

DOCUMENT TITLE:

WFP Corporate Environmental Management

- A Summary -

This summary outlines key findings and recommendations of the Peer Review conducted by the United Nations Environment Management Group of the World Food Programme's corporate environmental management at its Amman country 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

SUBTITLE 1: *The Peer Review Process*

The Peer Review Process was initiated in 2012 by the United Nations Environment Management Group (EMG). The Project aims to review the environmental sustainability profile and performance of UN and related agencies. Peer reviewing refers to one or more agencies reviewing the environmental performance of fellow agencies' facilities and internal operations.

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.

SUBTITLE 2: *A peer review of the WFP country office in Amman, Jordan*

The WFP country office in Amman was once a large residential home. To increase office space, cabins have been added to the existing three blocks of the former home. Combined, this space amounts to an area roughly 2,000m² and hosts 180 occupants.

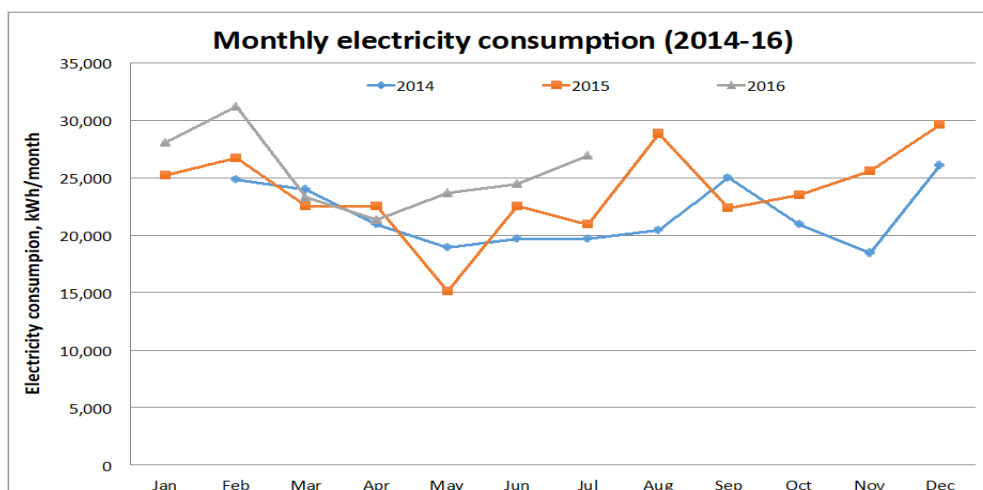
Alongside the peer review of WFP, the Jordan country office of UNRWA was also reviewed. An exploratory mission began in July 2016 and a preparatory mission was subsequently carried out in November 2016 followed by a 4-day site visit from 4-7 December 2016. The WFP review included reviewers from the EMG Secretariat, UNDP, UN Environment, UNICEF, UNOPS and the World Bank. The following topics to be reviewed against, were chosen by WFP:

1. Greenhouse gas emissions (GHG) from facilities
2. Greenhouse gas emissions (GHG) from transportation
3. Communication and outreach

Greenhouse gas emissions (GHG) from facilities

SUBTITLE 1: *Status*

Peak electricity consumption occurs during the months of January, August and December which coincides with the hottest and coldest months in Amman. Peak electricity at WFP is thus largely driven by heating and cooling.



SUBTITLE 2: *Achievements*

Energy management of after-office hours in WFP is very good. The night time energy load of 20 kw versus the daytime peak load of 180 kw indicates good energy management during the night time. The following items are shut down during after-office hours: water heaters in toilets, and water dispensers and printers in the corridors. Moreover, corridor lighting is switched off in most areas where daylight is available.

SUBTITLE 3: *Challenges*

Some general points were observed, such as the poor air-tightness throughout the building and the leaving of windows open during the winter. It was found that halogen lights were still being used and that some spaces were both lit too much and too little. In addition, it was noticed that windows in the cabin offices were smaller than those in the building, subsequently allowing only minimal amounts of light through. The server room/data centre was found to be operating with an air-conditioning system to remove heat from the room, whilst at the same time measures to reduce natural heat gain, for example from the windows, were not in place.

