAS area, ($m^2$)** | **5.577** | **5.577** | **5.899** | **6.497** |
| | **Total site area, ($m^2$)** | **11.669** | **11.669** | **11.669** | **11.669** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| **I) Efficient use of resources** | | | | | |
| Ia | **Total energy buildings (elec+gas +fuel) - MWh/yr** | **2.369** | **2.191** | **2.559** | **2.692** |
| | *Δ %* | | *-7,5* | *16,8* | *5,2* |
| | **kWh/person** | **11.174** | **9.129** | **10.488** | **9.548** |
| | *Δ %* | | *-18,3* | *14,9* | *-9,0* |
| | **kWh/m²** | **425** | **393** | **434** | **414** |
| | *Δ %* | | *-7,5* | *10,4* | *-4,5* |
| | **i) of which total supplied electricity (MWh/yr)** | **2.060** | **1.922** | **2.073** | **2.173** |
| | *Δ %* | | *-6,7* | *7,9* | *4,8* |
| | **kWh/person** | **9.716** | **8.008** | **8.496** | **7.707** |
| | *Δ %* | | *-17,6* | *6,1* | *-9,3* |
| | **kWh/m²** | **369** | **345** | **351** | **335** |
| | *Δ %* | | *-6,7* | *2,0* | *-4,8* |
| | **comprising "green" (MWh/yr)** | **0** | **267** | **296** | **328** |
| | *Δ %* | | | *11,0* | *10,7* |
| | **Percentage of green electricity in mix** | **0** | **14** | **14** | **15** |
| | *Δ %* | | | *2,9* | *5,6* |
| | **kWh/person** | **0** | **1.113** | **1.215** | **1.164** |
| | *Δ %* | | | *9,1* | *-4,2* |
| | **kWh/m²** | **0** | **48** | **50** | **51** |
| | *Δ %* | | | *4,9* | *0,5* |
| | **comprising non "green" (MWh/yr)** | **2.060** | **1.655** | **1.777** | **1.845** |
| | *Δ %* | | *-19,7* | *7,4* | *3,9* |
| | **Percentage of non green electricity in mix** | **100** | **86** | **86** | **85** |
| | *Δ %* | | *-13,9* | *-0,5* | *-0,9* |
| | **kWh/person** | **9.716** | **6.895** | **7.281** | **6.543** |
| | *Δ %* | | *-29,0* | *5,6* | *-10,1* |
| | **kWh/m²** | **369** | **297** | **301** | **284** |
| | *Δ %* | | *-19,7* | *1,5* | *-5,7* |
| | **ii) of which supplied gas (MWh/yr)** | **309** | **269** | **486** | **519** |
| | *Δ %* | | *-14,9* | *25,7* | *6,8* |
| | **kWh/person** | **1.458** | **1.121** | **1.992** | **1.840** |
| | *Δ %* | | *-23,1* | *77,7* | *-7,6* |
| | **kWh/m²** | **55** | **48** | **82** | **80** |
| | *Δ %* | | *-12,9* | *70,8* | *-3,0* |
| | **iii) of which supplied diesel (MWh/yr)** | **0** | **0** | **0** | **0** |
| | **kWh/person** | **0** | **0** | **0** | **0** |
| | **kWh/m²** | **0** | **0** | **0** | **0** |
| | **iv) of which site generated "green"** | **0** | **0** | **0** | **0** |
| | **Installed peak capacity (kWp)** | **0** | **0** | **0** | **0** |
| | **Assumed output (% of peak capacity)** | **0** | **0** | **0** | **0** |
| | **kWh/person** | **0** | **0** | **0** | **0** |
| | **kWh/m²** | **0** | **0** | **0** | **0** |
| 1b | **Total energy service vehicles (petrol + diesel+other) - MWh/yr** | **7** | **3** | **3** | **4** |
| | *Δ %* | | *-54,6* | *0,7* | *37,1* |
| | **kWh/person** | **31** | **13** | **12** | **15** |
| | *Δ %* | | *-59,9* | *-0,9* | *18,6* |
| | **kWh/m²** | **1,19** | **0,54** | **0,51** | **0,64** |
| | *Δ %* | | *-54,6* | *-4,8* | *24,4* |
