

ENVIRONMENTAL GOOD PRACTICE

2017 implementation of the DFS Environment Strategy in Field Missions



ENERGY

RENEWABLE ENERGY IN MINUSMA



In Bamako, Mali, MINUSMA has made a small-scale investment in pilot technology that combines wind energy and solar energy. It consists of six vertical axis wind turbines and three photovoltaic (PV) panels. Power generation works at wind speeds between 2 and 18.5 m/s and temperatures from -30 to 50 °C. The electricity, 9 kW capacity, is fed directly into the battery bank to provide a back-up system for basic ICT energy requirements.

UNIFIL'S GENERATOR SYNCHRONIZATION AND SOLAR POWER



In Naqoura, Lebanon, UNIFIL has an advanced generator powerhouse. It contains five 1250 kVA synchronized generators, with all output being metered. A control system ensures all generators run at their highest achievable efficiencies. The output is automatically and continuously recorded, containing all relevant data like power, energy, frequency, etc., which then supports effective designing of further steps in improvement, including the connection of solar PV modules to the mission's grid. In terms of solar power, UNIFIL has realised more than USD 100,000 in savings in 2017.

COMPREHENSIVE ENERGY MANAGEMENT PROGRAMME IN UNAMI

In Iraq, UNAMI began implementing an energy management programme in 2015 to reduce its environmental footprint. So far, UNAMI has insulated 80% of the office buildings in Erbil, which is the second biggest hub after Baghdad HQ, upgraded 60% of air conditioning (AC) systems to energy-efficient models and 70% of lighting systems to energy-efficient LEDs. During 2017, in particular, 760 kW of solar PV hybrid systems were completed in three locations – Baghdad HQ, Baghdad International Airport and Erbil. UNAMI has estimated the return on investment to be two to three years for energy demand reduction options and seven years for the PV systems. Already in the past ten months (Jan-Oct), nearly USD 500,000 has been saved in electricity bills and the reduced need for diesel fuel.

REDUCING ENERGY CONSUMPTION IN UNMIK'S VEHICLE FLEET



In Kosovo, UNMIK has taken the initiative to purchase hybrid vehicles, with the aim of embracing a cost-efficient vehicle fleet. The acquisition of twenty hybrid vehicles resulted in cost savings of 41% compared to the previously used four-wheel-drive vehicles. Savings were realized by reduced maintenance requirements, cheaper spare parts and lower fuel consumption. Efforts were also made to reduce vehicle idling at UNMIK. In an awareness raising campaign vehicle operators received tips on how to limit idling to the absolute minimum.



WATER AND WASTEWATER

RECYCLING TREATED WASTEWATER IN UNMISS



In South Sudan, UNMISS purchased 39 wastewater treatment plants between 2014 and 2016. Starting in 2017, the mission started reusing the treated effluents (i.e. wastewater recycling) for water-consuming activities such as dust control, washing of vehicles and cleaning generators, and landscaping and gardening. In doing so, UNMISS has reduced clean water consumption throughout the mission and realized a cost saving of USD 11,970 per year.

UNAMID CONSTRUCTS INJECTION WELL TO MINIMIZE RISK

In Darfur, UNAMID completed its first injection well in January 2017, allowing the mission to discharge treated effluent through a borehole designed to disperse that water through the process of percolation. This injection well, which is connected to a 100,000 litre per day capacity wastewater treatment plant, helps the mission reduce the risks associated with the formation of standing water from clean treated wastewater (e.g. breeding of pests and pathogens). Also, injection wells are particularly needed in Darfur – where severe water scarcity exists – so that the mission can minimize wastage of precious water by using the water to recharge the root zone of the mission's tree plantations instead of leaving the water to simply evaporate into the atmosphere.

CENTRALISED WASTEWATER TREATMENT IN MINUSCA

In Bangui, Central African Republic, MINUSCA operationalised a centralised wastewater treatment station in M'poko Greenfield,



where approximately 1,300 troops are located. The centralised station consists of four operational wastewater treatment plants with additional holding capacities which, together, can treat 120,000 litres of wastewater per day. The station treats waste from MINUSCA civilian locations and other military camps within Bangui. Two more wastewater treatment plants are being installed currently to add an additional 60,000 litres per day of treatment capacity. The treated water is dispersed through a series of perforated pipes, in a leach field, while the sludge is dried and used as fertilizer. This effort has led to better risk management through the reduction of sewage trucks in use as well as the end-to-end wastewater management by the mission since the host country does not have any wastewater treatment facilities.



SOLID WASTE

DISPOSAL OF HAZARDOUS WASTE DURING MINUSTAH'S LIQUIDATION



In Haiti, MINUSTAH (closed on 15 October 2017) prioritized proper treatment and disposal of hazardous substances during the liquidation phase. The ash from incinerating medical waste was encapsulated in culverts (concrete containers) to fully enclose the materials prior to disposal in the municipal landfill. Due to the lack of viable options for expired or no-longer-needed chemicals, there

were large stockpiles from both civilian and uniformed components. To inoculate their hazardous properties, these chemicals were transferred to large metal tanks and diluted with low-cost additives. In total, more than 20,000 litres of diluted form chemicals were disposed. While a quick and safe solution was found in the end, this experience provides a lesson for all other missions that it is better to start early when it comes to hazardous waste management.