There is a need for the facilities' management team to gain a deeper understanding of the facility management of energy. The energy efficiency in a building also involves a comprehensive understanding of mechanical systems such as heating, cooling pumps and fans; electrical system such as lighting and architectural aspects such as passive heating and cooling, daylight harvesting and air tightness. These mechanical systems, including energy efficiency technologies, are rapidly changing and progressing. Access to consistent training programmes on these matters is important to maintain the expertise of facilities' management.

SUBTITLE 4: *Recommendations*

Several technical solutions were suggested in support of reducing GHG emissions and energy costs at WFP's office in Amman:

Improve boiler efficiency:

The installation of a condensing boiler is recommended, as it can reach up to 90% efficiency, significantly more than a non-condensing boiler. However, it is important to ensure that a good and knowledgeable supplier is used, as the higher Sulphur-content diesel used in Jordan can lead to boiler corrosion in condensing boilers.

Winter and summer infiltration rates

Infiltration rates of air between the outside and inside of the building require reduction. A simple measure to reduce this rate during winter is to keep all doors and windows closed in the building, whenever heating is being used. It was calculated, by looking at air-changes per hour (ACPH), that 400 Jordanian Dollars could be saved per year by reducing the infiltration rate.

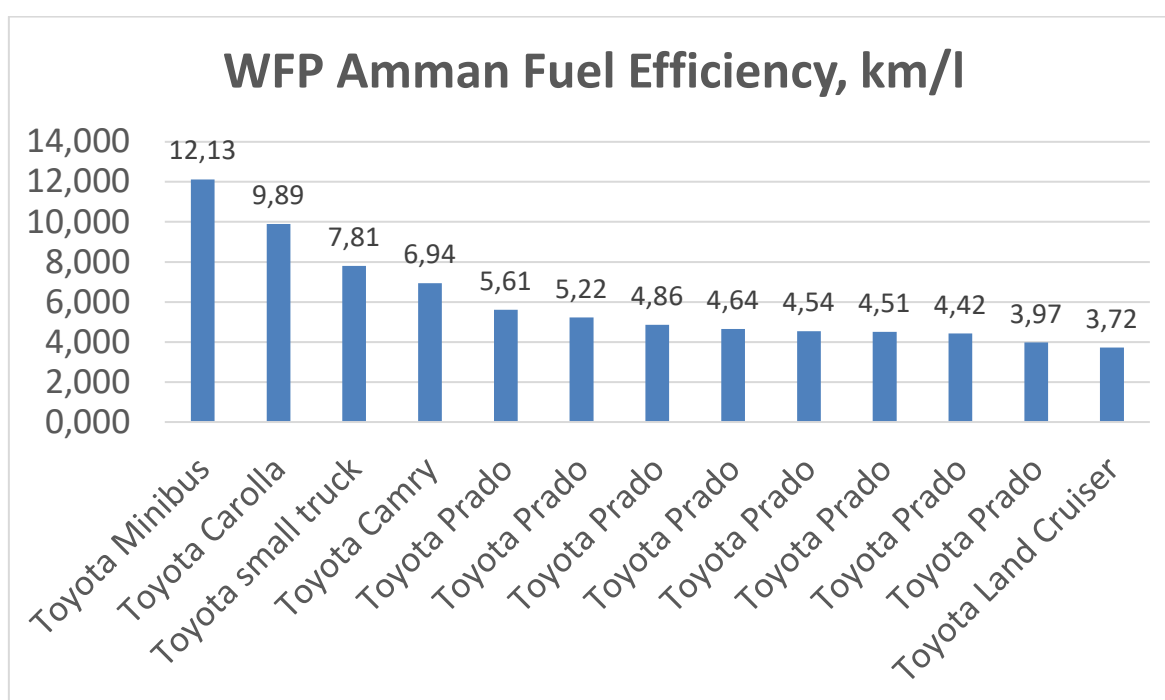
An improvement of summer time infiltration could provide an annual saving of 2,000 Jordanian Dollars per year. For example, achieving the recommended infiltration rate of one ACPH would only require that doors and windows are kept closed; a similar recommendation to that of the winter scenario.