| | **Diesel used (litres)** | 608 | 276 | 278 | 381 |
| | *Δ %* | | *-54,6* | *0,7* | *37,1* |
| | kWh of energy provided by one litre diesel | 10,89 | 10,89 | 10,89 | 10,89 |
| | **Petrol used (litres)** | 0 | 0 | 0 | 0 |
| | kWh of energy provided by one litre petrol | 9,42 | 9,42 | 9,42 | 9,42 |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | **Other fuel used if applicable** | **0** | **0** | **0** | **0** |
| | kWh of energy provided by one…… | 0 | 0 | 0 | 0 |
| 1c | **Total renewable energy use (MWhr/yr)** | **0** | **267** | **296** | **328** |
| | *Δ %* | | | *11,0* | *10,7* |
| | **Renewables as % of total energy use** | **0** | **12** | **12** | **12** |
| | **Onsite generated renewables as % of total energy use** | **0** | **0** | **0** | **0** |
| 1d | **Water consumption (m3)** | **9.075** | **8.304** | **6.757** | **7.710** |
| | *Δ %* | | *-8,5* | *-18,6* | *14,1* |
| | **l/person** | **42.807** | **34.600** | **27.693** | **27.340** |
| | *Δ %* | | *-19,2* | *-20,0* | *-1,3* |
| | **l/m²** | **1.627** | **1.489** | **1.145** | **1.187** |
| | *Δ %* | | *-8,5* | *-23,1* | *3,6* |
| 1e | **Paper consumption (tonnes)** | **6,840** | **5,800** | **4,100** | **2,50** |
| | *Δ %* | | *-15,2* | *-29,3* | *-39,0* |
| | **Paper consumption (kg/person)** | **32,3** | **24,2** | **16,8** | **8,9** |
| | *Δ %* | | *-25,1* | *-30,5* | *-47,2* |
| | Paper Density (g/m²) | 80 | 80 | 80 | 80,0 |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | Number of sheets per kg | 200 | 200 | 200 | 200 |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | Number of sheets total | 1.370.851 | 1.162.418 | 821.709 | 501.042 |
| | *Δ %* | | *-15,2* | *-29,3* | *-39,0* |
| | Number of sheets per person | 6.466 | 4.843 | 3.368 | 1.777 |
| | *Δ %* | | *-25,1* | *-30,5* | *-47,2* |
| | Working days in the year | 211 | 211 | 211 | 211 |
| | **No. of sheets per person/ per day** | **31** | **23** | **16** | **8** |
| | *Δ %* | | *-25,1* | *-30,5* | *-47,2* |
| 1f | **Offset paper consumption (tonnes)** | **2,28** | **1,91** | **1,69** | **2,16** |
| | *Δ %* | | *-16,2* | *-11,5* | *27,8* |
| | **Paper consumption (kg/person)** | 11 | 8 | 7 | 8 |
| | *Δ %* | | *-26,0* | *-13,0* | *10,6* |
| **II) Reduction in CO2 (including CO2 equivalent of greenhouse gases) and other air pollutants** | | | | | |
| 2a | **Total building emissions $CO_2$ (tonnes/yr)** | **887** | **824** | **928** | **975** |
| | *Δ %* | | *-7,1* | *12,7* | *5,1* |
| | **kg$CO_2$/person** | **4.184** | **3.432** | **3.805** | **3.458** |
| | *Δ %* | | *-18,0* | *10,9* | *-9,1* |
| | **kg$CO_2$/m²** | **159** | **148** | **157** | **150** |
| | *Δ %* | | *-7,1* | *6,6* | *-4,6* |
| | **of which from electricity (tonnes/yr)** | **824** | **769** | **829** | **869** |
| | *Evolution %* | | *-6,7* | *7,9* | *4,8* |
| | Kgs $CO_2$ from 1 kWh of electricity | 0,4 | 0,4 | 0,4 | 0,4 |
| | **kgCO2/person** | **3.886** | **3.203** | **3.398** | **3.083** |
| | *Δ %* | | *-17,6* | *6,1* | *-9,3* |
| | **kgCO2/m²** | **148** | **138** | **141** | **134** |
| | *Δ %* | | *-6,7* | *2,0* | *-4,8* |
