



## INTERNAL AUDIT DIVISION

### REPORT 2019/034

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Audit of environmental management in  
the United Nations Interim Force in  
Lebanon

Improvements were needed to ensure  
effective environmental management in the  
Mission

15 May 2019  
Assignment No. AP2018/672/04

# **Audit of environmental management in the United Nations Interim Force in Lebanon**

## **EXECUTIVE SUMMARY**

The Office of Internal Oversight Services (OIOS) conducted an audit of environmental management in the United Nations Interim Force in Lebanon (UNIFIL). The objective of the audit was to assess the adequacy and effectiveness of the environmental plan, actions and systems that ensure efficient use of natural resources and minimum risk to personnel, local communities and ecosystems in UNIFIL. The audit covered the period from 1 January 2017 to 30 September 2018 and included a review of the: (a) environmental management system; (b) water and wastewater management; (c) solid waste management; (d) energy conservation; (e) wider environmental impacts; and (f) monitoring Mission-wide environmental action plans.

UNIFIL adequately prepared for environmental contamination emergencies, implemented a number of projects to enhance environmental management and was taking steps to address energy and fuel consumption. However, improvements were needed to other aspects of the programme.

OIOS made 11 recommendations. To address issues identified in the audit, UNIFIL needed to:

- Enhance oversight of environmental matters;
- Clarify with local authorities the requirements for constructing or installing fuel tanks and implement them;
- Conduct comprehensive environmental risk assessments and use the results to effectively prioritize Mission locations for environmental assessments;
- Update its environmental communication strategy and develop an appropriate plan to guide implementation;
- Enhance guidance on reporting and investigating of environmental-related incidents;
- Improve management of waste disposal contracts;
- Review and develop possible solutions for managing water losses or over-consumption;
- Adhere to national regulations for water and wastewater effluent testing;
- Assess ground water contamination annually and adhere to the maintenance schedule for maintaining septic tanks;
- Improve segregation and disposal of waste; and
- Improve accuracy of Mission-wide environmental action plans.

UNIFIL accepted the recommendations and has initiated actions to implement them.

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# **Audit of environmental management in the United Nations Interim Force in Lebanon**

## **I. BACKGROUND**

1. The Office of Internal Oversight Services (OIOS) conducted an audit of environmental management in the United Nations Interim Force in Lebanon (UNIFIL).

2. The United Nations Environment Programme report on “Greening the blue helmets” pointed out that peace operations have the potential of seriously impacting the environment. Therefore, the then Department of Field Support introduced an Environment Strategy in January 2017, through which the United Nations intends, by June 2023, to operate “responsible missions that achieve maximum efficiency in their use of natural resources, operate at minimum risk to people, societies and ecosystems as well as contribute to a positive environmental impact wherever possible.” Missions are therefore, expected to become improved stewards of natural resources and the environment to reduce in-country environmental impact.

3. In UNIFIL, the Environmental Management Unit is responsible for coordinating and advising senior management on the Mission's activities relating to environmental and waste management. The Engineering Support Section (ESS) is responsible for maintaining energy, solid waste and wastewater infrastructure, and monitoring the delivery of waste disposal services. The UNIFIL Senior Environmental Committee (SEC) is responsible for reviewing and monitoring environmental strategies and actions of the Mission. Environmental management is governed by the Department of Peacekeeping Operations/Department of Field Support (DPKO/DFS<sup>1</sup>) environmental policy, guidelines for United Nations field missions and UNIFIL standard operating procedures (SOPs).

4. The Environmental Management Unit, headed by an Environmental Officer at the National Officer-C level and reporting to the Director of Mission Support, had four approved posts comprising one National Professional Officer (under recruitment) and three national General Service staff. The Water and Sanitation Unit of ESS was headed by a Chief at the P-3 level and had 14 national General Service staff. UNIFIL operational budget for waste management for the financial year 2017/18 was \$0.8 million

5. Comments provided by UNIFIL are incorporated in italics.

## **II. AUDIT OBJECTIVE, SCOPE AND METHODOLOGY**

6. The objective of the audit was to assess the adequacy and effectiveness of the environmental plan, actions and systems to achieve maximum efficiency in the use of natural resources and minimum risk to personnel, local communities and ecosystems in UNIFIL.

