

DOCUMENT TITLE:

A Summary of the Peer Review Report on Corporate Environment Management of the World Meteorological Organisation 2013

This summary provides a concise overview of the IMF Peer Review Report, containing the key findings and recommendations of the report in order to convey the lessons learned and possible areas for future collaboration by other UN agencies. For more detailed information on the report please contact the EMG Secretariat at EMG@unep.org

SUBTITLE 1: *The Peer Review Process*

The Peer Review Project began in 2012, and was initiated by the United Nation's Environment Management Group. The Project aims to review the environmental sustainability profile and performance of international organizations who are Members of the Group. Peer reviewing refers to one or more of the Group's Members reviewing the environmental performance of fellow Members' facilities and internal operations. The Process is undertaken by Peer Review Teams comprising technical experts, UN and international organization representatives, and local government authorities, with support and coordination for the Peer Review teams being provided by the EMG Secretariat. The Process relies solely on data and information which are made available by the reviewed UN entities. Achievements, challenges, good practices and lessons learned are then identified and recommendations are proposed which could be useful for the reviewed entity and to the wider UN system.

SUBTITLE 2: *Facilities' Management of WMO*

The WMO headquarters is designed using advanced technologies and strategies for energy efficiency and cleaner energy. These include but are not limited to building orientation to best meet summer and winter cooling and heating demand; the glass façade is double-skinned along with moveable louvres on the southern side to reduce solar gains; energy efficient lighting is installed throughout the building; and there is a Building Management System (BMS) which controls the operation of various elements of the building.

On average, the building hosts 550 occupants per day. Peak occupancy occurs during large conference events, most frequently between the months of January and June. The building has recently seen the installation of a new gas-fired Combined Heat and Power (CHP) facility. There are also plans to renovate and improve the southern façade's moveable louvres which offer sun protection. The Common Services Division is responsible for the building's management, whilst the HVAC system, waste management, the cafeteria and cleaning services are sub-contracted to various external parties.

SUBTITLE 3: *A Peer Review of WMO*

The Peer Review of WMO was prepared in 2013 with the participation of The Canton of Geneva, UN Environment and UPU who undertook reviews at the WMO Headquarters, with support from the EMG Secretariat. UNIDO on behalf of VIC, chose the following 4 topics to be reviewed against:

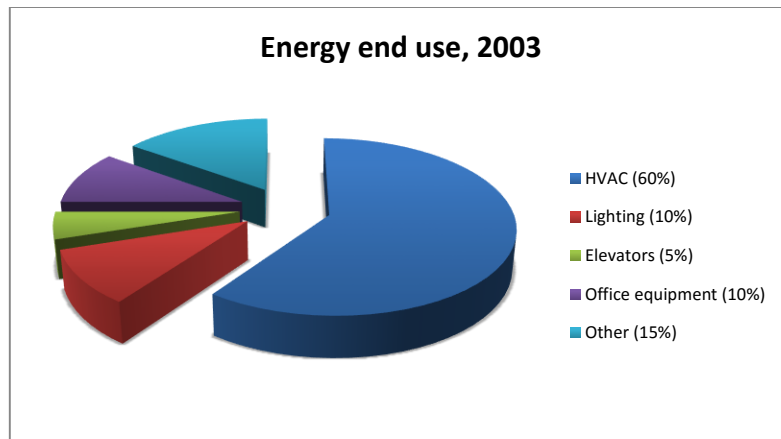
1. Greenhouse gas emissions (GHG) from buildings and facilities.
2. Greenhouse gas emissions and management related to air travel.
3. Waste management at buildings and facilities.
4. ICT and green events/meetings.

