Europäisches Patentamt
European Patent Office
Office européen des brevets

Environmental Statement 2013
In accordance with Regulation (EC) No 1221/2009

ENVIRONMENTAL STATEMENT

Environmental Statement

1. The European Patent Office

The European Patent Office (EPO) with its 7 000 staff is the second largest international organisation in Europe. It has its headquarters in Munich and offices in The Hague, Berlin, Vienna and Brussels. Since 2009 it has been certified as complying with the eco-management and audit scheme EMAS at all its sites.

The EPO's EMAS-certified sites are:

- European Patent Office Munich I (Isar building), Germany
  Erhardtstr. 27, 80469 Munich
- European Patent Office Munich II (PschorrHöfe 1-8), Germany
  Bayerstr. 34, 80335 Munich
- European Patent Office Munich III (Capitellum), Germany
  Landsberger Str. 30, 80339 Munich
- European Patent Office Berlin, Germany
  Gitschiner Str. 103, 10969 Berlin
- European Patent Office The Hague I (Main, Shell, Hinge), Netherlands
  Patentlaan 2, 2288 EE Rijswijk
- European Patent Office The Hague II (Le Croisé), Netherlands
  Verrijn Stuartlaan 2a, 2288 EE Rijswijk
- European Patent Office The Hague III (Rijsvoort), Netherlands
  Visseringlaan 19-23, 2288 ER Rijswijk
- European Patent Office Vienna, Austria
  Rennweg 12, 1030 Vienna

Until 2011 the EPO occupied additional EMAS-certified premises in Munich (European Patent Office Munich IV (Westsite), Germany, Landsberger Str. 187, 80687 Munich). This rented building was relinquished in 2011, and the staff housed there were transferred to other premises. This Environmental Statement continues to show the consumption data for Westsite up to and including 2011.

In accordance with EMAS Regulation (EC) No 1221/2009, the EPO issues an (updated) Environmental Statement every year, setting out its environmental data and reporting on its progress in environmental performance. The present Statement is an updated and abridged version of the 2012 issue, which can be downloaded from the EPO website (www.epo.org).

In 2012 the EPO set itself the ambitious environmental objective of reducing its emissions from heating and electricity by 3%, and with emissions cuts of 3.3% it actually did even better. In 2013 its stated aim is to reduce overall energy consumption (from heating energy and electricity consumption) by 3%.

With this 3% target the Office is going beyond the EMAS requirements and setting its own sweeping environmental goals. This Environmental Statement describes how these objectives are being achieved.

1.1. EPO Berlin

The Berlin sub-office is housed in a building that was constructed in the early 20th century and thus has a historic structure; however, the age of the building also entails certain deficiencies in its insulation and energy efficiency. Facilities with environmental relevance include a heating system powered by district heating, several cooling installations, a photo laboratory, a small storage area for cleaning agents and a kitchen/canteen operated by an external service provider. Responsibility for operating the building heating systems and the canteen's refrigeration units lies with the proprietor; responsibility for operating the air-conditioning systems in individual meeting rooms lies with the EPO. No information is available about land contamination at the Berlin sub-office. The only forms of hazardous waste are spent batteries and fluorescent tubes. The site complies with the applicable environmental laws.

Sites/buildings	Gross floor area	Gross floor area without basement	Workplaces	Status
EPO Berlin	18 100 m²	17 600 m²	300	Rented

1.2 EPO Munich

Munich is the largest of all the EPO duty stations in terms of gross floor area and staff numbers. The condition of the buildings varies: some are older, such as the Isar building, while more recent ones include PschorrHöfe 7 and 8. The Capitellum building is rented. The Isar building and the PschorrHöfe have district heating; the Capitellum has gas heating. Other facilities with environmental relevance are primarily situated in the Isar building. They include a print shop, repair shop and carpenter's shop, a water treatment installation and tanks for acid and lye solutions for water treatment. The Isar building was extensively renovated between 2010 and 2012 to improve its energy rating. Several buildings (e.g. Isar, PschorrHöfe 1-8, Westsite) have an oil and/or grease trap and a kitchen/canteen and dish-washing area. All the Munich buildings have (small) storage areas for cleaning agents and chemicals. No information is available about land contamination at the Munich sites. Hazardous waste consists mainly of spent batteries and fluorescent tubes. The site complies with the applicable environmental laws.

Sites/buildings	Gross floor area	Gross floor area without basement	Workplaces	Status
Isar building	91 400 m²	57 800 m²	827	Proprietor
PschorrHöfe 1-8	276 300 m²	210 600 m²	3012	Proprietor
Capitellum	25 800 m²	16 200 m²	225	Rented
Westsite	26 200 m²	15 600m²	0	Formerly rented[1]

1 Premises relinquished at the end of 2011.

1.3 EPO The Hague

After Munich, The Hague is the second largest duty station, comprising three sites in Rijswijk, one owned by the EPO and two rented buildings. Owing to their size and condition, certain buildings consume a large amount of heating energy, but this has shown a clearly positive trend over recent years. All buildings are heated by natural gas. The gas-powered heating boilers are regularly inspected and comply with emissions thresholds. There are also regular leak tests on the air-conditioning units, which to date have detected no major leaks. All testing is performed by an external service provider in accordance with Dutch law. In the main and Shell buildings there are diesel fuel tanks which feed the emergency generators. Outside the Shell building there is an underground storage area for diesel fuel (three tanks with a capacity of 5 000 litres each and one with a capacity of 4 000 litres). These likewise feed the emergency generators in the Shell building in the event of power outages. The buildings which have a kitchen have grease traps and a dishwashing area. Only the main building has no refrigeration units. In various places there is storage for further hazardous substances. These include cleaning agents, several 200 litre containers with glycol for the ventilation system (Shell building) and small quantities of hydrogen peroxide for treating the fountain water (Hinge building). All substances are stored in accordance with legal requirements, such as double-walled tanks or drip collectors. The necessary information such as safety information sheets and operating instructions is available. No information is available about land contamination at the sites in The Hague. Hazardous waste consists of spent batteries, old fluorescent tubes and waste oil. The site is subject to the “Mileugaarverslag”, an environmental permit on so-called basic principles.

This confers on the permit holder maximum flexibility within the underlying legal framework.
The site complies with the applicable environmental laws.

Sites/buildings	Gross floor area	Gross floor area without basement	Workplaces	Status
Main, Shell, Hinge	192 605 m²	176 421 m²	2413	Proprietortor
Le Croisé	28 700 m²	24 893 m²	392	Rented
Rijsvoort	12 600 m²	9 763 m²	159	Rented

1.4 EPO Vienna

Vienna is the smallest of all the sites, in terms of both gross floor area and staff numbers. The Vienna office uses district heating. Facilities with environmental relevance are limited to a small store for cleaning agents. No information is available about land contamination at the Vienna site. The only forms of hazardous waste are spent batteries and fluorescent tubes. The site complies with the applicable environmental laws.

Sites/buildings	Gross floor area	Gross floor area without basement	Workplaces	Status
EPO Vienna	12 300 m²	6 979 m²	127	Proprietor

2. Environmental policy

Our environmental policy provides a strategic framework for all activities at the EPO and emphasises the importance of environmental protection at the Office. The policy is binding upon all departments. Senior managers are committed to ensuring that this policy is well understood and applied in all departments.

Our environmental policy is formulated as follows:

The European Patent Office consumes a large amount of heat and electrical energy, as well as water and paper, and generates both waste and CO_2 emissions. It has addressed these environmental issues by introducing an environmental management system that meets the requirements of the Eco-Management and Audit Scheme (EMAS). With a view to improving its environmental performance, the EPO continuously assesses the environmental impact of its operations. It sets objectives and targets and reviews them on a regular basis.

The following principles and objectives guide the EPO's actions:

- **Promote a responsible approach to the environment within the EPO and communicate and implement this policy at all levels of the Office**
- **Minimise the consumption of energy, water, paper and other resources**
- **Minimise waste and pollution**
- **Comply with relevant environmental legislation, regulations and other requirements**
- **Provide appropriate resources to fulfil the Office's policy commitment**
- **Promote and encourage involvement in local environmental initiatives and schemes**
- **Make this policy available to interested parties**

Since the EPO considers it the responsibility of every staff member to help meet the objective of achieving optimum environmental protection, it provides its staff with appropriate training, advice and information and encourages them to develop new ideas on how to implement the Office's environmental policy effectively.

3. Environmental management system

By implementing an environmental management system under EMAS in 2009, the EPO took on a leading environmental role as an administrative institution. This management system integrates environmental elements into all the Office's operational processes. All the EPO's processes are regularly assessed with a view to potential improvements to environmental protection. All employees have been addressed and encouraged through recommendations and information to adopt environmentally friendly behaviour. The structure of the environmental management system is defined in our environmental management handbook, which applies to all sites. These central arrangements are organised and co-ordinated by the EPO in Munich. In addition, site-specific procedures and documents have been compiled for each location. These include environmental data and the environmental programme with suggestions for improvements at each site. The central environmental management officer is in charge of implementing and further developing the environmental management system within the EPO. He is supported by a central environmental team including members from each duty station (Berlin, Munich, The Hague, Vienna). Moreover, there are local environmental representatives at each site. Together with the local environmental team, they are in charge of planning, co-ordinating and monitoring on-site environmental activities and ensuring that environmental aspects are integrated into everyday operations. Our environmental management system is regularly assessed through internal audits, thus ensuring a continuous improvement process. All relevant information is communicated to our staff members through the intranet, regular articles in the staff gazette, etc., and is made available to the public in the Environmental Statement.

4. Compliance with legal requirements

EMAS and the applicable environmental law for the different duty stations constitute external requirements for the EPO and its environmental management system. For each duty station we have identified the legal requirements which are specifically relevant and obligatory for the EPO. They are documented in the legal register for each country in which the EPO is situated. By continuously reviewing and updating the legal register, we identify changes to environmental laws and implement new requirements. Moreover, all periodic obligations at the different sites (e.g. periodic inspections of the diesel tanks) are documented in local registers of periodic duties. Compliance with legal requirements is verified in yearly internal audits. These have established that the legal requirements are complied with.

5. Direct environmental aspects

Our activities have an environmental impact. In accordance with our environmental policy we aspire to reduce this impact by applying and continually improving our environmental management system. All important environmental aspects are recorded and assessed on an annual basis. This evaluation serves as a basis for developing new environmental objectives and measures for improvement in the future. Environmental aspects are subdivided into direct and indirect environmental aspects. The indirect aspects are described in section 6. The main direct environmental aspects at the EPO include energy consumption for electricity and heating, CO_2 emissions from business travel, water consumption and the generation of residual waste. The environmental data has been compared across all sites in order to assess the relevance of the environmental aspects. The electricity and heating data has also been compared with external benchmarks.