CONTRACT MANAGEMENT FOR WASTE SERVICES IN MINUSMA

In Mali, MINUSMA generates approximately 50,000 cubic meters of waste per year in 14 locations. Taking the lessons learned from previous waste management experiences with local solutions, for example, the high-risk practice of open burning and no recycling due to the lack of infrastructure, the mission requested the contractor to develop and implement a comprehensive plan on environment. There are key performance indicators on which the contractor is assessed including the traceability of collected waste and quality control of incinerators. From January 2016 to July 2017, the contractor recycled, through local subcontractors, 336 cubic meters of plastics into pipes and 271 cubic meters of cans and other metal wastes into various spare parts for mining industries. The contractor was also involved in a mission-wide awareness campaign on waste segregation. In addition, the mission itself has instituted the use of recyclable bags effective since 15 September 2017 at the PX.

RECYCLING OF UNAMA'S SOLID WASTE



In Afghanistan, UNAMA has contracted three local companies to properly recycle the mission's waste. First, the solid waste is collected and brought to a collection point. The waste is then segregated into cardboard/paper and cotton/plastics, each waste stream going to the relevant local company. The cardboard and paper are used to produce toilet paper, while the cotton and plastics are used, respectively, to stuff pillows and produce PVC pipes and plastic chairs. All of the end products are sold on the market, supporting the local economy.



WIDER IMPACT

ONUCI'S EFFORTS IN RESTORATION AND POSITIVE LEGACY



In Cote d'Ivoire, ONUCI (closed on 30 June 2017) made several efforts to restore the environment to its original state as well as leave a positive legacy by helping improve municipal infrastructure. The mission remediated 1,055 tonnes of soil collected from under generators, vehicle workshops, fuel dispensing points and fuel storage areas. This contaminated soil was treated by mixing the soil with natural ingredients (poultry waste and black soap) that accelerated microbial remediation and added soil nutrients. Also, in Daloa, ONUCI completed a large remediation project to support the municipality of Daloa, the country's third largest city, even as the mission was closing. The project improved the waste disposal site which was not only in use by the mission but also the local community, adding ten to fifteen years of operational life to the landfill. To inaugurate the newly renovated site, ONUCI hosted a 5K race, starting from the landfill.

COMMUNITY PROJECTS IN MONUSCO



In the Goma area of Democratic Republic of Congo, MONUSCO has linked its waste management with local community projects that effectively support income generation in cooperation with NGOs.

The biodegradable waste is reused as animal feed to support a pig farm project, providing an additional source of income to vulnerable people located in the vicinity of the disposal site. The portion of the biodegradable waste that cannot be used for animal feed is then composted. This enables a 70% reduction of waste that is sent to the landfill and provides a solution to improve soil quality, benefiting local agriculture. The revenue generated by the reuse or recycling of materials, such as plastic bottles, is re-invested into local projects supporting some of the most vulnerable groups in Goma – orphaned children, women and ex-combatants – who, for example, produce different handicraft such as bags.



MINURSO'S EFFORTS IN BEHAVIOURAL CHANGE



In the Western Sahara, MINURSO celebrated World Environment Day – 5 June – with a week-long awareness campaign. The focus of the campaign was on ways to reduce the environmental footprint and starting a conversation about environmental responsibility and care within the mission. 'Go Green Information Points' were deployed at different mission locations in Laayoune, providing information flyers, recycled notebooks and action cards. Various workshops were organized during the Green Week, giving personnel the opportunity to learn about recycling and the need to minimize vehicle idling. Also, a clean-up day was organized to collect litter around the compound.

ENVIRONMENTAL MAINSTREAMING IN UNMIL

In Liberia, UNMIL is mainstreaming environmental management

across the mission, under the guidance of the Green Working Group, composed of personnel from all levels. In 2017, the mission created an awareness campaign helping neighbouring communities develop knowledge on waste management and generating a sense of responsibility for taking care of the environment. Also, in the area of fuel reduction, the mission not only optimized flight schedules to maximize aircraft seat occupancy, realizing a 9% reduction in total fuel consumption per capita, but also minimised fuel consumption in vehicles through reports on engine idling and monthly warnings on unnecessary idling.

GLOBAL ENVIRONMENTAL MANAGEMENT SYSTEM FOR ALL FIELD MISSIONS

During 2017, DFS put in place a global environmental management system, applicable to all field missions as per the DPKO/DFS Environmental Policy of 2009 and the DFS Environment Strategy itself. Following the standard plan-do-check-act cycle, one of the first steps was to develop a common template for Mission-wide Environmental Action Plans (MEAPs) that would serve as both a planning and budgeting tool across the five pillars. All peace-keeping missions have incorporated environmental management in their Results-Based Budget for 2017/18.

TECHNICAL PARTNERSHIP WITH UN ENVIRONMENT

The Rapid Environment and Climate Technical Assistance Facility (REACT), launched in June 2016 under a partnership between DFS and UN Environment, came into full effect in 2017 with the recruitment of eight (8) professionals in engineering and environment. This three-year partnership agreement builds on the long history of close cooperation between DFS and UN Environment to provide advice and hands-on assistance across the five pillars of the DFS Environment Strategy, helping DFS reach a 'tipping point' on improving environmental performance. REACT is funded to provide technical assistance and does not directly cover costs for project investments; these will be provided through annual mission budgets. REACT has provided both remote/global and on-the-ground technical assistance to field missions and HQ (including GSC). So far in 2017, fifteen (15) on-the-ground technical assistance visits have been completed, servicing already nearly 80% of contributing peacekeeping operations and UNSOS. Good practices and outcomes from this assistance are available to technical staff from all missions on the online COSMOS site that has been established to support information sharing in the implementation of the DFS Environment Strategy.