Greenhouse gas emissions from buildings and facilities

SUBTITLE 1: *Status in 2013*

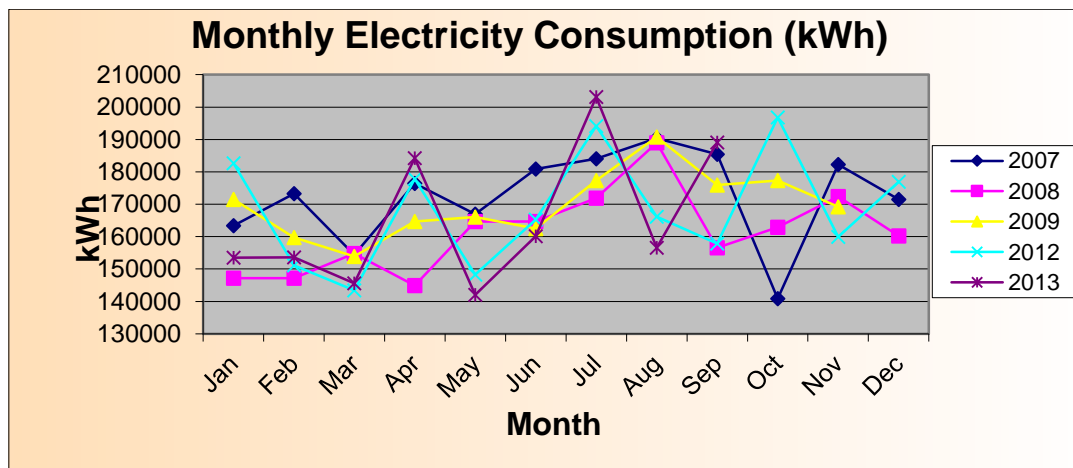
Energy sources and their use:

The WMO building is relatively small and compact and a showcase of low-carbon design and technologies which optimise the building orientation. In addition, the façades are very efficient, there is substantial free energy in the form of natural ventilation, and several energy efficient technologies installed throughout. A Building Management System (BMS) monitors, coordinates and automatically controls the operation of various elements. WMO has two options for obtaining electricity: a) through purchasing low carbon electricity from the grid; or b) producing electricity on site by use of a Combined Heat and Power (CHP) plant. Below shows the percentage of energy used per end-use. Electricity is mainly used for lighting, office equipment, elevators and for the pumps and fans in the HVAC system. WMO also has two options for producing hot water: 1) the preferred route is to produce hot water by recovering waste heat from the CHP – a process undertaken through the combustion of natural gas; 2) whilst the other option is to use an auxiliary boiler.



Energy consumption:

The figure below shows WMO’s monthly consumption of electricity for the years (2007 – 2013), for which data was obtained. Since 2007, which is the year the CHP facility was replaced, there has not been much variation in electricity consumption in the following years. Every year, there is a slight increase in consumption during summer months – attributed to cooling – in comparison to the winter.



SUBTITLE 2: Achievements in 2013

Efficient façade:

WMO has an efficient façade, with fully glazed façades on all sides that ensure daylight penetration. The façades on all sides are ‘double-skin’. Double-glazed windows have been used for the inner skin. The façade has various manual and automated features which partially prevent impacts from cold winds and solar gains in summer, and which allow natural ventilation when it is thermally efficient to do so.

Effective methods of providing ‘free’ energy:

Canadian wells (Earth to Air Heat Exchangers) take advantage of the year-round stable underground temperature to “pre-cool” air used for air-conditioning in summer and to “pre-heat” air used for space heating in winter. Hence, required energy for summer cooling and winter heating is reduced; the Canadian Wells in effect provide ‘free’ energy.

Natural ventilation:

Automatically controlled night time natural ventilation allows cooling of internal office spaces, reducing cooling demand the next day – in effect reducing energy consumption.

SUBTITLE 3: Challenges in 2013

WMO has a relatively unimpressive energy intensity despite being an extremely well-designed building. It is likely that this is the result of some of the factors below.

Sophisticated system is demanding:

The sophistication of the system in WMO, demands a lot of monitoring, operation and maintenance activities. Since WMO has just a single staff member for building maintenance, it has sub-contracted most of these responsibilities. In case contracts are not clear about environmental criteria or if contracts are not monitored well, sub-contractors are less likely to

ensure optimal performance of the system. Even with good contracts and good contract management, it is difficult for a single staff member to monitor such a system for energy and environmental performance, in addition to all the routine task inherent to such a role.