The environmental aspects have been assigned to the following categories to help assess their relevance and the need for action:
A = very significant environmental aspect with above-average need for action
B = significant environmental aspect with average need for action
C = less significant environmental aspect with low need for action

In addition, the extent to which the various aspects can be controlled is classified in the following categories:
I = short-term control possible
II = mid- to long-term control possible
III = control not possible or only in long term or subject to third-party decisions

Sites	Relevant environmental aspects	Rating
Berlin	Electricity Heating Water Residual waste	B II A II B II B II
Munich Isar building	Electricity Heating Water Residual waste	A I B I A II B II
Munich PschorrHöfe	Electricity Heating Water Residual waste	B II B II B II B II
Munich Capitellum	Electricity Heating Water Residual waste	B I B II B II B II
The Hague Main/Hinge/Shell	Electricity Heating Water Residual waste	A I B I A II C II
The Hague Le Croisé	Electricity Heating Water Residual waste	A I C I B II C II
The Hague Rijsvoort	Electricity Heating Water Residual waste	A II A II A II B II
Vienna	Electricity Heating Water Residual waste	B II B II A II A II
All sites	CO_2 emissions from business travel by air CO_2 emissions from business travel by other means Paper consumption	A II C II A II

Overview of all sites

The consumption data for each site and the resulting index figures are an important instrument for assessing current environmental performance, planning and monitoring environmental activities and regularly reviewing the continuous improvement process.

The following table summarises the chief environmental data for all buildings.

Input	Unit	2008	2009	2010	2011	2012
Electricity consumption	MWh	47.251,57	45.382,17	45.717,60	45.893,39*	**46.196,87***
Heating energy consumption (all items)	MWh	48.872,28	45.547,15	51.597,95	40.471,63	**41.561,62**
Fresh water consumption	m^3	131.314	129.865	125.753	127.091**	**125.203**

Output	Unit	2008	2009	2010	2011	2012
Residual waste generation	t	737	562	503	565	**474**
Waste water generation	m^3	122.100	122.473	119.361	114.284**	**110.431**
CO_2 emissions from electricity and heating energy	t CO_2e	27.547	19.789	21,034	20.517	**17.132***

* From 2012 new basis for electricity consumption calculations for Le Croisé.
Value for 2011 amended retrospectively. In previous years only one of two electricity meters considered.
** Value corrected retrospectively.

EMAS III core indicators

The following tables present the EMAS III core indicators for environmental aspects. The EPO considers many of these indicators to be irrelevant, so in this Statement it goes into more detail on its own criteria. EMAS III core indicators not mentioned in these tables (e.g. greenhouse gases, material efficiency) are not relevant at the EPO. The emission values for SO_2, NO_x and particulates are based on electricity, gas and heating oil consumption because no conversion factors are available for district heating. The value for paper consumption in Munich and The Hague is in each case the average of the values for all sites there. Note that the values for previous years (2010 and 2011) may have changed because of a new, improved basis for calculation.

EPO Berlin	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	10,02	8,81	**9,36**
Renewable energy as percentage of total consumption (electricity and heat)	%	4,12	4,00	**4,49**
Paper consumption (material efficiency)	sheet/empl	11.000	15.595	**12.017**
Water consumption	m^3/empl	13,43	12,71	**12,92**
Total waste generation				
Residual waste	t/empl	0,13	0,12	**0,11**
Paper/card	t/empl	0,07	0,07	**0,06**
Food waste	t/empl	0,07	0,04	**0,04**
Grease trap residues	t/empl	0,09	0,05	**0,03**
Total hazardous waste generation	kg/empl	0	0	**0**
Built-up area (sealed)	m^2	11.250	11.250	**11.250**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2,37	2,20	**2,55**
SO_2	kg/empl	0	0	**0**
NO_x	kg/empl	0	0	**0**
Particulates	kg/empl	0	0	**0**

EPO Munich – Isar building	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	54,68	21,26	**24,08**
Renewable energy as percentage of total consumption (electricity and heat)	%	9,43	9,13	**16,08**
Paper consumption (material efficiency)	sheet/empl	15.341	13.683	**14.043**
Water consumption	m^3/empl	52,44	25,17	**25,71**
Total waste generation				
Residual waste	t/empl	0,17	0,06	**0,13**
Paper/card	t/empl	0,20	0,07	**0,07**
Food waste	t/empl	0,12	0,04	**0,07**
Grease trap residues	t/empl	0,17	0,03	**0,15**
Total hazardous waste generation	kg/empl	334,16[1]	133,69[1]	**12,00**
Built-up area (sealed)	m^2	18.113	18.113	**18.113**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	15,35	7,54	**6,66**
SO_2	kg/empl	0	0	**0**
NO_x	kg/empl	0	0	**0**
Particulates	kg/empl	0	0	**0**

1 High values due to special waste disposal during renovation.

EPO Munich – PschorrHöfe 1-8	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	8,56	7,96	**7,75**
Renewable energy as percentage of total consumption (electricity and heat)	%	11,40	9,87	**16,88**
Paper consumption (material efficiency)	sheet/empl	15.341	13.683	**14.043**
Water consumption	m^3/empl	14,74	15,52	**15,65**
Total waste generation				
Residual waste	t/MA	0,04	0,04	**0,04**
Paper/card	t/MA	0,10	0,09	**0,09**
Food waste	t/MA	0,03	0,03	**0,03**
Grease trap residues	t/MA	0,06	0,06	**0,05**
Total hazardous waste generation	kg/MA	1,14	1,64	**1,89**
Built-up area (sealed)	m^2	42.641	42.641	**42.641**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2,73	2,94	**2,21**
SO_2	kg/empl	0	0	**0**
NO_x	kg/empl	0	0	**0**
Particulates	kg/empl	0	0	**0**

EPO Munich – Capitellum	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	9,51	9,83	**12,91**
Renewable energy as percentage of total consumption (electricity and heat)	%	7,68	6,94	**11,13**
Paper consumption (material efficiency)	sheet/empl	15.341	13.683	**14.043**
Water consumption	m^3/empl	7,77	9,83	**9,94**
Total waste generation				
Residual waste	t/empl	0,08	0,09	**0,11**
Paper/card	t/empl	0,09	0,10	**0,11**
Food waste	t/empl	0,02	0,02	**0,03**
Total hazardous waste generation	kg/empl	0	0	**0**
Built-up area (sealed)	m^2	3.502	3.502	**3.502**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	3,01	3,23	**3,75**
SO_2	kg/empl	0,0063	0,0061	**0,0009**
NO_x	kg/empl	0,5022	0,4913	**0,6743**
Particulates	kg/empl	0,5022	0,4913	**0,6743**

EPO Munich – Westsite	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	8,15	6,24	**0**
Renewable energy as percentage of total consumption (electricity and heat)	%	9,26	7,68	**0**
Paper consumption (material efficiency)	sheet/empl	15.341	13.683	**0**
Water consumption	m^3/empl	9,21	10,65	**0**
Total waste generation				
Residual waste	t/empl	0,14	0,12	**0**
Paper/card	t/empl	0,11	0,11	**0**
Food waste	t/empl	0,07	0,06	**0**
Grease trap residues	t/empl	0,26	0,14	**0**
Total hazardous waste generation	kg/empl	0	0	**0**
Built-up area (sealed)	m^2	6.574	6.574	**0**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2,77	2,13	**0**
SO_2	kg/empl	0,0048	0,0037	**0**
NO_x	kg/empl	0,3850	0,2922	**0**
Particulates	kg/empl	0,3850	0,2922	**0**

EPO The Hague – Main, Hinge, Shell	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	14,38	12,71	**12,24**
Renewable energy as percentage of total consumption (electricity and heat)	%	53	58,14	**58,54**
Paper consumption (material efficiency)	sheet/empl	18265	17.734	**15951**
Water consumption	m^3/empl	18,41	17,68	**17,69**
Total waste generation				
Residual waste	t/empl	0,06	0,10	**0,06**
Paper/card	t/empl	0,06	0,07	**0,08**
Food waste	t/empl	0,03	0,04	**0,03**
Grease trap residues	t/empl	0,01	0,01	**0,02**
Total hazardous waste generation	kg/empl	0	2,58	**17,70**[1]
Built-up area (sealed)	m^2	94.450	94.450	**94.450**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	1,37	1,08	**1,03**
SO_2	kg/empl	0,0068	0,0053	**0,0005**
NO_x	kg/empl	0,8409	0,4258	**0,4061**
Particulates	kg/empl	0,5409	0,4258	**0,4061**

1 High values due to building work. Rubble counted as hazardous waste.

EPO The Hague – Le Croisé	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	7,79	n.a.[2]	**14,10** [3]
Renewable energy as percentage of total consumption (electricity and heat)	%	n.a.[1]	n.a.[1]	**n.a.**[1]
Paper consumption (material efficiency)	sheet/empl	18,41	17,68	**17,69**
Water consumption	m^3/empl	8,85	8,02	**9,94**
Total waste generation				
Residual waste	t/empl	0,04	0,04	**0,04**
Paper/card	t/empl	0,03	0,05	**0,05**
Food waste	t/empl	0,02	0,03	**0,02**
Total hazardous waste generation	kg/empl	0	0	**0**
Built-up area (sealed)	m^2	4.200	4.200	**4.200**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	0,7	n.a.[2]	**0,82**
SO_2	kg/empl	0,0036	n.a.[2]	**0,0004**
NO_x	kg/empl	0,2859	n.a.[2]	**0,3243**
Particulates	kg/empl	0,2859	n.a.[2]	**0,3243**

1 Values could not be established.
2 Data for 2011 not available from proprietor.
3 New basis for calculation for Le Croisé.