| | **of which from gas (tonnes/yr)** | **63,0** | **54,9** | **99,1** | **105,9** |
| | *Δ %* | | *-12,9* | *80,7* | *6,8* |
| | Kgs $CO_2$ from 1 kWh natural gas | 0,204 | 0,204 | 0,204 | 0,204 |
| | **kgCO2/person** | **297** | **229** | **406** | **375** |
| | *Δ %* | | *-23,1* | *77,7* | *-7,6* |
| | **kgCO2/m²** | **11** | **10** | **17** | **16** |
| | *Δ %* | | *-12,9* | *70,8* | *-3,0* |
| | **of which from diesel (tonnes/yr)** | **0** | **0** | **0** | **0** |
| | Kgs $CO_2$ from 1 kWh diesel | 0,264 | 0,264 | 0,264 | 0,264 |
| | **kgCO2/person** | **0** | **0** | **0** | **0** |
| | **kgCO2/m²** | **0** | **0** | **0** | **0** |
| | **Pertes totales des refrigerants (kg)** | 0 | 0 | 0 | 0 |
| 2b | **Emissions des autres gas en CO2 equivalent (tonnes)** | 0 | 0 | 0 | 0 |
| Refrigerants | **kgCO2equiv/person** | 0 | 0 | 0 | 0 |
| with high | **kgCO2equiv/m²** | NR | NR | NR | NR |
| Global Warming | **i) of which R22 (kg)** | NR | NR | NR | NR |
| Potential | GWP | 1.810 | 1.810 | 1.810 | 1.810 |
| (GWP) | **tCO2equiv** | NR | NR | NR | NR |
| | **ii) of which R410A (kg)** | NR | NR | NR | NR |
| | GWP | 2.090 | 2.090 | 2.090 | 2.090 |
| | **tCO2equiv** | NR | NR | NR | NR |
| | **iii) of which R134A (kg)** | NR | NR | NR | NR |
| | GWP | 1.430 | 1.430 | 1.430 | 1.430 |
| | **tCO2equiv** | NR | NR | NR | NR |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| 2c | **Site vehicle $CO_2$ emissions (tonnes)** | **1,6** | **0,7** | **0,7** | **1,02** |
| | *Δ %* | | *-54,6* | *0,7* | *37,1* |
| | **kgCO2/person** | **7,7** | **3,1** | **3,0** | **3,6** |
| | *Δ %* | | *-59,9* | *-0,9* | *18,6* |
| | **of which from diesel** | **1,62** | **0,74** | **0,74** | **1,02** |
| | *Δ %* | | *-54,6* | *0,7* | *37,1* |
| | Kgs CO2 from one litre of diesel | 2,67 | 2,67 | 2,67 | 2,67 |
| | **of which from petrol** | **0** | **0** | **0** | **0** |
| | Kgs CO2 from one litre of petrol | 2,28 | 2,28 | 2,28 | 2,28 |
| | **of which other fuel (eg propane)** | 0 | 0 | 0 | 0 |
| | Kgs CO2 from one X of Y | 2,28 | 2,28 | 2,28 | 2,28 |
| | **gCO2/km (manufacturer)** | **136** | **136** | **136** | **136** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | **(Vehicle kms travelled)** | 9.693 | 6.462 | 9.889 | 6.455 |
| | *Evolution %* | | *-33,3* | *53,0* | *-34,7* |
| | **gCO2/km (actual)** | **167** | **114** | **75** | **157,59** |
| | *Δ %* | | *-31,9* | *-34,2* | *110,0* |
| | **(Number of vehicles)** | **1** | **1** | **1** | **1** |
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| | **(kms/vehicle)** | 9.693 | 6.462 | 9.889 | 6.455 |
| | *Δ %* | | *-33,3* | *53,0* | *-34,7* |
| 2d (SO2, NOx, PM) | **Total air emissions bldgs (kg)** | **NR** | **NR** | **NR** | **NR** |
| | of which NOx | NR | NR | NR | NR |
| | of which $SO_2$ | NR | NR | NR | NR |
| | of which $PM_{10}$ | NR | NR | NR | NR |
| | others (VOC) | NR | NR | NR | NR |
| **III) Waste management** | | | | | |
| 3a | **Total general waste (tonnes)** | **0,000** | **0,000** | **4,000** | **0,000** |
| | *Δ %* | | *0,0* | *100,0* | *-100,0* |