7. This audit was included in the 2018 risk-based work plan of OIOS because of the operational, health and reputational risks relating to the management of the environment in UNIFIL

8. OIOS conducted this audit from October 2018 to February 2019. The audit covered the period from 1 January 2017 to 30 September 2018. Based on an activity-level risk assessment, the audit covered higher and medium risk areas in environmental management, which included review of the: (a) environmental

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<sup>1</sup> Although these departments have been rebranded as part of ongoing reforms, the guidelines are referred to by the names of the departments when the guidelines were issued.

management system; (b) water and wastewater management; (c) solid waste management; (d) energy conservation; (e) wider environmental impacts; and (f) monitoring Mission-wide environmental action plans (MEAPs).

9. The audit methodology included: (a) interviews of key personnel; (b) analytical reviews; (c) surveys; and (d) field visits to sample military positions.

10. The audit was conducted in accordance with the International Standards for the Professional Practice of Internal Auditing.

### **III. AUDIT RESULTS**

#### **A. Environmental management system**

##### Oversight by senior leadership and guidance documents on the environment needed to be improved

11. In accordance with the UNIFIL Environmental Policy, the Director of Mission Support established environmental policies, structures and procedures to ensure integration of environmental considerations into UNIFIL's planning and operations. This included the SEC and five working groups on the environment to provide strategic leadership on environmental matters.

12. The SEC, composed of senior members of staff and supported by the Environmental Officer, working groups and focal points, developed SOPs and various guidelines as well as facilitated implementation of the Mission's environmental agenda. However, the following were identified:

- The SEC met twice in 2017 and four times in 2018, and on average, four out of the nine substantive members attended the meetings. Majority of other attendees, averaging 10 per SEC meeting, were non-core members who attended on a rotational basis upon invitation. The low participation of core SEC members was raised in the SEC meeting of 6 November 2018, where the need for commitment from substantive members was reiterated, if meaningful gains were to be achieved.
- The Committee membership did not include ESS as a substantive member despite ESS overseeing water and sanitation, solid waste management and energy conservation activities, as well as managing contracts on non-hazardous solid waste. ESS was nevertheless invited as participant in five of the six SEC meetings.
- The five working groups were not effective and only met once in 2017 and did not meet in 2018. Working group members nevertheless attended SEC meetings upon invitation. The working groups implemented activities under the five pillars of the DPKO/DFS Environment Strategy. This however, overlapped with the functions performed by substantive units in ESS, such as the Water and Sanitation Unit.

13. Further, while the Mission developed procedures and guidelines on environmental management, a high level of overlap and inconsistencies was noted between the UNIFIL Environmental Policy and related guidelines that could lead to conflicting guidance.

14. The above resulted because SEC did not adequately oversee implementation of environmental management activities. This denied the Mission the required senior strategic involvement, which was key in strengthening the environmental culture and averting recurrence of environmental shortcomings discussed in this report.

**(1) UNIFIL should enhance oversight of environmental matters by: (i) reviewing the terms of reference of the Senior Environmental Committee, including its composition, to ensure key units are adequately represented and substantive members attend meetings regularly; (ii) reviewing the roles of working groups, and if necessary, realigning their terms of reference with current Mission structures; and (iii) harmonizing and consolidating the UNIFIL Environmental Policy with related guidelines to ensure they are coherent and concise.**

*UNIFIL accepted recommendation 1 and stated that implementation of parts (i) and (ii) of the recommendation was underway, and that the revised Environmental Policy had been abolished and replaced all the Mission's environmental guidelines. Recommendation 1 remains open pending receipt of evidence of actions taken to enhance oversight of environmental matters in the Mission.*