CHP and Vapour Absorption Chiller:

The operation of the CHP and the Vapour Absorption Chiller to produce electricity and chilled water for space cooling is not attractive both in terms of cost-efficiency or GHG emissions output, taking into consideration: the grid electricity tariff that varies according to the time of the day and seasons; the natural gas tariff; the carbon intensity of various options; and the efficiency of competing options and technologies. The Vapour Absorption Chiller especially is a low efficiency technology, and is normally attractive only when free or low cost waste heat is available.

Low sanitary hot water temperature:

Sanitary hot water is stored and distributed at 50 °C , which is below the temperature required to prevent legionella.

SUBTITLE 4: Recommendations in 2013

Installing a reversible heat pump:

WMO may wish to purchase electricity from the grid and to install a reversible heat pump as the primary source for its energy, and space heating and cooling needs. The investment in the reversible heat pump can be recovered within a period of less than 3.5 years.

Integrate equipment with Building Management System:

WMO may wish to monitor on a regular basis and integrate with its BMS, the operational efficiencies of major pieces of equipment, especially equipment including the CHP facility, the Vapour Absorption Chiller, Cooling Tower and heat exchangers.

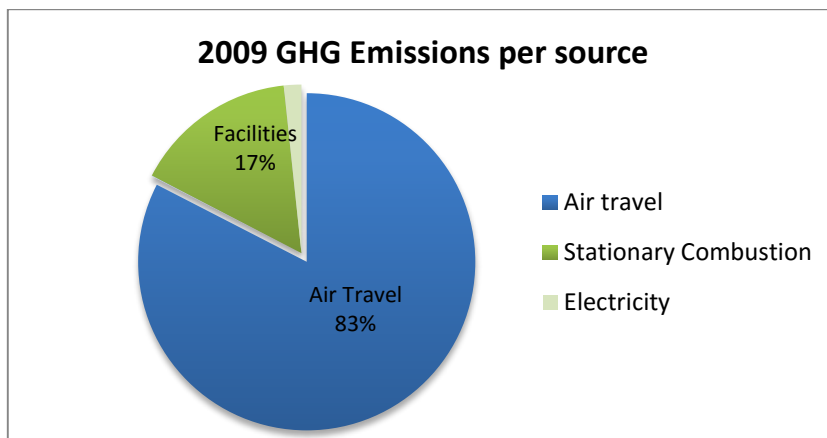
Increase temperature of sanitary hot water:

WMO may wish to increase the temperature of sanitary hot water and distribute it at 60°C, which is not expected to increase energy consumption but will sufficiently prevent legionella.

Greenhouse Gas Emissions (GHG) And Management Related To Air Travel

SUBTITLE 1: Status in 2013

Air travel accounts for just over 50 % of all GHG emissions from operations in the UN; in WMO this figure is closer to 83% and is therefore the largest single contributor to the organisation’s GHG emissions. Note that this is typical of small agencies that are mostly based at headquarters and those that organise a lot of conferences. The number of trips booked and paid for by WMO were 5,077 and 4,648 in 2011 and 2012 respectively. In terms of per capita GHG emissions, 5.56 tons of CO₂eq per capita is emitted by WMO which means it sits alongside some of the highest per capita flight emitters in the UN system, with 38 agencies below it and 12 agencies above with higher per capita flight emissions.



SUBTITLE 2: Achievements in 2013

Video conferencing replacing flights:

WMO has very advanced video conferencing facilities and its use is already having a positive impact on reducing flights, saving time, funds and improving staff health. Other technologies such as telepresence were also considered, but were in the end discarded in favour of video conferencing. There are two video conferencing rooms at the west and east zone of

each floor. Furthermore, most travel for job interviews and training initiatives has been replaced by video conferencing. With almost immediate effect, the policy implementation for video conferencing seemed to begin acting as a substitute for some air travel already by 2012 – when comparing 2012 flights to the previous year’s totals; there was an 8% reduction in the number of flights for 2012 compared to 2011. It should also be considered that the use of video conferencing will improve further as more WMO partners, contractors and collaborators obtain their own video conferencing facilities.