EPO The Hague – Rijsvoort	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	13,34	11,73	**13,19**
Renewable energy as percentage of total consumption (electricity and heat)	%	n.a.[1]	n.a.[1]	**n.a.**[1]
Paper consumption (material efficiency)	sheet/empl	18,41	17,68	**17,69**
Water consumption	m^3/empl	16,79	15,34 [2]	**17,25**
Total waste generation				
Residual waste	t/empl	0,08	0,08	**0,06**
Paper/card	t/empl	0,03	0,03	**0,03**
Food waste	t/empl	0,04	0,06	**0,05**
Total hazardous waste generation	kg/empl	0	0	**0**
Built-up area (sealed)	m^2	4.558	4.558	**4.558**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2,28	1,94	**2,20**
SO_2	kg/empl	0,0007	0,0006	**0,0001**
NO_x	kg/empl	0,9038	0,7668	**0,8709**
Particulates	kg/empl	0,9038	0,7668	**0,8709**

1 Values could not be established.
2 Data amended retrospectively.

EPO Vienna	Unit	2010	2011	2012
Total direct energy consumption (electricity and heat)	MWh/empl	14,74	13,94	**12,64**
Renewable energy as percentage of total consumption (electricity and heat)	%	20	20	**15**
Paper consumption (material efficiency)	sheet/empl	8.504	10.484	**10.263**
Water consumption	m^3/empl	7,87	11,86	**10,63**
Total waste generation				
Residual waste	t/empl	0,12	0,12	**0,12**
Paper/card	t/empl	0,19	0,20	**0,20**
Food waste	t/empl	n.a.[3]	n.a.[3]	**n.a.[3]**
Total hazardous waste generation	kg/empl	0,60	0	**5,46**
Built-up area (sealed)	m^2	2.547	2.547	**2.547**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2,45	3,24	**2,2**
SO_2	kg/empl	0	0	**0**
NO_x	kg/empl	0	0	**0**
Particulates	kg/empl	0	0	**0**

3 Disposal handled by canteen manager. Waste removed and taken away to disposal centre.

5.1 Energy

Energy consumption in the form of electricity and heating is the most significant environmental aspect at the EPO and generates the highest costs. Electricity consumption is essentially made up of:

– cooling/ventilation and air conditioning
– IT
– PCs and printers
– lighting in offices and public areas

Heating energy at the different sites is generated from various sources. While Berlin, Munich Isar, Munich PschorrHöfe and Vienna use district heating, the Capitellum in Munich and Main/Shell/Hinge in The Hague use natural gas. The tables and charts below offer a comparison of the total electricity and heating energy consumption at each site. They show both the absolute data and index figures relative to the size of the sites (per square metre of heated area and per employee).

In 2012, absolute electricity consumption fell at some sites (Berlin -2.5%, Vienna -8.2%, Munich PschorrHöfe 1-8 -3.2%, The Hague Shell/Hinge/Main -3.2%). In both Berlin and Vienna this is attributable to technical improvements (e.g. to ventilation systems). The regular staff information campaigns on energy saving may also have made an unquantifiable contribution to the fall in electricity consumption. The savings at the PschorrHöfe site may be attributed to various technical measures, in particular to demand-driven control of the ventilation system in the conference rooms. The savings in electricity consumption at the Shell/Hinge/Main complex in The Hague are the result of optimisation based on continuous measurement and analysis. Overall, the EPO's absolute electricity consumption was slightly higher than the previous year. That is primarily due to higher demand in the Isar building, which has been back in full use since the end of 2011 and has many new technical systems that are still in need of fine tuning. It should also be noted that since 2011 there has been a new basis for calculations for Le Croisé in The Hague, where the values recorded in previous years were unfortunately too low.

The EPO's heat consumption overall rose by 2.7% (unadjusted). Weather-adjusted figures show a 7.46% fall. Here too, the technical improvements made in 2011 are likely to have had some effect (e.g. replacement of window seals in Vienna, reduced heating of stairwells and corridors, optimisation of controls in The Hague). Weather adjustment of heating energy consumption for all sites is now based on NASA's climate data.

In general it should be borne in mind that measures aimed at achieving the 3% target will mostly not start to take effect until 2013, meaning that electricity and heat consumption is likely to fall in the coming year.