#### Environmental risk assessments needed improvement

15. To ensure local laws and regulations were respected, the Environment Management Unit (EMU) conducted 102 environmental assessments in 2017 and 83 assessments, as at 30 September 2018. Over this period, 486 recommendations were raised, of which 299 or 62 per cent were to address repeat findings. The key repeat findings included:

- Inadequate drainage for the workshop or generator areas;
- Single-skinned and double skinned fuel storage tanks, as well as generators not accommodated in appropriate safety concrete basins;
- Improper handling of hazardous materials, including medical waste;
- Broken garbage bins and uncovered garbage collection points; and
- Uncollected metal scrap.

16. In addition, UNIFIL had not conducted an environmental risk assessment and, as such, locations selected for environmental assessments were not prioritized based on relative risks, but on an ad-hoc basis or on the number of open recommendations from previous assessments.

17. The high rate of recurring findings happened because: (i) the recommendations raised in most assessments focused on the symptoms and not on the root causes of findings; and (ii) the Mission was of the view that double skinned tanks were not required to be in concrete basins as per advice from DFS, but this was not in compliance with local regulations. The Mission has since strengthened root cause analyses in their assessments but needed to address the other issues identified.

**(2) UNIFIL should clarify with local authorities the requirements for constructing or installing fuel tanks and generators and implement measures to comply with them.**

*UNIFIL accepted recommendation 2 and stated that the Mission would follow Lebanese and international standards when constructing and installing fuel tanks and generators. The Mission would also implement any necessary additional compliance measures to the extent feasible. Recommendation 2 remains open pending receipt of evidence of clarification and implementation of requirements for constructing or installing fuel tanks and generators.*

**(3) UNIFIL should conduct comprehensive environmental risk assessments of all its locations and use the results to effectively prioritize Mission locations for environmental assessments.**

*UNIFIL accepted recommendation 3 and stated that it would conduct environmental risk assessments for all positions and establish a methodology to effectively prioritize Mission locations for the*

*assessments.* Recommendation 3 remains open pending receipt of evidence of implementation of a methodology to effectively prioritize mission locations for environmental assessments.

Awareness activities on environmental issues needed to be improved

18. Various documents specified the need to conduct environmental awareness activities such as the Head of Mission's annual reminder to all personnel of the Mission's environmental policy and objectives, EMU training of Mission personnel on environmental issues, contracts requiring suppliers and contractors to adhere to environmental guidelines, and the UNIFIL mandate requiring it to engage with local authorities on environmental issues.

19. The Mission developed an environmental communication strategy in 2012 to guide awareness activities within UNIFIL and with the local community. Bi-annual newsletters were circulated to inform staff of environmental activities. Nine awareness campaigns on different subjects relating to United Nations environmental observances were conducted including World Environment Day celebrations on 5 June 2018. EMU also posted several materials, policies and procedures on its intranet page to raise awareness among staff. In addition, all new personnel upon arrival at UNIFIL during the audit period were given a briefing on environmental responsibilities. The following were observed that needed improvement:

- Contractors did not sign the environmental commitment forms to confirm they were aware of the DPKO/DFS Environmental Policy and commit to uphold the United Nations environmental norms and ethics. Contracts also did not adequately cover environmental obligations. Of the three contracts reviewed, only one had significant mention on environmental requirements.
- Publication of environment related articles both on UNIFIL internet and intranet was inadequate. There were only four news articles in 2018 on the Mission's website covering the environment, largely for the World Environment Day. The inadequate coverage was reiterated in SEC meetings but no specific action was taken.
- Information in newsletters, awareness campaigns, SOPs, quarterly reports and projects on environment was not timely updated on the EMU webpage (intranet). In some cases, updates were last done in 2014.
- The Mission did not issue an annual signed statement by the Head of Mission as required. The Mission was of the view that the Head of Mission's annual key note speech on World Environment Day achieved this purpose, despite the speech being largely tailored to meet global themes and did not have much local context.