SUBTITLE 3: *Challenges in 2013*

Policies for reducing air travel:

WMO’s air travel is a necessary part of its operations and there are policies and systems to track its use; however there seems to be no explicit top-down policy or objective/ goal in the reduction of air travel, albeit the means for its reduction are there and noticeable reductions seem to be taking place. The lack of a corporate environmental policy is also apparent in other areas of WMO’s operation, although good practices on an *ad hoc* basis do take place. The implications of this are typically good gains and improvements but at a sub-optimal level, and difficulty in ascertaining exact progress in environmental endeavours.

Replacing business with economy:

There is currently no staff encouragement, tracking, recognition or entitlements to fly economy in place of business. Some staff do elect to travel in economy class when entitled to fly in business class; this seems to be for environmental (economy air travel emits about half the greenhouse gases (GHGs) of business class travel) and/ or financial reasons. However, there is currently no encouragement, tracking, recognition or entitlements for electing to fly economy in place of business class.

Necessity of staff travel:

Travelling staff or the department for which they travel, currently do not need to indicate or prove whether the objectives of the mission could be achieved through WMO regional offices or e-communication technologies or other means.

Keeping track of flight data:

A system of flight approvals and purchases exists within WMO’s Enterprise Resource Planning (ERP) software, and global mission/flight data is collected centrally in this system. However, the ERP system does not capture emissions by flight or groups of flights per department, though American Express, the agency’s travel agent, could provide this externally.

SUBTITLE 4: *Recommendations in 2013*

Replace air travel with other means and reduce class where possible:

WMO may wish to, wherever the rail infrastructure is good and reliable, encourage rail travel over short-haul flights. Furthermore, reduce the class of travel where possible by encouraging staff, based on new UN air travel rules that allow 12 hours off if flying economy in place of business class.

Video conferencing and regional offices:

WMO may wish to use video conferencing as much as possible and keep track of avoided or reduced flights as a result. Use regional offices to act on behalf of HQ, saving the need for long-haul flights.

Integrate GHG emissions data in the ERP system

WMO may wish to develop the ERP system for tracking flights and expenditures on flights. The system could be programmed to store key environmental data such as emissions per flight and total emissions for departments or large meetings. Having this available at the push of a button can provide certain advantages.

Book flights early:

WMO may wish to book flights early, with a cut off at 2-3 weeks prior to each mission. This could allow for the best availability of the most direct routes, thereby saving emissions and money.

Waste management at facilities

SUBTITLE 1: *Status in 2013*

Being based in Geneva, WMO benefits from the excellent waste management infrastructure, and environmentally proactive suppliers and workforce. Waste management in WMO has focused mostly on sorting and proper disposal, apart from excellent achievements in paper reduction. Nine different waste types are subject to selective sorting and three companies have been contracted to collect and dispose three sets of waste. WMO has also assigned the sub-contractors in charge for the cafeteria and for cleaning, to handle waste related to their activities.

SUBTITLE 2: *Achievements in 2013*

Paper compactor and reduction in paper consumption:

The purchase of a paper compactor installed in the WMO basement compresses paper into balls, allowing storage of increased quantities (by weight) whilst reducing the number of trips by the sub-contractor to collect the palettes. Furthermore, thanks to a proactive policy on conferences – on ICT and Green meetings – printed documentation provided to participants is replaced by the loan of IT equipment and posting online to the intranet/ internet documentation updated for the duration of the conference. Furthermore, paper recycling bins are visibly placed during the conference to motivate the participants to recycle.

Catering:

Management of catering waste is included in the contract with the company in charge of the cafeteria, NewRest. A scheme has been introduced by which mugs have replaced disposable cups used for take-away coffee. Suppliers collect and reuse plastic crates containing fresh products, which are brought to the cafeteria every day. Porcelain crockery is used during events organised by WMO and/or the cafeteria.

Managing tenders:

During the preparation of the tenders for waste collection and the cafeteria, the WMO uses an engineering consultancy firm, which aids understanding of all legal and technical aspects of the tenders they are involved in, and coherently identifies the environmental aspects. In addition, management of catering waste is included in the contract with the company in charge of the cafeteria, NewRest.