| | **Total general waste (kg/person)** | **0** | **0** | **16** | **0** |
| | *Δ %* | | *0,0* | *100,0* | *-100,0* |
| | Household waste (tonnes) | 0 | 0 | 0 | 0 |
| | Paper and cardboard (tonnes) | NM | NM | NM | NM |
| | Wood (tonnes) | NM | NM | NM | NM |
| | Glass (tonnes) | NM | NM | NM | NM |
| | Metal (scrap) - (tonnes) | NM | NM | NM | NM |
| | **Electrical equipment (WEEE) (tonnes)** | **0** | **0** | **4** | **0** |
| | *evolution %* | | *0,0* | *100,0* | *-100,0* |
| 3b | **Total dangerous waste (tonnes)** | **0,083** | **0,122** | **0,109** | **0,095** |
| | *evolution %* | | *47,3* | *-10,3* | *-12,8* |
| | **Total dangerous waste (kg/person)** | **0,39** | **0,51** | **0,45** | **0,34** |
| | *Δ %* | | *30,1* | *-11,8* | *-24,6* |
| | **Batteries (tonnes)** | **0,025** | **0,000** | **0,025** | **0,025** |
| | *Δ %* | | *-100,0* | *100,0* | *0,0* |
| | Laboratory mixed waste | NA | NA | NA | NA |
| | Waste oil | NR | NR | NR | NR |
| | Filters | NR | NR | NR | NR |
| | Paint | NR | NR | NR | NR |
| | Solvent | NR | NR | NR | NR |
| | Spray cans | NR | NR | NR | NR |
| | **Medical waste (tonnes)** | **0,008** | **0,005** | **0,003** | **0,003** |
| | *Δ %* | | *-40,0* | *-33,3* | *0,0* |
| | **Flourescent lamps (tonnes)** | **0,026** | **0,092** | **0,063** | **0,043** |
| | *Δ %* | | *253,8* | *-31,5* | *-31,7* |
| | Fire extinguisher | NR | NR | NR | NR |
| | Lead-acid battery | NR | NR | NR | NR |
| | Mercury containing objects | NR | NR | NR | NR |
| | Asbestos material | NR | NR | NR | NR |
| | Developer | NR | NR | NR | NR |
| | Cleanser | NR | NR | NR | NR |
| 3c | **Percentage of waste sorted** | NM | NM | NM | NM |
| **IV) Protecting biodiversity** | | | | | |
| 4a | **Built surface area ($m^2$)** | **7.073** | **7.073** | **7.073** | **7.073** |
| | **Built surface area $m^2$/person** | **33** | **29** | **29** | **25** |
| | **Built surface area as % of site** | **60,6** | **60,6** | **60,6** | **60,6** |

| Indicator | Year | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| | *Δ %* | | *0,0* | *0,0* | *0,0* |
| **V) Green procurement** | | | | | |
| 5a, contracts >60K | **% contrats signé, critères "eco"** | NR | NR | NR | NR |
| 5b | **produits verts en catalogue (%)** | NR | NR | NR | NR |
| | **produits verts en catalogue fraction** | NR | NR | NR | NR |
| | **Valeur total de produits commandés du catalogue (EUR)** | NR | NR | NR | NR |
| | **Valeur de prods verts commandés (EUR)** | NR | NR | NR | NR |
| **VI) Legal conformity** | | | | | |
| | **% of EMAS registered buildings** | 0 | 0 | 0 | 100 |
| | **EMAS registered useful floorspace as %** | 0 | 0 | 0 | 100 |
| | **EMAS verification non conformities** | 0 | 0 | 0 | **0** |
| **VII) Communication** | | | | | |
| 7b training at site level | **No. of difft trainings on offer** | NR | NR | NR | 1 |
| | **No of beneficiaries of training** | NR | NR | NR | 2 |
| | **Beneficiaries as % of staff** | | | | 0,7 |
| **VIII) Promoting dialogue with external partners** | | | | | |
| **XX) ECONOMIC COSTS of EMAS and Virtual Value of Identified Savings** | | | | | |