20. OIOS survey of 600 military and civilian personnel on environmental awareness in the Mission received 180 responses or 26 per cent response rate. About 51 per cent of respondents stated they were familiar with the Mission SOPs and guidelines on the environment and that environmental awareness activities were adequate. Approximately 77 per cent agreed that environmental management should be a high priority agenda item along with other Mission mandates. However, only 46 per cent of staff had received environmental information during induction and 16 per cent had received training on the environment. Further, while 49 per cent stated they knew their designated environmental focal points, only 37 per cent were regularly engaged by them.

21. The above happened because the Mission had not updated its environmental communication strategy since 2012 to reflect more practical and effective mechanisms of increased environmental awareness. There was also no implementation plan to guide the communication of environmental objectives espoused in the strategy. Consequently, despite EMU conducting a number of activities to ensure increased awareness, the outdated communication strategy hampered the systematic communication of the Mission's environmental agenda.

**(4) UNIFIL should update the environmental communication strategy and develop an appropriate plan to guide implementation activities. The implementation plan should, among others: (i) require inclusion of relevant environmental clauses in contracts and vendors' commitment to uphold United Nations environmental ethics and norms; and (ii) ensure information on the environment is updated regularly on the Mission's internet and intranet.**

*UNIFIL accepted recommendation 4 and stated that the Mission would include relevant environmental clauses in vendor contracts if the Department of Operational Support (DOS) confirmed that they were still mandatory and ensure information on the Mission's internet is updated regularly. Recommendation 4 remains open pending receipt of the updated environmental communication strategy and plan to guide its implementation as well as evidence of regular update of the Mission's internet and intranet.*

#### Emergency preparedness exercises on environment contamination were adequate

22. In line with the DPKO/DFS Environmental Policy, the Mission conducted two rehearsals of response actions in 2017 and one in 2018 (as of 30 September 2018). The exercises had clear objectives, and observations during rehearsals were documented. Feedback was shared with participants to address deviations from standard practice. To further enhance effectiveness, the Mission intends to increase diversity of scenarios covered to ensure readiness across a broad range of incidents. OIOS assessed the controls as effective.

#### Need to improve reporting of incidents and investigations on environmental management

23. To limit the impact of environmental incidents, the DPKO/DFS Environmental Policy requires that immediate corrective actions should be undertaken to address observed deficiencies, malfunctions or breakdowns of field missions' waste management equipment, facilities and processes. Any environmental incident shall be the subject of an incident report to be submitted within two days to EMU, which will inform the most senior officials of the Mission and launch an environmental investigation. Based on severity, incidents are rated as either "minor", "significant" or "major".

24. The Mission had 16 and 14 incidents in 2018<sup>2</sup> and 2017, respectively. Overall, 88 per cent of incidents were reported within the required two-day period in 2018, an improvement of nine percentage points from 79 per cent in 2017.

25. However, the accuracy of recording and reporting of incidents and investigations needed to be addressed. For example:

- Ten incidents were included in the 2017 annual report instead of 14. Of the four investigations conducted in 2017, only three were included in the annual report. The criteria for investigating incidents was not also clear. Of the 10 incidents not investigated, 3 of them resulted in losses of 2,270 litres, 4,000 litres and 5,500 litres of fuel, respectively. The last incident also involved a fire.
- The Mission did not rate incidents to highlight their levels of severity. Of the 16 incidents in 2018, 9 contaminated or had the potential to contaminate surroundings while 7 did not. In 2017, 11 incidents had a contaminating effect and 4 did not. None were rated.

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<sup>2</sup> As at 30 September 2018



- 60 per cent of incident reports raised in 2017 and 2018 were not properly completed as they either had missing information, were not signed by an initiator, were filled using wrong form or via Outlook mail only.