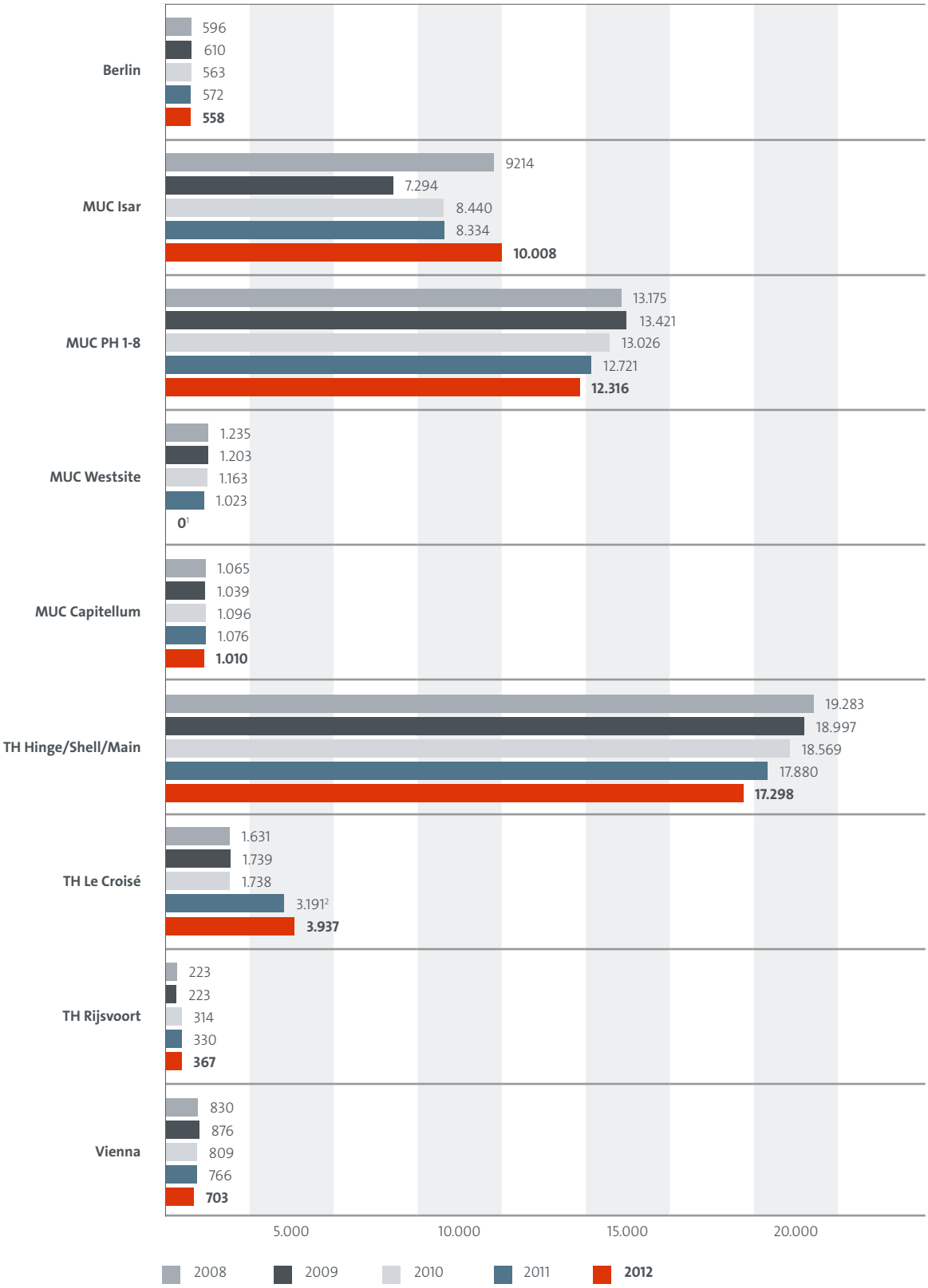

Fig. 1: Absolute electricity consumption in MWh per year

1 MUC Westsite relinquished at end of 2011.

2 Le Croisé: new basis for calculations from 2011.

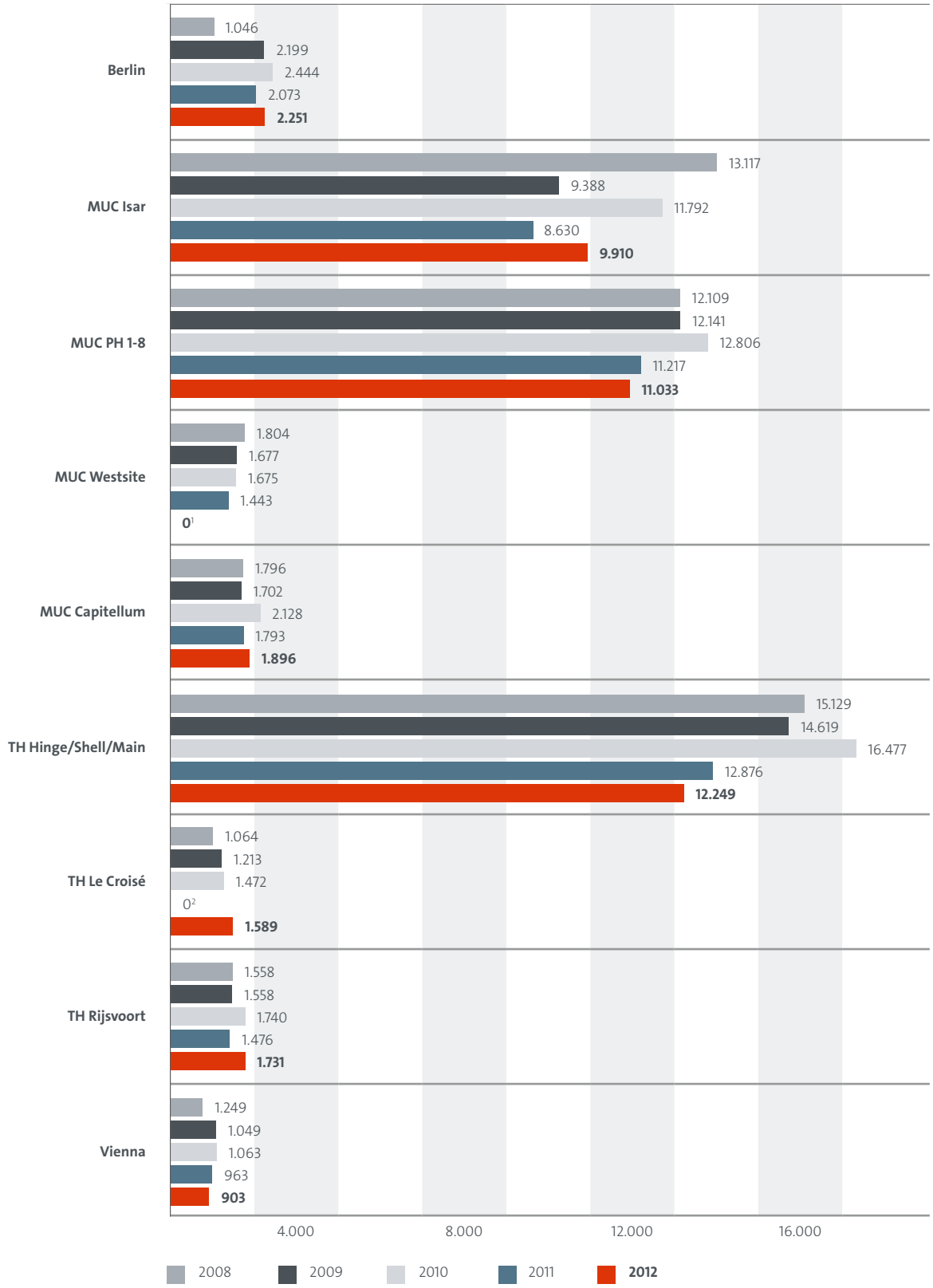

Fig. 2: Absolute heat energy consumption in MWh per year

1 MUC Westsite relinquished at end of 2011.

2 Le Croisé: new basis for calculations from 2011.

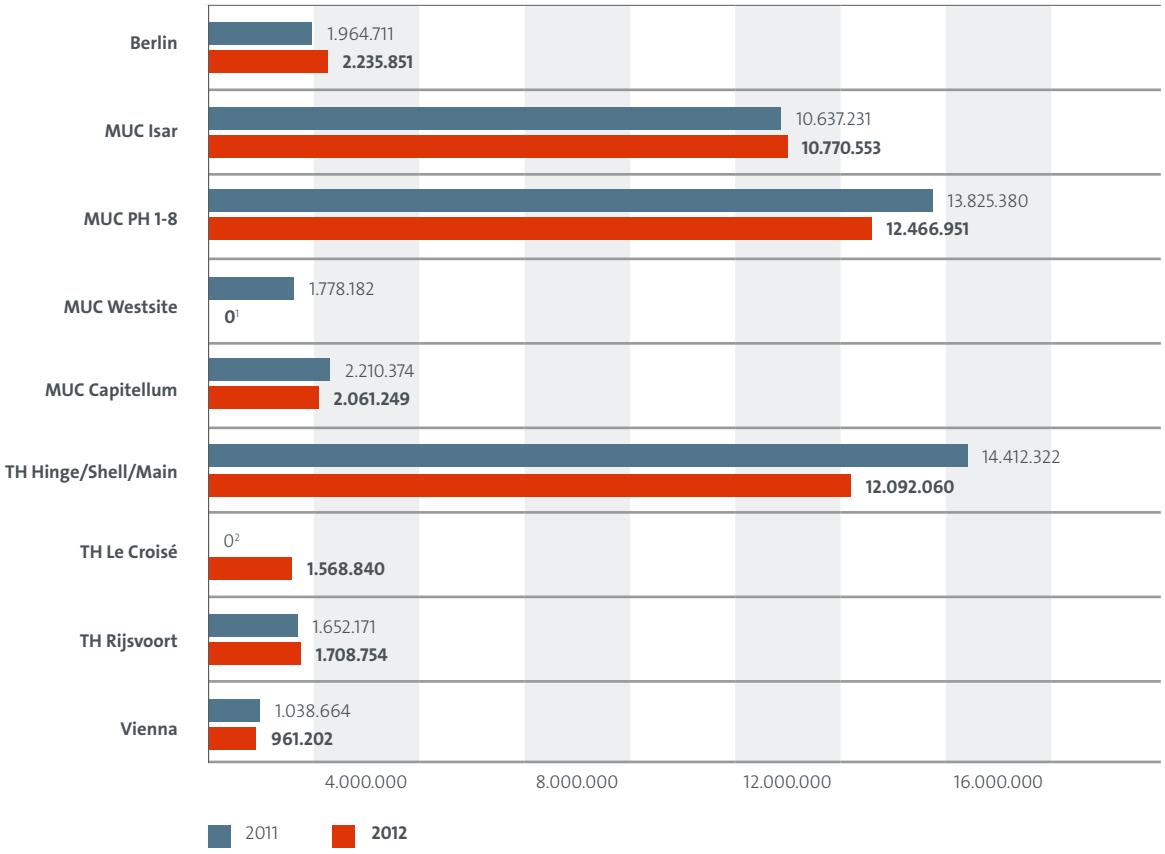

Fig. 3: Weather-adjusted heat energy consumption for 2011 and 2012 in kWh per year based on NASA climate data

1 MUC Westsite relinquished at end of 2011.

2 Le Croisé: new basis for calculations from 2011.

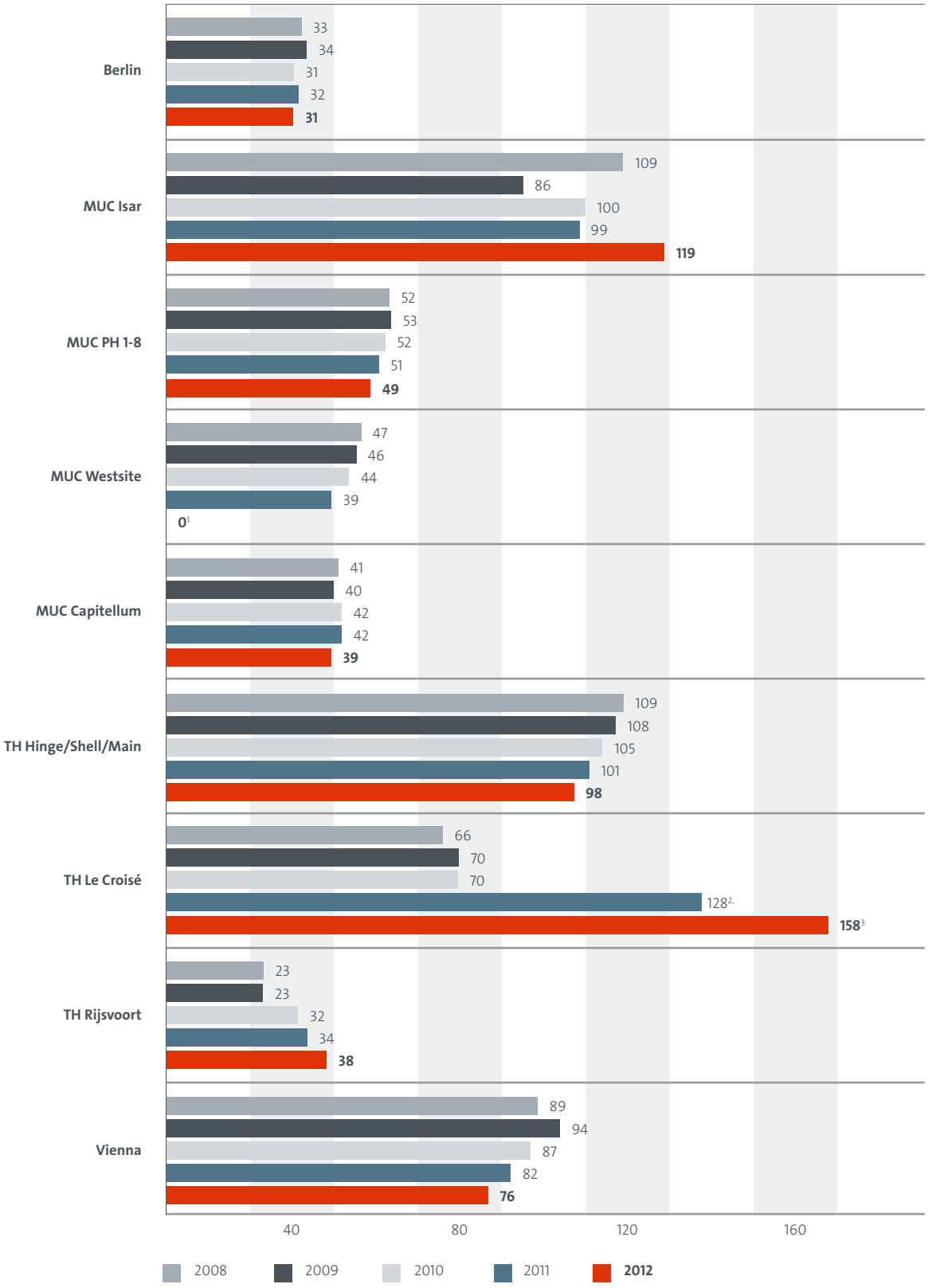

Fig. 4: Specific electricity consumption (in kWh/m² floor area)