| **Direct costs** | **Total Direct EMAS Cost** | **0** | **0** | **132.000** | **151.840** |
| | Total Direct Cost per employee | 0 | 0 | 541 | 538 |
| Of which | **i) of which annual direct staff costs (EUR)** | **0** | **0** | **132.000** | **132.000** |
| | Annual direct staff costs (time FTE) | 0 | 0 | 1 | 1 |
| | Annual cost of one FTE (EUR) | 132.000 | 132.000 | 132.000 | 132.000 |
| | **ii) of which annual contract costs (EUR)** | **0** | **0** | **0** | **19.840** |
| | Contract 1 (cost per year) if applicable | 0,00 | 0,00 | 0,00 | 12.800 |
| | Contract 2 (cost per year) if applicable | 0,00 | 0,00 | 0,00 | 7.040 |
| | **iii) of which annual Misc costs** | **0,00** | **0,00** | **0,00** | **0,00** |
| Energy (Bldgs) | Total energy unit cost | | | | |
| | Electricity unit cost (Eur/kWh) | | | 0,13 | 0,14 |
| | Gas (Eur/kWh) | | | 0,07 | 0,06 |
| | Fuel (Eur/kWh) | | | 0,00 | 0,00 |
| | **Total buildings energy cost (Eur/person)** | | | **1.211** | **1.177** |
| | Electricity (Eur/person) | | | 1080,68 | 1062,81 |
| | Gas (Eur/person) | | | 130,26 | 113,92 |
| | Fuel (Eur/person) | | | 0,00 | 0,00 |
| | **Total buildings energy cost (Eur)** | | | **295.470** | **331.838** |
| Energy (vehicles) | Diesel unit cost- (Eur/litre) | | **1,29** | **1,38** | **1,39** |
| | Petrol unit cost- (Eur/litre) | | 0,00 | 0,00 | 0,00 |
| | Total cost Diesel (Eur) | | 356,04 | 383,64 | 529,59 |
| | Total cost petrol (Eur) | | 0,00 | 0,00 | 0,00 |
| | **Total energy costs (Eur/person)** | | **1,48** | **1,57** | **1,88** |
| | **Total fuel costs (vehicles) (Eur)** | | **356,04** | **383,64** | **529,59** |
| Water | Water unit cost (Eur/$m^3$) | | | 1,76 | 1,74 |
| | **Water (Eur/person)** | | | **48,74** | **47,57** |
| | **Total water costs (Eur)** | | | **11.892** | **13.415** |
| Paper | Paper (office) - unit cost/kg | 1,04 | 1,10 | 1,14 | 1,14 |
| | Paper (offset) - unit cost/kg | 1,04 | 1,10 | 1,14 | 1,14 |
| | Paper (office) - Eur/person | 33,46 | 26,58 | 19,16 | 10,11 |
| | Paper (offset) - Eur/person | 11,15 | 8,75 | 7,90 | 8,73 |
| | Total paper (office) cost (Eur) | 34,70 | 29,24 | 21,84 | 11,52 |
| | **Total paper cost (Eur/person)** | **44,61** | **35,34** | **27,05** | **18,84** |
| | **Total paper cost (Eur)** | **9.457** | **8.481** | **6.601** | **5.312** |
| Waste | Waste disposal (general) - unit cost/tonne | **0,00** | **0,00** | **0,00** | **0,00** |
| | Waste disposal (general) - Eur/person | 0,00 | 0,00 | 0,00 | 0,00 |
| | Waste disposal (hazardous) - unit cost/tonne | **18.860** | **33.191** | **44.460** | **52.637** |
| | **Waste disposal (hazardous) - Eur/person** | **7,34** | **16,80** | **19,86** | **17,73** |
| | **Total waste cost (Eur)** | **0** | **0** | **0** | **0** |
| **Other site specific data** | | | | | |
| Controlled waste continued | **Inks and toner (tonnes)** | 0,024 | 0,025 | 0,018 | 0,024 |
| | *Δ %* | | *4,0* | *-38,9* | *33,3* |
| **Notes** | **NR: Not reported by the landlord** | | | | |
| | **NM: Not Measured** | | | | |
| | **NA: Not Applicable** | | | | |