SUBTITLE 3: *Challenges in 2013*

In the absence of a defined strategy on waste management, controlling and reducing the environmental impact of waste will be difficult. A number of aspects are therefore considered as problematic in the case of WMO. Firstly, there is a lack of any formally appointed waste management “focal point” who centralizes information and implements an action plan; whilst, secondly there is a lack of knowledge about legal responsibilities and techniques in waste management, and of sub-contractors on how to manage waste resulting from cleaning the premises and cafeteria. Thirdly, there is a lack of statistical data and reporting on waste management (different types of sorted and valorised waste, quantities of sorted waste, recycling rates, recycling objectives, etc.)

SUBTITLE 4: *Recommendations in 2013*

Data and regular reporting:

WMO may wish to establish a system for collecting data on the different types of sorted waste, and a regular reporting that allows - according to a process of continuous improvement – performance monitoring of waste sorting and thus calculation of the rate of recycling.

Lifespan and replacement of IT equipment:

WMO may wish to consider the replacement of IT equipment based on their technical status and remaining life, and not based on the requirements for meeting financial accounting standards as is being done now. Attempt could be made to increase equipment life span to 5-6 years, so as to reduce the quantity of e-waste.

Promoting waste sorting:

WMO may wish to document and disseminate waste management information to staff and visitors, to promote waste sorting. Furthermore, give high visibility to sorting centres located on each floor, put information on the intranet/internet site etc.

ICT and green events/meetings

SUBTITLE 1: *Status in 2013*

At 1.5 million CHF per year, the IT budget of WMO is substantial. Annually, WMO organizes over 30 major events and meetings, each involving at least 100 participants. Among the most widely known are the meetings of the Executive Council and Regional Associations. WMO has leveraged its impressive ICT infrastructure to reduce air travel, cut down on paper and to organise green meetings. The integration of new information and communication technologies (ICTs) in the day-to-day activities of the WMO and its employees is undoubtedly one of the organization's most positive environmental practices. ICTs have made it possible to improve the efficiency of meetings and facilitate decision-making, to reduce the amount of business travel, and to move towards paperless meetings over the last four years.

SUBTITLE 2: *Achievements in 2013*

E-communication equipment:

Since 2009, WMO has invested in e-communication equipment to reduce its environmental impact, allowing it to hold virtual meetings. After installing equipment, WMO trained its staff in using alternative systems such as web-based meetings, instant messaging and videoconferencing. In 2012 alone, the installation of videoconferencing material in 10 or so WMO meeting rooms made it possible to hold 700 meetings with 2,900 contact points.

Bring your own device:

WMO is the first UN agency to have implemented a Bring Your Own Device (BYOD) policy: Employees are encouraged to use their own IT equipment (especially laptops, tablets and smartphones) for professional activities by configuring these devices to use them securely in a WMO context.

Electronic documents:

Thanks to advanced electronic distribution of meeting documents and availability of updates/revisions in real time on a secure, shared website managed by the WMO, documents are no longer printed (except for translators and interpreters). In 2013, during the 65th meeting of the WMO Executive Council, 26,000 pages of documents were shared with participants without being printed.

SUBTITLE 3: *Challenges in 2013*

Few challenges were highlighted in the report with regards to ICT and green events/meetings, mostly because WMO has undertaken exemplary work in ICT and green events. However a challenge, not limited to WMO, is to quantify the benefits of such measures, and to communicate them effectively across the organisation and externally.

SUBTITLE 4: *Recommendations in 2013*

Integrate green/environmental criteria in the selection of venue and supplies for meetings

WMO may wish, for environmental improvements while organising meetings, to consider several factors: location (country/city), venue (conference centre), air travel, local transport, hotels and meals.

Details of the environmental criteria and sources to be taken into consideration can be found in the UN Sustainable Events Guide. This guide provides a checklist of criteria to consider when ensuring that the environmental (and social) impacts of meetings are minimized.

Measure GHG impact of meetings with over 200 participants

WMO may wish to consider building on its reduction of the environmental impact of meetings, by promoting the achievements as well as areas requiring further work – it is also important to monitor the impacts and improvements. It is commendable that WMO has already started monitoring CO2 emissions from meetings. Currently, columns have been inserted in the Meeting Forms (Budget document) comparing CO2 emissions between Geneva and Venues abroad. This could be a first step, towards climate-friendly, carbon-neutral events. The UN Sustainable Events Guide provides initial guidance on it.