Improvement on lighting efficiency and daylight harvesting

Some offices were measured to be overly lit. De-lamping, energy efficient lighting and the use of daylight could reduce the total building energy consumption by more than 10%. The replacement of existing halogen lights for LED lighting is also recommended.

Greenhouse gas emissions (GHG) from transportation

The variability in fuel efficiency shown in the chart below, is due to vehicle class differences. Saloons are represented towards the left, whilst sports utility vehicles (SUVs) and small trucks are represented towards the right. These SUVs and trucks have much lower fuel efficiencies that are in the order of 4-6 kilometers driven per liter, whilst the saloons gain much better efficiency of over 10 kilometers per liter of fuel. The reason for this is simply due to the greater engine size and heavier weight of the larger vehicles, which ultimately translates into more fuel being used to travel over the same distance.



In addition to the vehicle class differences, further likely scenarios for the differences in fuel efficiency are listed below:

- The age difference in the same class of vehicles, with the older vehicles typically being more inefficient and requiring more maintenance.
- Driving habits among drivers has a considerable impact on fuel efficiency. A driver making rapid stops and accelerations will wear out the car and will consume much more fuel for the same distance covered.
- The driving routes taken, depending on terrain and traffic, will lead to a variation in fuel efficiency.
- Inaccurate or fraudulent fueling practices inevitably lead to ‘fuel efficiency’ discrepancies. For example, practices at the fueling station that should not occur – such as filling extra fuel cans – can affect fuel economy. It is assumed that WFP has checks to mitigate such practices.

SUBTITLE 5: *Achievements*

WFP has an excellent fleet management software that also tracks driver behaviour. However, a strategy to improve fuel efficiency based on the available data should be implemented.

SUBTITLE 6: *Challenges*

Poor fuel efficiency:

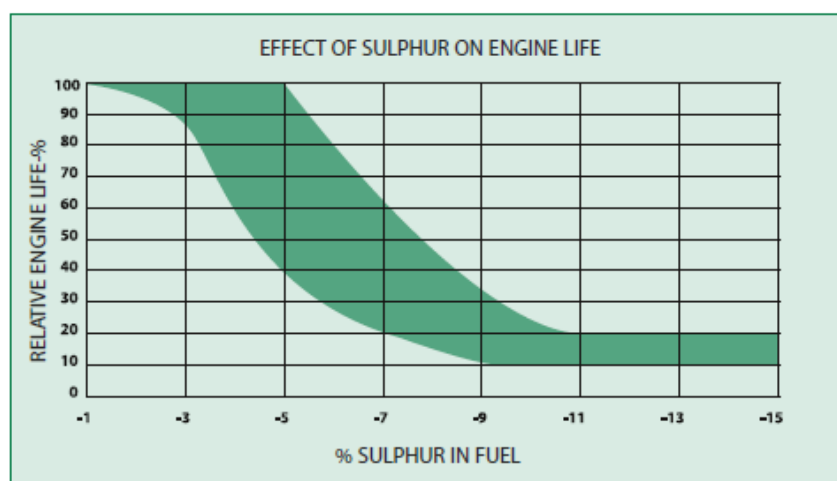
Certain vehicles have a fuel efficiency below 4km per litre. Such a low fuel efficiency warrants further investigation. These should be compared to the benchmark for the said vehicle that should be available on line in the Specifications of the vehicle.

The absence of catalytic converters:

Vehicles without a catalytic convertor will emit toxic pollutants. Unleaded fuel was only introduced in Jordan in 2008. Many existing vehicles from this period had their catalytic converters removed due to the leaded fuel clogging up the converter. Without it, there is a risk of toxic emissions being released.