1 MUC Westsite relinquished at end of 2011.

2 Le Croisé: new basis for calculations from 2011.

3 Le Croisé: 2011/2012 increase inexplicable. No information received from proprietor.

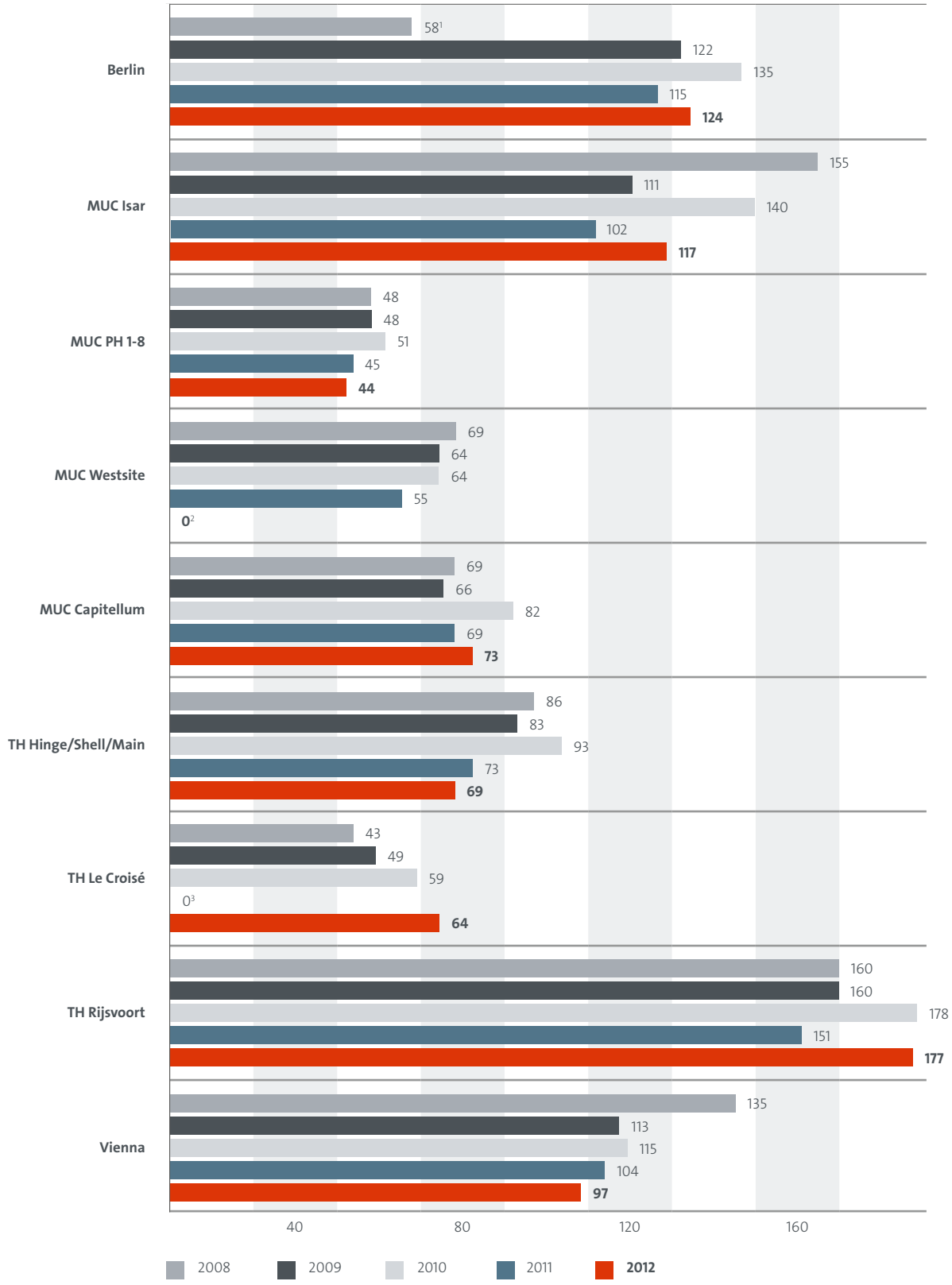

Fig. 5: Specific heat energy consumption (in kWh/m² floor area)

1 Berlin 2008: inexplicable value.

2 MUC Westsite relinquished at end of 2011.

3 Le Croisé: new basis for calculations from 2011.

5.2 Water/waste water

At all sites we receive our fresh water from the municipality. Most of the fresh water is deployed in sanitary facilities and kitchens and (in individual cases) for washing vehicles. Moreover, at Munich Isar and the Main, Shell and Hinge buildings in The Hague, fresh water is used for the air-conditioning system and for watering plants and green spaces on-site. That explains the high water consumption there compared with other sites. Waste water contamination consists mainly of organic elements. Where needed, oil and grease traps are installed in specific locations to remove contaminants from waste water.

The EPO's water consumption and waste water generation in 2012 were slightly lower than the year before (water consumption -1.5%, waste water generation -2.9%). At some sites water consumption changed only marginally (water consumption Berlin +1.6%, Munich PH +0.9%, TH Hinge/Shell/Main -0.15%). There were more significant reductions at Munich Capitellum (-22%) and Vienna (-8.23%). In the case of Vienna this is attributable to the automatic watering system for the garden, while the considerable reduction in the absolute fresh water demand for the Capitellum was due to the 22% cut in the workforce there. Conversely, water consumption rose in other buildings (Isar +7.6%, Le Croisé +23.7%, Rijsvoort +16%). For the rented buildings Le Croisé and Rijsvoort there are unfortunately no plausible reasons for the increase. The rise in fresh water consumption at the Isar building needs to be seen in relative terms (per employee and day).

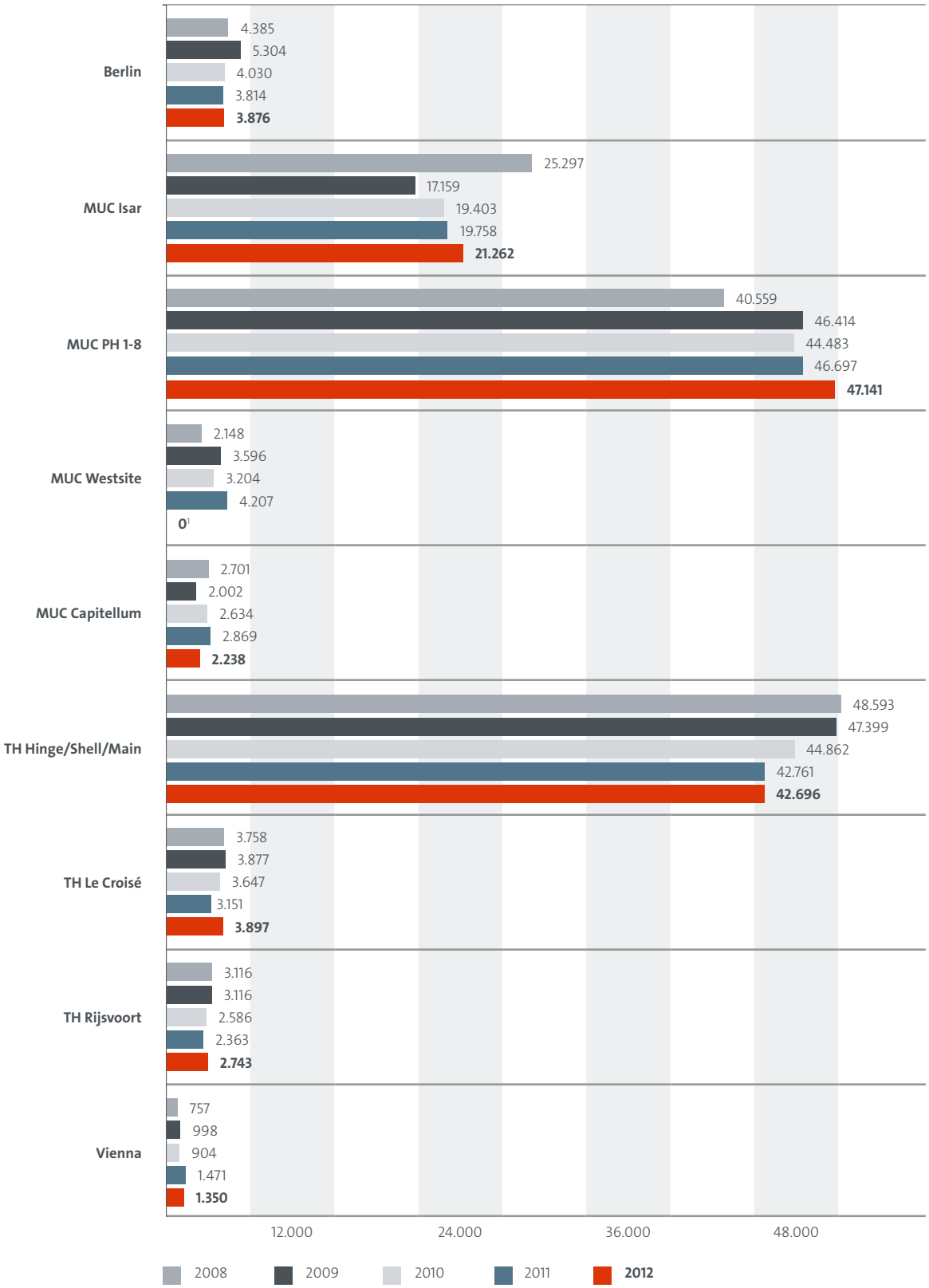

Fig. 6: Fresh water consumption (m³/a)

1 MUC Westsite relinquished at end of 2011.

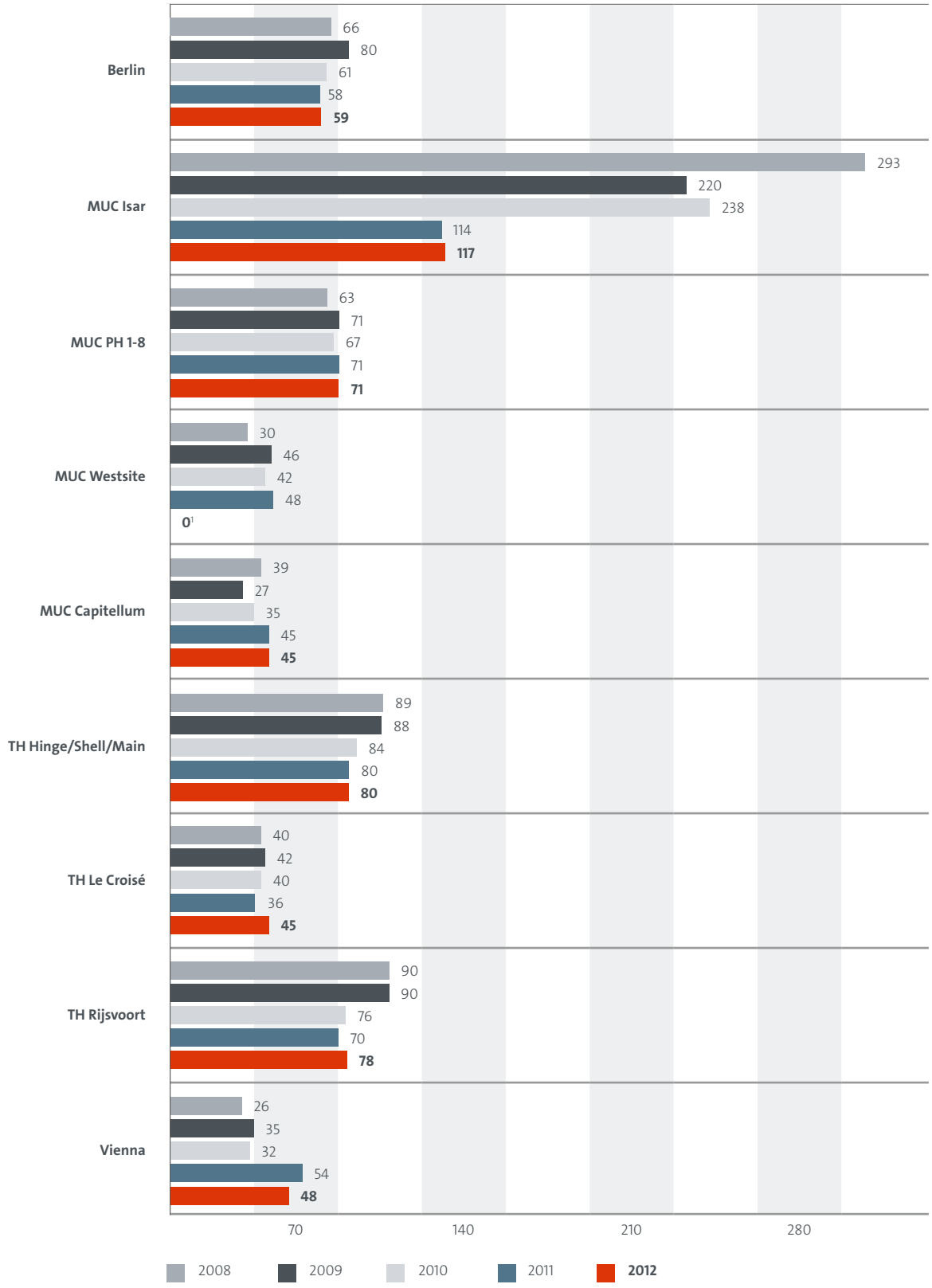

Fig. 7: Fresh water consumption per employee and day (l/employee/day)

1 MUC Westsite relinquished at end of 2011.

5.3 Waste

To guarantee that waste is collected separately, we have established a waste separation system with clearly identifiable and distinguishable waste containers in all rooms and work areas at all our sites. Our staff are briefed on waste avoidance, recycling and correct disposal. From day to day, residual waste and waste paper constitute the main categories of waste at all sites.