26. Incomplete incident reports were attributed to knowledge gaps among military officers due to frequent rotations. Some of the troop-contributing countries rotate their contingents every four months. Also, guidelines were not clear as to the thresholds that should warrant investigations of incidents. Inadequate reporting of incidents and failure to initiate investigations for major or significant incidents increases environmental risks as the nature, extent and pollution effect of the incident would not be determined to implement timely corrective actions.

**(5) UNIFIL should: (i) establish thresholds for determining which environmental-related incidents should be investigated; (ii) provide operational guidelines for determining the severity of incidents and reporting them; and (iii) ensure incidents and investigations are accurately recorded and reported to Mission management.**

*UNIFIL accepted recommendation 5 and stated that the Mission would establish thresholds for determining which environment-related incidents would be investigated, provide operational guidelines for determining severity of incidents and ensure that both incidents and investigations are accurately recorded and reported to Mission management. Recommendation 5 remains open pending receipt of evidence for the implementation of these above actions.*

#### Management of waste management contracts needed improvement

27. The Mission held periodic meetings to evaluate vendor performance in accordance with the Waste Management Policy; however, key performance indicators (KPIs) were not consistently reviewed during these meetings. During the audit period, only 8 out of the required 20 monthly meetings were held, and three out of seven quarterly meetings. Also, performance review of the contract for water and wastewater testing revealed that the contractor was delivering test results within four weeks, twice the time allowed in the contract.

28. Further, payments to the contractor for waste collection were not properly verified. The Mission largely relied on the contractor's daily collection registers and not on independent records from sectors as required. While, the registers indicated they were signed by UNIFIL military personnel at the various locations, there was no mechanism to confirm the authenticity of the endorser as no list of approved Mission staff or signature specimen was maintained by the Contracts Management Office. In addition, despite a requirement for all UNIFIL locations to independently submit a monthly report to the Contracts Management Office to confirm the waste collection services performed in the month, this was not consistently done as only 30 out of 52 positions sent confirmations in 13 out of 21 months during the audit period, during which vendor payments amounted to \$625,000.

29. The Mission stated that there were challenges in obtaining independent reports from troops on solid waste collected and when they were submitted, the quality was not satisfactory leading to reliance on documentation from the contractor. The Mission also stated that performance discussions with the contractor were held regularly via email and telephone, while the delay in the receipt of test results on wastewater effluents was attributed to insufficient testing laboratories in Lebanon. Inadequate verification of services by contractors increased the risk of incorrect payments and diminished assessment of vendors' services for timely corrective actions.

**(6) UNIFIL should take steps to improve the management of waste disposal contracts including: (i) establishing an adequate mechanism for independent verification of services performed**

**by the contractor prior to making payments; (ii) conducting and documenting minutes of monthly and quarterly review meetings consistently; and (iii) setting and monitoring practical contractual performance deliverables.**

*UNIFIL accepted recommendation 6 and stated that the Mission would ensure that services performed by the waste disposal contractor are properly verified prior to processing payments. Also, UNIFIL would ensure that there is proper documentation of all meeting minutes and quarterly site visits and ensure that the contractor's performance is accurately monitored. Recommendation 6 remains open pending receipt of evidence for the implementation of these actions.*

#### Clarification on environmental impact assessments of major projects was being obtained

30. According to the DPKO/DFS Environmental Policy, missions should undertake an environmental baseline study of all locations at the beginning of their operations and update them periodically for possible use in discussions with the host country regarding damage or pollution claimed to have been caused by the mission.

31. In 2014, UNIFIL conducted an environmental study for UN Positions 2-5 and 1-26 and Naqoura Headquarters; however, the study was not expanded to assess its remaining 49 locations. Also, the Mission did not conduct environmental impact assessments of major projects that have the potential to adversely affect the environment, such as waste treatment plants.