High Sulphur content in Jordanian diesel:

The standard diesel fuel in Jordan has a high level of sulphur oxides (SOx of 12,000ppm), whereas in Europe and America it must be kept at 15ppm. High levels can be damaging to human health. In addition, Sulphur can have negative effects on engine life as highlighted below.



Eco-driving strategies:

Cultural barriers are often faced in accepting eco-driving strategies, which to be effective, requires the support and education of drivers in order to increase fuel efficiency by the way the vehicle is driven.

SUBTITLE 7: *Recommendations*

Strategy to improve fuel efficiency:

Develop a strategy to improve vehicles' fuel efficiency based on the data accrued through the fleet management software used by WFP.

Fleet sharing scheme:

Field missions in developing countries that have been exploring fleet sharing options have shown to save around 20% of the vehicles needed, whilst at the same time, drivers are kept busy. Pooling vehicles in WFP could potentially save about 20% of the vehicles currently used. However, this would require sharing vehicles with other UN entities in Amman.

Working catalytic converter:

All gasoline vehicles should have a working catalytic converter in place. Given that unleaded fuel is now ubiquitously used in Jordan, these devices can operate properly and need not be removed.

More vehicle emissions testing:

An annual carbon-monoxide tail-pipe test [by inserting a probe] for gasoline vehicles and a simple opacity test [checking the colour and shade of emissions against a chart] of effluent diesel vehicle tailpipes should be a simple and low-cost method of ascertaining catalytic converter and engine performance. Lastly, frequent tyre pressure checks, regular maintenance and driver eco-training can save WFP 10-25% on their emissions output and fuel bill.

Communication and outreach

A successful communication and outreach programme will facilitate a smooth transition to an energy efficient organisation. Buy-in from all levels of an organisation is required to implement long-term improvements in reducing GHG emissions. A comprehensive communication and outreach programme should be made a part of WFP's strategy to improve its GHG emissions.

SUBTITLE 7: *Achievements*

The existing dedicated WFP staff in Amman that have committed to improving sustainability within the organisation, is an exciting beginning. These staff are ideal candidates to be the champions moving forward, for GHG emissions reduction at WFP.

SUBTITLE 7: *Challenges*

Lack of motivation:

Occupants' behaviour plays a big role in ensuring the success of energy efficiency implementation in any existing buildings. Implementation risks failing when occupants do not make use of technologies that promote efficiency and sustainability.

Lack of technical information and awareness:

Most staff are generally unaware of the many health benefits of an energy efficient building. Many are also unaware of the abundant technical opportunities that are available to reduce buildings' GHG emissions.

Lack of funding information and awareness:

In the absence of knowledge regarding the costs involved in adopting energy efficiency measures and the way to calculate the direct and indirect savings, it is difficult to properly assess the cost-effectiveness of the payback period for such an investment.

SUBTITLE 7: *Recommendations*

There is a need to appoint a minimum of one person as GHG emissions reduction champion at WFP in Amman, to lead the communication and outreach programme on this matter. By providing consistent information and awareness, education could lead to long-term understanding of GHG-related issues for an organisation. The following key issues should be addressed:

Behavioural change:

An employees' motivational programme must be implemented to drive behavioural change. Mental barriers such as "someone else will save the planet" and "my contribution is just too small to count" etc., all need to be openly discussed.

Health benefits:

Many energy efficiency implementations also contribute to improving occupants' health. Access to daylight improves productivity during the daytime, whilst access to adequate outdoor clean and fresh air improves oxygen levels and daytime alertness. When outdoor conditions are favorable in terms of temperature and humidity, it is better to use outdoor air which avoids the use of stale air with low oxygen content inside the room, which also minimizes the need for heating and cooling.

Technical information and awareness:

Awareness programmes on energy efficiency issues, such as phantom load, the selection of efficient lighting, and the selection of heating and cooling equipment etc., is valued by employees as it will help to reduce energy costs at home as well as in the office.

Funding information and awareness:

Information on funding mechanisms should be disseminated to the relevant parties to allow departments to implement GHG emissions projects on their own, where possible.