In 2012 the total quantity of residual waste was 16% lower than in 2011. This trend was particularly marked in some buildings in The Hague (Main/Hinge/Shell: -42.7%), where the reduction is attributable to improved waste separation introduced in 2012. In Munich on the other hand residual waste generation has clearly shifted from Westsite to Isar, obviously because staff housed in the Westsite building until the end of 2011 are now in the Isar building. In Berlin, 2012 saw a slight fall in residual waste generation (-5.7%), while the figure for Vienna stayed the same.

The quantity of residual waste per employee and working day remained practically constant at all sites. .

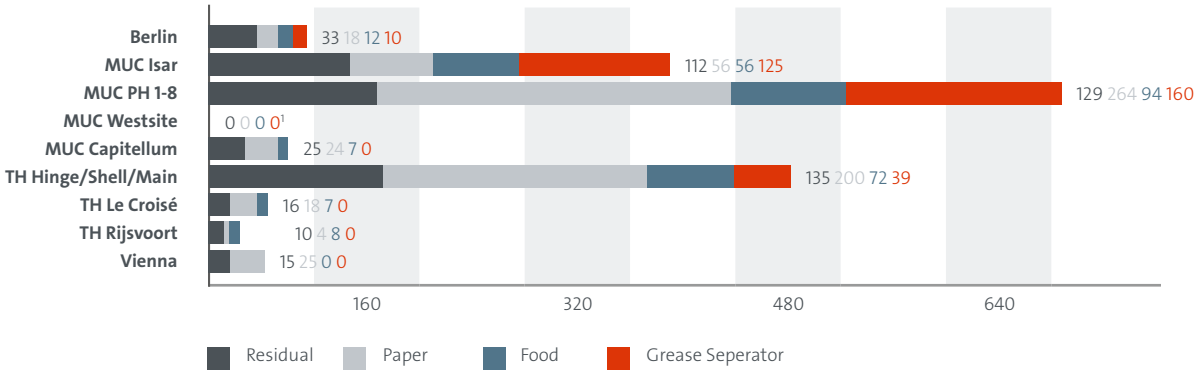

Fig. 8: Composition of waste in 2012 (in tonnes)

1 MUC Westsite relinquished at the end of 2011.

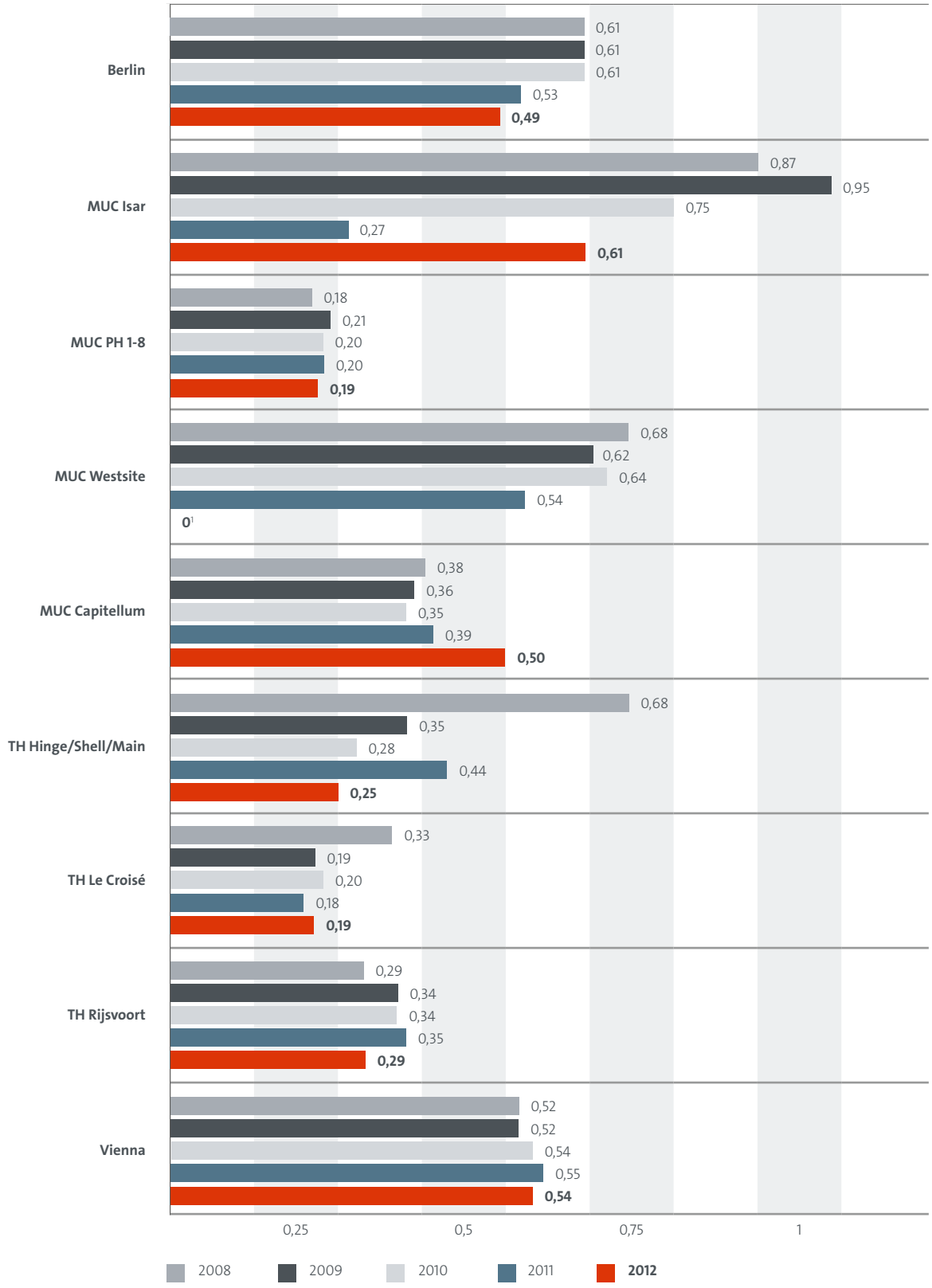

Fig. 9: Residual waste per employee and day (in kg)

1 MUC Westsite relinquished at end of 2011.

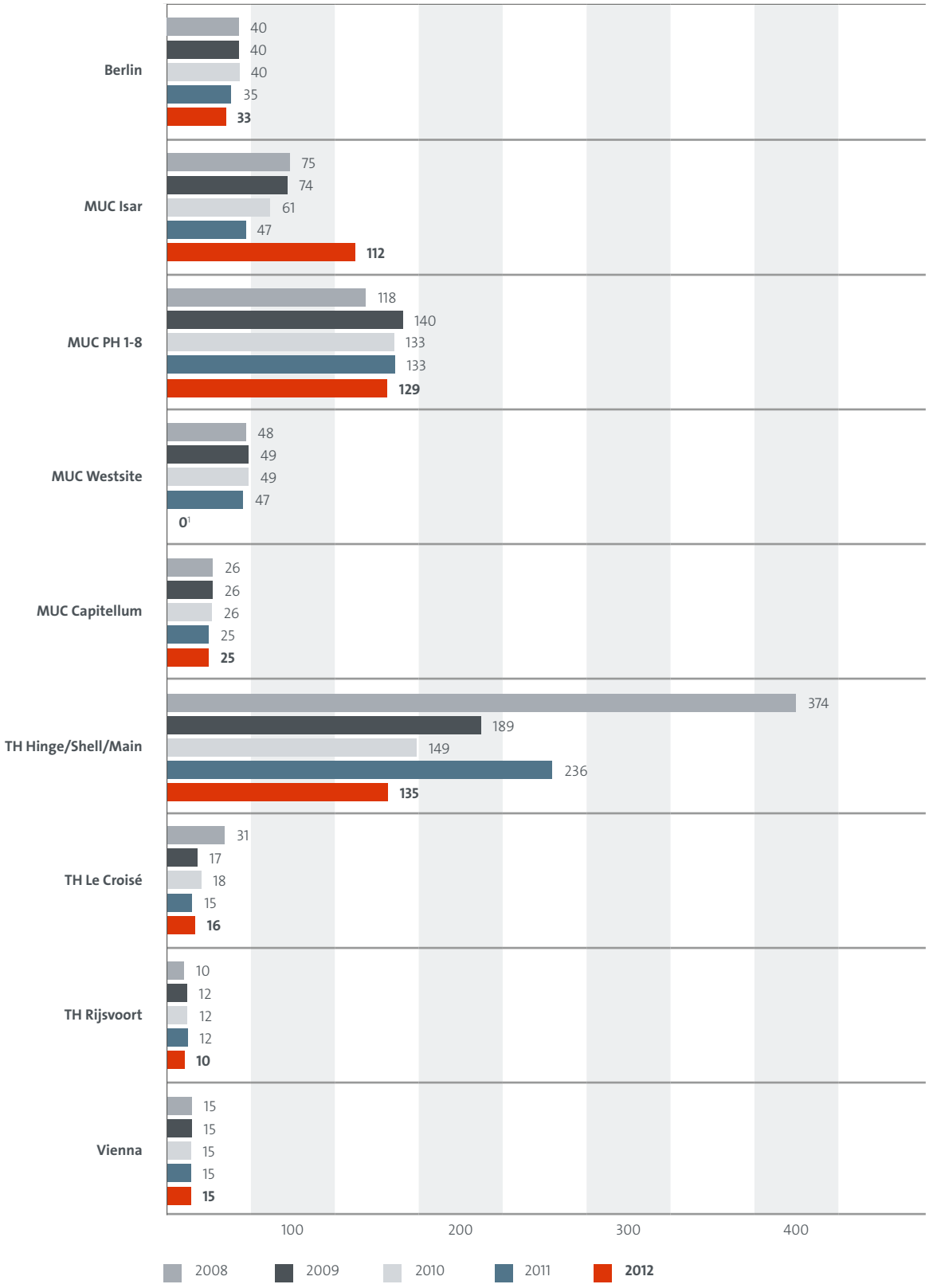

Fig. 10: Total residual waste generation (t/a)

1 MUC Westsite relinquished at end of 2011.

5.4 Mobility

Business trips between the EPO sites constitute the main component of travel at the EPO. To a lesser extent, employees travel to meet customers and other partners or attend conferences and other events. As yet, only data for business trips between sites has been collected. In the light of the EPO's efforts to reduce its carbon footprint, employees at all sites are informed of the CO_2 emissions associated with business travel and are encouraged to use the videoconferencing facilities. For this purpose, we distribute an information leaflet to all (new) employees, including advice and information on climate-friendly business travel, and promote the use of an Excel tool for comparing CO_2 emissions from air travel, train travel and videoconferencing. In 2008/2009 new videoconference rooms were set up. The chart below shows a 9% increase in CO_2 emissions from air travel, though in the same period use of the videoconference rooms also rose from 13 015 hours to 16 172 hours (+24%). Thus a sharper increase in CO_2 emissions was avoided thanks to greater videoconference capacity. However, the aim is still to reduce EPO air travel by offering suitable alternatives, thereby improving our CO_2 footprint.
Fig. 11 shows CO_2 emissions from train travel, where emissions clearly fell from 2011 to 2012 (~40%). However, the distance travelled by train also fell by 76%.

