

UN WOMEN Peer review- Executive Summary

This summary outlines key findings and recommendations of the Peer Review conducted by the United Nations Environment Management Group on the corporate environmental management of the United Nations Women at its Beijing office. The purpose of this summary is to convey lessons learned in the Peer Review process and to highlight possible areas of focus and collaboration among UN and related agencies in the area of corporate environmental management.

For more detailed information on the report please contact the EMG Secretariat at emg@un.org

The Peer Review Process

UN Women in Beijing is located on the 8th floor of Block 2 TaYuan Diplomatic Building, 14 Liangmahe Nanlu, Beijing. The Peer Review is undertaken by Peer Review Teams comprising technical experts, UN and representatives of UN entities, international organizations and local government authorities, with support and coordination provided by the EMG Secretariat. The Peer Review Team analyses data and information provided by the reviewed agency based on site visits to the reviewed facility(ies). Achievements, challenges, good practices and lessons learned in approaches to corporate environmental management are then identified and compiled into a Peer Review Report, along with proposed recommendations. These recommendations focus on how the environmental performance of the reviewed entity could be improved, whilst enhancing their resource efficiency, and economic and social sustainability.

A peer review of the UN Women country office in Beijing

UN Women in Beijing is located at the heart of Beijing's diplomatic district. It has a land area of 4,575 m² with a built-up area of 2,034 m². The main building is 52 years old, while the newer ones are at least 19 years old. Half the buildings are orientated north-south and the rest east-west, following the city grid of Chaoyang District. The TaYuan Diplomatic Building occupied by UN Women is a 16-floor multi-tenanted office building and is orientated primary north-south. The building was built in 1985 and UN Women occupies a quarter of the 8th floor, with an area of 345 m².

The peer review of UN WOMEN was conducted with a visit to the premise during the 4th week of October 2017. The 5-day site visit from 23-27 October 2017, allowed reviewers from the EMG Secretariat, to visit the facilities of UN Compound, UNICEF, UN Women and WHO in Beijing.

Achievements

1. Low Energy

UN Women has approximately 50% lower energy consumption per m² basis as compared to WHO, which operates under similar conditions, with primary heating and cooling being provided by a centralized system that is paid as part of the office space rental to the landlord.

2. No Cooling Required for its Server

The server room was operated for years without the air-conditioning switched on. Measured air temperature at the front of the server was 30°C. This temperature is within the allowable range for Class A1 mission critical data center of up to 32°C.

3. Sharing of Printers

Only 3 printers are used at this facility and shared among 13 staffs.

4. Recycling Bin

A recycling bin was seen at the facility.

5. Fresh Air Supply Provided at this Facility

It is mandatory in many countries to incorporate a minimum active fresh air supply to permanently occupied office spaces via a mechanical fresh air supply system. The fresh air is needed to provide adequate oxygen and dilute indoor air contamination to a healthy level. Except for UN Women office, active fresh air supply was not seen in any other UN facilities in Beijing. Mechanical fresh air is supplied into Fan Coil Unit (FCU) "cabinet room".

6. Class 2 Efficiency Refrigerators

The refrigerator found at UN Women is rated with 2nd highest efficiency.

7. De-lamping Conducted

De-lamping was found to have been conducted at this facility.

Opportunities for Improvement

1. China's Energy Labelling System

Since the introduction of China Energy Label in 2005, more than 25 product groups have become mandatory to be labelled, while additional classes are continually being added to the product catalogue. It is recommended to purchase the lowest cost, highest efficiency labelled equipment whenever UN Women plans to purchase air-conditioners, refrigerators, water kettles, photocopiers etc.

2. Low Lighting Level

Lighting level for the most part of the facility was found to be within the recommended standard that is optimal for productivity and energy efficiency. However, approximately 25% of the desks were measured to have a lux level below 200. A lux level above 100 and below 200 is acceptable for computer work but is considered low for document reading. A task light will be a good solution to overcome this generally low ambient lighting level at UN Women.

8. Air-Tight Building

Fresh air is provided to the building via a duct to all the FCUs in UN Women. CO₂ measurement indicates that the building is air-tight even with the fresh air supplied, as it is just marginally above the recommended value of 1100 ppm. The office spaces have a measured CO₂ level of 1200-1400 ppm. This

CO2 level should be considered in minimizing energy consumption by the heating and cooling system for fresh air. All meeting rooms should be installed with a silent air extraction fan, to extract air to the outside. This will create a negative pressure in the meeting room, increasing infiltration of fresh air into the room during period of occupancy.

