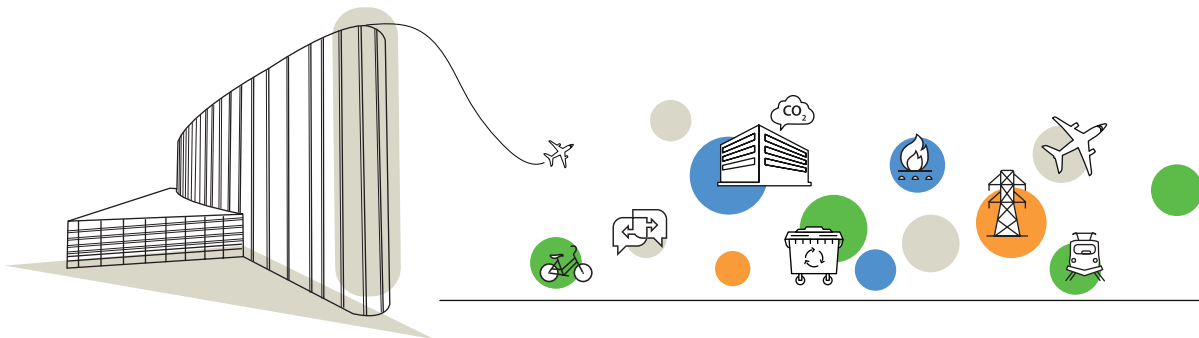


A summary of the Peer Review Report on Corporate Environment Management of WMO 2013

This summary provides a concise overview of the WMO 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



The Peer Review Process

The Peer Review Project began in 2012, initiated by the United Nation's Environment Management Group (EMG). The Project aims to review the corporate environmental sustainability profile and performance of international organizations who are Members of the EMG at facility management and operations level including air travel. Peer reviewing refers to one or more EMG Members reviewing 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. The EMG Secretariat coordinates the process and supports the Peer Review teams. 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 UN system as a whole.

Facilities' Management

The WMO headquarters are 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.

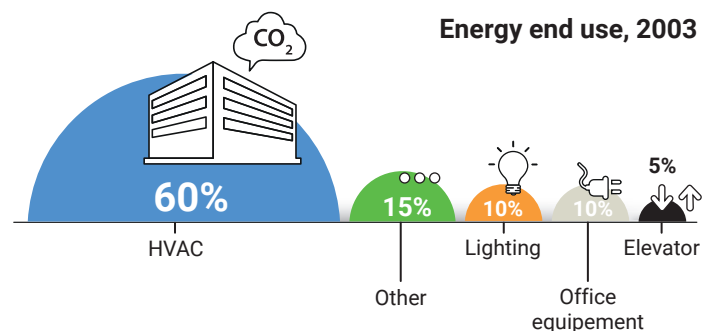
On average, the building hosts 550 occupants per day. Peak occupancy occurs during large conference events, most frequently between the months of January and June. The building has

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.

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. WMO 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. Information and communication technologies (ICTs) and green events/meetings.



Greenhouse gas emissions from buildings and facilities



Status

Energy sources and their use:

The WMO building is relatively small and compact, showcasing low-carbon design and technologies. The façades are very efficient, there is substantial free energy in the form of natural ventilation and several energy efficient technologies installed throughout. The 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 heating, ventilation and air conditioning system (HVAC).

Achievements

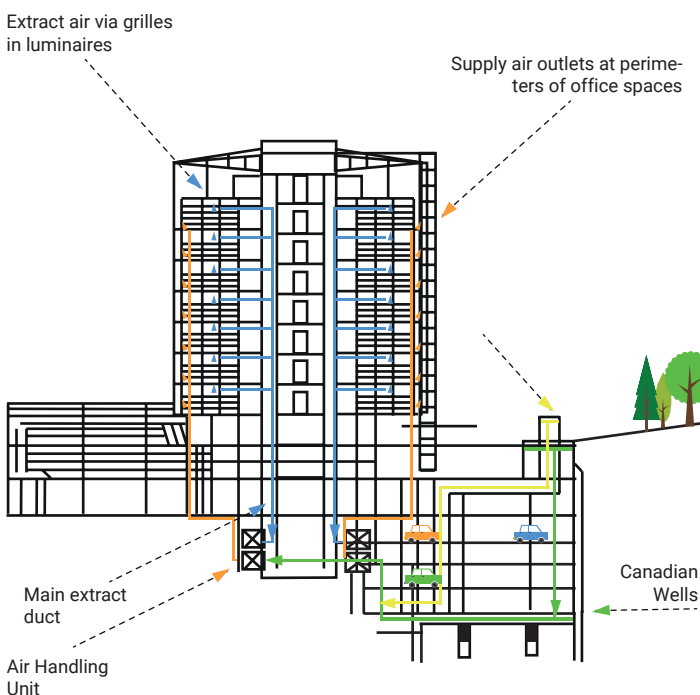
Efficient façade:

WMO has an efficient façade, fully glazed on all sides ensuring 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.

'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.

Canadian Wells at WMO:



Challenges

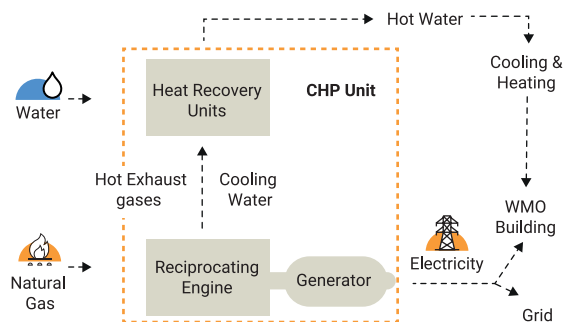
Energy intensity is a challenge for WMO despite being an extremely well-designed building; this is likely the result of the following:

Demanding sophisticated system:

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.

CHP and Vapour Absorption Chiller:

The CHP produces electricity through a gas-fired reciprocating engine, and the waste heat in the flue gases is recovered to produce heat in the form of hot water needed for space heating, chilled water production and sanitary purposes. Any excess electricity produced from the CHP is sold to the grid.



The operation of the CHP and the Vapour Absorption Chiller is relatively unattractive both in terms of cost-efficiency and GHG emissions output, taking into consideration: the grid electricity tariff that varies according to the time of day and year; the natural gas tariff; the carbon intensity of various options; and the efficiency of competing technologies.

Recommendations

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:

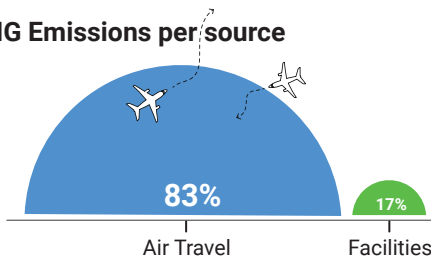
WMO may wish to increase the temperature of sanitary hot water and distribute it at 60°C, which is not expected to increase energy consumption but will sufficiently prevent legionella. tems and processes.

Greenhouse Gas Emissions (GHG) and Management Related to Air Travel

Status

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 CO₂e per capita is emitted by WMO which means it sits alongside some of the highest per capita flight emitters in the UN system.

2009 GHG Emissions per source



Achievements

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. Most travel for job interviews and training initiatives has been replaced by video conferencing. With almost immediate effect, this policy for video conferencing began acting as a substitute for some air travel already by 2012. Comparing 2012 flights to the previous year's total; there was an 8% reduction.

Challenges

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.

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; economy air travel emits about half the greenhouse gases of business class travel.

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.

Recommendations

Replace air travel with other means:

WMO may wish to, wherever the rail infrastructure is good and reliable, encourage rail travel over short-haul flights, and encourage economy class travel where flying is necessary.

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 could provide certain advantages.

Waste management at facilities



Status

WMO benefits from an excellent waste management infrastructure in Geneva, 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.

Achievements

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 online resources.

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.

Challenges

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. 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, including: different types of sorted and valorised waste, quantities of sorted waste, recycling rates, recycling objectives, etc.)

ICT and green events/meetings



Status

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. The integration of new 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.

Achievements

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.

Recommendations

Data and regular reporting:

WMO may wish to establish a data collection system on different types of sorted waste and regular reporting that allows – through continuous improvement – performance monitoring of waste sorting and thus calculation of the recycling rate.

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, giving high visibility to sorting centres located on each floor and putting information online may be rewarding.

Challenges

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.

Recommendations

Green/environmental criteria in the selection of venues and supplies:

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.