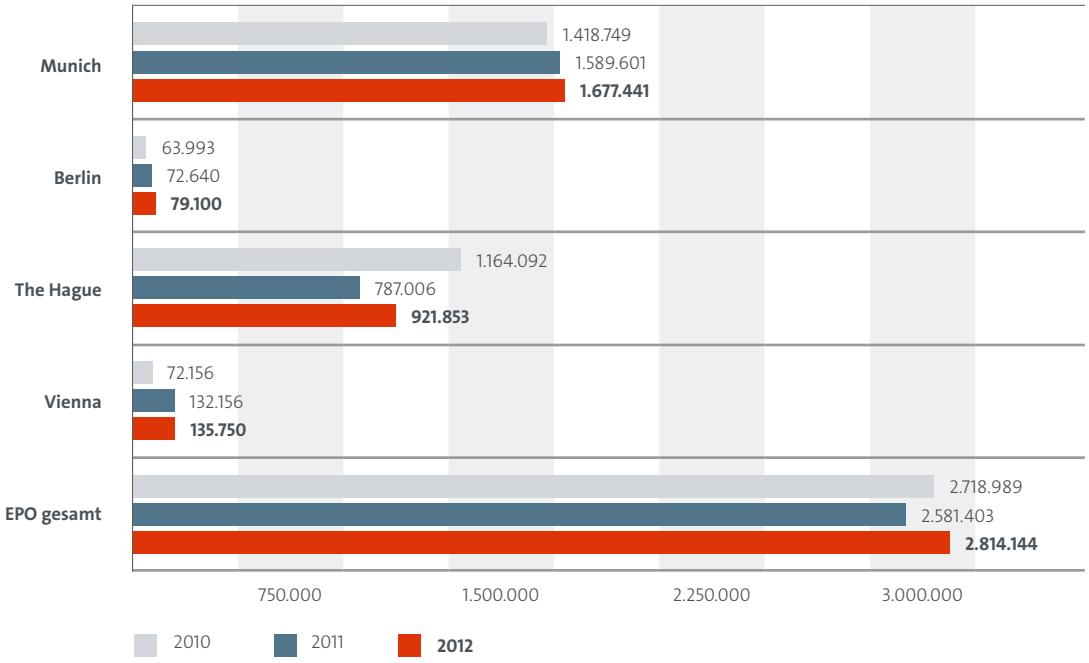

Fig. 11: CO_2 emissions from air travel (in kg CO_2)
Source: BCD Travel data manager/DEFRA 2010.
Note: Emissions are allocated to the place of departure.

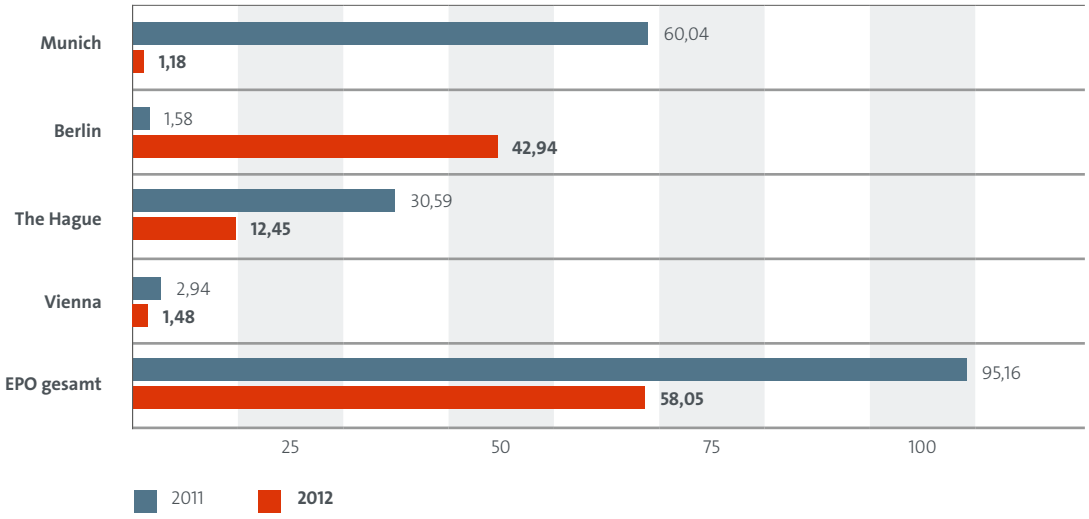

Fig. 12: CO_2 emissions from train travel (in kg CO_2)
Source: BCD Travel data manager/DEFRA 2010.
Note: Emissions are allocated to the place of departure.

5.5 Other emissions

Electricity and heating energy consumption give rise primarily to CO_2 emissions. SO_2, NO_x and particulates are listed only if they arise directly at the building in question. Our primary objective in minimising emissions is the reduction of energy consumption. We also regularly inspect and maintain our heating systems. In addition, we aim to use district heating and electricity from regenerative sources (100% in The Hague). The factors for converting electricity and heating energy (kg/kWh) into individual emission types are based on the GEMIS database and the information supplied by the energy providers at each site. From 2013 electricity from renewable sources is being used at all Munich sites too, which will have a positive impact on the EPO's CO_2 footprint.

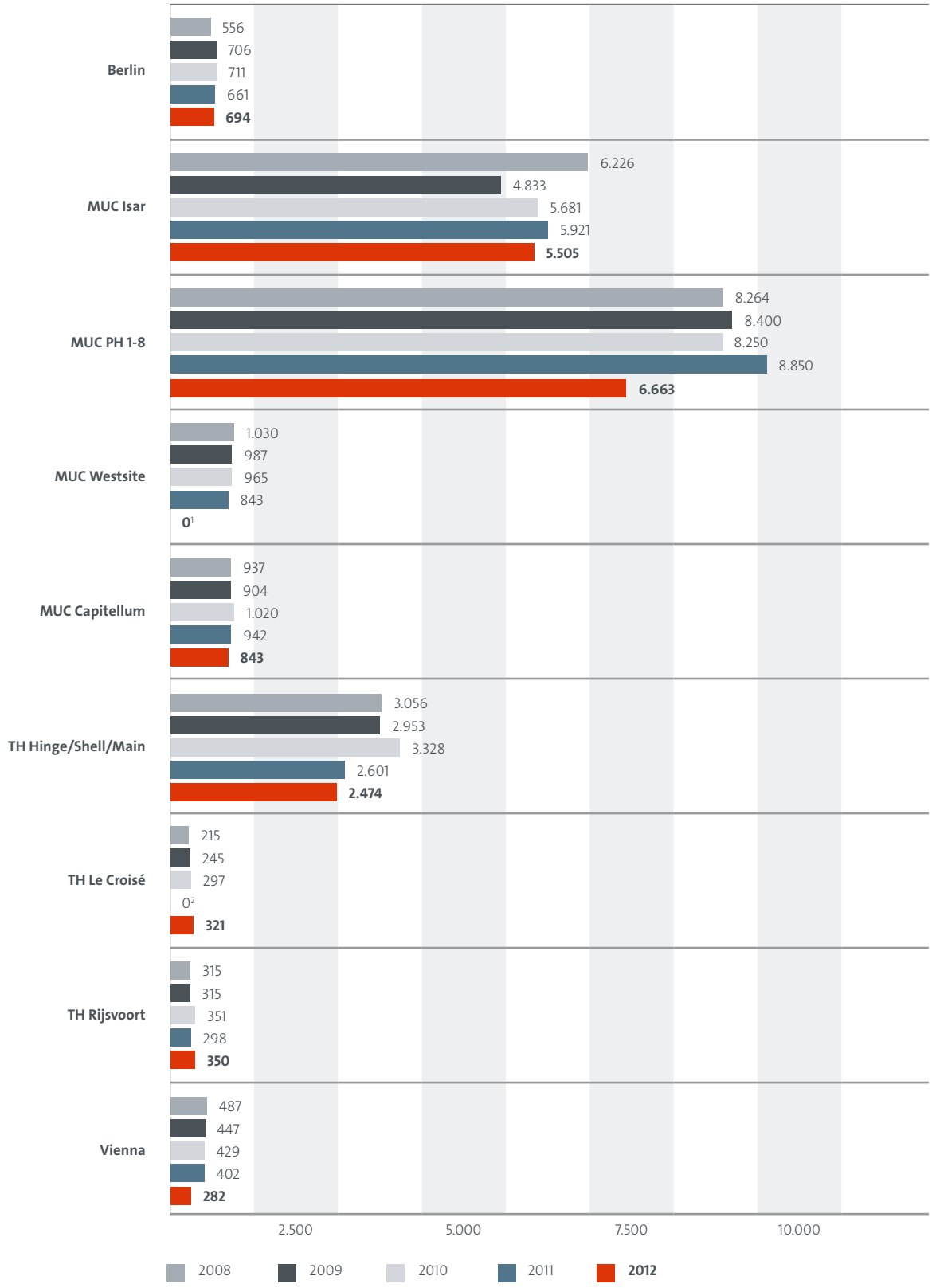

Fig. 13: Total CO_2 emissions from electricity and heating (t/a)

1 MUC Westsite relinquished at end of 2011.

2 Le Croisé 2011: no values received from proprietor.

5.6 Paper consumption

In addition to residual waste, a large amount of paper (green and white) is used at the Office. Total paper consumption at all sites in 2010 was around 122 million sheets, and by 2012 had fallen by nearly 10% to 109.4 million. As part of the increasing digitisation of administrative processes we are aiming at a significant reduction in paper consumption. Staff are also encouraged to avoid unnecessary printing or to print double-sided or condensed. As we did not begin to record paper consumption more accurately until 2010, consumption for Munich and The Hague can in each case only be stated globally, not relative to the individual sites.