3. Supplementary Heating & Cooling

The landlord-provided primary heating and cooling was found to be inadequate to provide comfort to the building occupants. For this reason, the facility had installed a few units of reversible split-unit air-conditioning system. Most of these units look old and might be inefficient. A fairly new unit was found installed at the data center room, but it was rated at the worst efficiency.

4. Proper Installation of Air-Conditioning System

In general, it was observed that split-unit refrigerant pipes are almost always poorly uninsulated near the inlet and outlet valves at the compressor in Beijing. The insulation provided often stopped short from the compressor fittings, exposing refrigerant copper pipes. Exposed copper pipes lose cooling and heating to the outdoor space. It is recommended that insulation be provided to cover the copper pipe entirely, preventing unnecessary energy losses.

5. Data Center Air-Conditioning Efficiency

If UN Women chooses to operate the data centre at the recommended temperature of no higher than 27°C, the air-conditioning system for the data centre room should be changed to the most efficient one available.

6. Power and Energy Monitoring

A power and energy monitoring system are recommended to be installed in UN Women to keep track of the real-time production, storage and usage of electricity. It is recommended to select a system that will provide automatic reporting in charts and graphs to show the real-time power usage of the facility and provide daily, weekly and monthly reports.

7. Phantom Load Management

The power consumption of 0.7kW during unoccupied hours in UN Women is already quite low. Improvements can be made to shut down all phantom load by unplugging computers, printers, AV devices and more during unoccupied periods of the building.

8. Lighting Improvement

Lighting at UN Women is a mix of efficient and non-efficient technologies. Light circuiting is not thought to harness daylight. Use of task lighting is highly encouraged together with daylight harvesting. Using a task light to light up a working area is significantly lower energy consuming than lighting up the entire space brightly.

9. Efficient Lights & LOR

Occupancy and daylight sensors may be used to further improve lighting energy consumption. Daylight sensors are recommended for all common areas that may be occasionally dark due to the changing

weather condition, such as a heavy rain during daytime. Daylight sensors are recommended to be implemented with the option of auto off/manual on function.

10. Electric Car Charging Hours

Currently, the electrical car is charged immediately after office hours by the driver. As the electrical tariff is still high until 11 pm, it is recommended to install a timer on the charging system to turn on the charger at the period of lowest tariff. The driver may plug in the car to be charged before ending his work at 5/6 pm, but the timer will only turn on the charger at the right time for the electric car to be charged during the lowest tariff period.

11. Building Envelope Improvement

The building envelope may be further improved to provide reduced GHG emissions. Improving the insulation of the existing uninsulated roof, wall and window frame will reduce the heat loss during winter and heat gained during summer.

12. Thermal Comfort and Air Temperature Set Point

The indication that air temperature of split units was set as low as 21°C and 30°C during the visit is an indication that thermal comfort is an issue that needs to be addressed. The energy consumption of air-conditioning systems can be reduced, especially if it is an inverter type, by setting the temperature set-point closer to the outdoor condition.

13. Technical Awareness and Motivation for Maintenance

Technical training and information sharing on energy efficiency and sustainability awareness should be regularly conducted and repeated. Topics provided should be of interest to the end-user, so that they can apply them at their own homes. It is also recommended to purchase a range of portable measuring devices that can be used during these training sessions for them to be able to 'see and feel' the information being discussed. Finally, a real-time energy monitoring program that is available on-line, will help everyone understand the energy performance of UN Women facility daily, monthly and yearly. This allows the building occupants to participate in the optimization of the building and become more conscious of their behavior towards the performance of the building.

14. Maintaining Motivation

Employees' engagement and motivational program must be continuously conducted to drive long term behavioral change. Mental barriers such as "someone else will save the planet", "my contribution is just too small to count", etc. need to be openly discussed.

Future Direction

Although UN Women has done many things right to reduce GHG emissions at its facility, it still has many opportunities to further improve on energy efficiency through the implementation of daylight harvesting, a general retrofit of the facility lighting system, a replacement with energy efficient air-conditioners, improvement in phantom load management and an implementation of a green purchasing guideline.