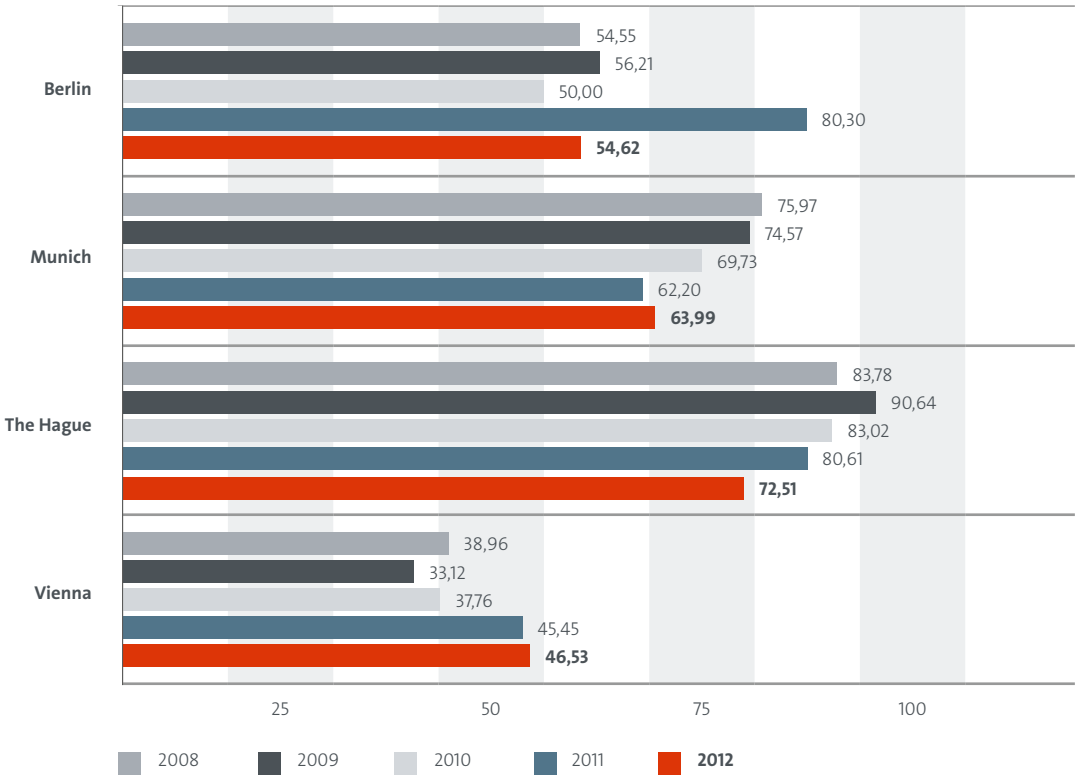

Fig. 14: Paper consumption per employee and day (sheets)

6. Indirect environmental aspects

Indirect environmental aspects are consequences of our activities which we cannot fully control. For instance, they result from the behaviour of our suppliers and contractors or our employees' journeys to and from the office. The table below provides a comprehensive overview of our indirect environmental aspects and the priorities we have set in respect of them (for assessment categories see section 5, "Direct environmental aspects"). The EPO considers the patent grant procedure to be a significant indirect environmental aspect. Its free public patent document database can be viewed as a lever to promote further development of environment-friendly technologies, but also to stimulate political action. Within this database the EPO has developed a new classification scheme which makes it easier to find environment-related patents. Continuous updates will ensure comprehensive information for inventors, scientists and politicians. We are focusing on long-term co-operation with contractors and suppliers, such as cleaning and canteen services. In doing so, we are aiming in particular to achieve the following objectives:

- supplying regular information on the EPO's environmental activities to contractors and suppliers to encourage them to improve their environmental performance
- promoting local/regional food in canteens

In purchasing goods and services, all departments are encouraged to consider environmental impact as an additional factor in tender procedures and decisions to award contracts under the EPO's Financial Regulations. Moreover, environmental aspects are specified in the procurement manuals for (a) general and (b) IT orders. The manuals serve as guidelines for all procurement units. We are promoting a job ticket for public transport to/from the Office for our staff. We are also supporting teleworking from home. The indirect environmental aspects have been identified for all EPO sites and assessed as equally relevant for all sites.

Indirect environmental aspects	Rating
Patent grant procedure	B II
Purchase of food for canteen	A II
Travel to/from office	A III
Use of ecological resources for building/renovation, e.g. paint	A I
Impact on rented buildings	C III
Procurement, e.g. of furniture (extended environmental aspect in contract)	B II
Performance of contractors	C II

7. Improvements: objectives and actions

In accordance with its environmental policy the Office primarily seeks to:

- minimise the consumption of energy, water, paper and other resources, and reduce costs
- reduce its CO_2 emissions through optimised energy and mobility management
- standardise procedures within and between the different sites
- act as a role model for our contractors and suppliers
- regularly inform all members of staff and the public of our environmental activities

To achieve these overall goals, the central environmental management team (in co-operation with the budget representative) each year defines an environmental programme with environmental targets and improvement measures. It takes account of developments in environmental aspects, suggestions for improvements from internal audits and external inspections, and suggestions from local employees and environmental groups.
The table below presents an extract including the chief goals and actions for the future. The indicated target values relate to the consumption figures for 2008.
The technical measures of the environmental programme essentially relate to the EPO's own buildings. The Office has less influence over rented buildings, though here too we try to exert some influence on the proprietors, to implement improvements and to make our staff more environmentally aware.

7.1 Action taken in 2012

Berlin

- Heating pump replaced (savings approx. 19 200 kWh/year)
- Lighting replaced in basement and garage (savings approx. 9 100 kWh/year)
- All lifts in building replaced (savings approx. 2 500 kWh/year)
- Goods ordering converted to electronic form
  (savings approx. 500 sheets of paper/year)

Munich

- Corridor lighting replaced in Isar building (savings approx. 58 000 kWh/year)
- Heating pumps replaced in PschorrHöfe 1-8 (savings approx. 430 000 kWh/year)
- Demand-driven control of conference room ventilation
  (savings approx. 150 000 kWh/year)
- Private phone call invoicing upgraded
  (savings approx. 60 000 sheets of paper/year)

The Hague

- Heating control and cold water supply optimised
  (savings approx. 700 000 kWh/year)
- Optimised control of building control systems over Christmas period
  (savings approx. 300 000 kWh/year)
- Further server virtualisation in computer centre
  (savings approx. 700 000 kWh/year)
- Cradle-to-Cradle products introduced for sanitary facilities
- Lighting upgraded, including installation of motion sensors
  in Main basement over an area of 4 000 m²
  (approx. 60% reduction in electricity for lighting in this area)
- New frequency-controlled pumps installed
- Chargers for electric bicycles provided

Vienna

- Outside lighting replaced (savings approx. 3 500 kWh/year)
- Window seals replaced (savings approx. 5 000 kWh/year)
- Conference room lighting replaced with LED lamps
  (savings approx. 1 200 kWh/year)
- Automatic garden watering system installed
  (savings approx. 350 m³ water/year)

7.2 Objectives and actions planned for 2013

Environmental objective	Period	Responsibility
Reduce total energy consumption (electricity and heating) by 3%	**2013**	**All sites**
Berlin		
Replace all desktop PCs with new energy-efficient models (savings approx. 87 000 kWh)	2013	IM
Reduce number of LAN printers (savings approx. 1 800 kWh/year)	2013	FM
Use rainwater for garden watering	2013	FM
Install charging station for electric cars	2013	FM
Increase green energy share	2013	FM
Munich		
Replace all desktop PCs with new energy-efficient models (savings approx. 1 100 000 kWh)	2013	IM
Introduce energy metering system for differentiated consumption recording in PschorrHöfe and Isar building	2013	FM/TS
Install energy-saving components during renewal of control systems in PschorrHöfe	2014	TS/FM
Replace emergency lighting in Capitellum (savings approx. 2 700 kWh/year)	2013	FM
Split Isar air-conditioning into six units for demand-driven operation	2013	TS/FM
Replace garage lighting in Capitellum (savings approx. 14 000 kWh/year)	2013	FM
Adjust lighting in PschorrHöfe 7 garage (savings approx. 2 000 kWh/year)	2013	TS
Convert PA system to standby operation in PschorrHöfe 7 (savings approx. 200 kWh/year)	2013	TS
Adjust ventilation operating times in PschorrHöfe 8 sports hall (savings approx. 15 000 kWh)	2013	TS
Link PschorrHöfe 6-8 conference and training room ventilation to booking system (savings approx. 110 000 kWh electrical and 300 000 kWh heating energy)	2013	TS
Adjust lighting control in Isar building garage (savings approx. 11 500 kWh)	2013	TS
Procure 100% green electricity for Munich sites (savings approx. 10 000 tonne CO_2)	2013	FM
Provide four charging stations for electric cars in PschorrHöfe and Isar building garages	2013	FM

Environmental objective	Period	Responsibility
The Hague		
Reduce lighting in corridors, printer rooms and communal facilities in Main (savings approx. 60 000 kWh/year)	2013	TS
Demand-driven ventilation control in Shell building auditorium	2013/2014	TS
Examine installation of heat recovery system in Main building sports hall	2013/2014	TS
Extend meter infrastructure in Shell and Main	2013	TS
Install control systems for garage and sports hall	2013	TS
Replace all desktop PCs with new energy-efficient models (savings approx. 850 000 kWh)	2013	IM
Gradually replace desktop printers with decentralised LAN printers	2013-2015	IM
Further server virtualisation and associated reduction of host computer numbers from 40 to 20	2013	IM
Four-stage introduction of ecological procurement guidelines	2013/2014	CP
Vienna		
Replace all desktop PCs with new energy-efficient models (savings approx. 43 000 kWh)	2013	IM
Adjust existing ventilation system	2012	FM
Replace lighting in meeting room	2012-2015	FM
Inspect all window seals	2012	FM

FM: Facility Management
TS: Technical Services
IM: Information Management
CP: Central Procurement

Imprint

Issued by
European Patent Office
Munich
Germany

Responsible for content
Lars Hansen, Environmental Management Officer

Design
Graphic Design Munich