32. UNIFIL initially stated that the requirement to undertake baseline studies did not apply to existing missions but had since sought clarification from DOS and will conduct baseline studies for future operations. It also stated that existing guidelines did not require environmental impact assessments prior to commencing major projects but that it would seek clarification from DOS. As a result of this, OIOS did not make a recommendation on this issue.

## **B. Water and wastewater management**

#### Need to improve measurement of water consumption

33. The Water and Sanitation guidelines stipulate that consumption of water should be monitored on an ongoing basis to ensure it is within acceptable benchmarks of 80 to 120 litres per person per day.

34. Meters were installed at all 17 wells in the Mission. For the period under review, approximately 410 litres per person per day were abstracted, and DOS had raised concern that water consumption was three to five times above the recommended limit. The over-consumption of water was also reiterated at both SEC and environmental quarterly partners meetings. To address concerns, the Mission adjusted the reported rate of water consumed per person per day by attributing 35 per cent to losses during the water treatment process and 50 per cent to water used in processes not included in the consumption benchmark, such as washing, donation, office and restaurant use. After these adjustments, the Mission arrived at a consumption rate of 109 litres per person per day as at June 2018 from 310 litres per person per day as at December 2017, bringing it to within allowable limit.

35. However, the factors used to adjust water consumption were not supported by any formal review or analysis. Consequently, the Mission may not have full sight of the contributory factors leading to possible continued water loss or over-consumption.

**(7) UNIFIL should conduct a formal assessment of the factors used in adjusting the per capita water consumption rate and determine reasons and possible solutions for managing water losses or over-consumption.**

*UNIFIL accepted recommendation 7 and stated that the Mission would carry out an assessment of the factors used in adjusting the per capita water consumption rate and determine reasons and possible solutions for managing water losses or over-consumption. Recommendation 7 remains open pending receipt of the results of the assessment.*

Wastewater testing standards needed to be clarified

36. Water and Sanitation guidelines require that wastewater is treated in accordance with the receiving environment and established standards of DPKO and local authorities. Periodic parameter testing should be conducted near deep wells regularly to monitor any ground water contamination.

(a) Testing quality of the wastewater

37. The Mission did not conduct any quality tests of treated wastewater from January to July 2017 due to funding constraints. From August 2017 to September 2018, the contractor conducted nine water quality tests at 4 of the 22 plants and the results showed that 3 plants did not meet some of the quantitative standards, including the acceptable level of fecal coliform, ammonia and chlorides established by local authorities. This was because ESS did not prioritize meeting the standards included in the contract because it was of the view that they did not have legal backing from either Lebanese authorities or United Nations guidelines. Conversely, some tests stipulated in the regulations were not being performed because the Mission felt that they were not applicable to UNIFIL. The decision to include additional tests or not to test some of the stipulated parameters was not submitted to the SEC for endorsement or ratification.

38. UNIFIL discharged treated wastewater from 3 of the 22 plants into the ocean, and the remaining into soak pits and leach fields.

(b) Testing of drinking and general-purpose water

39. UNIFIL conducted regular maintenance and inspections of its water treatment plants. From August 2017 to September 2018, the contractor conducted 18 water quality tests at six wells. Some of the quantitative national drinking water standards were not met, including the acceptable level of fecal coliform, which was 12 times more than the acceptable level. This indicated potential contamination of the water source by wastewater. In 2018, the contractor recommended discontinuing use of one of the affected wells pending investigation. The Mission resolved to test all wells and as at end February 2019, five additional wells had been tested with non-compliance in parameters as noted above.

(c) Management of septic tanks

40. There were 42 positions with septic tank systems for the collection and treatment of wastewater. Visits to 11 (26 per cent) indicated ESS did not remove sludge from the septic tanks as per schedule at 7 of them. At two positions, the septic tanks overflowed with fecal matter while at another, the soakage pit overflowed. These occurred because ESS was of the opinion that regular maintenance of septic tanks was not needed as they were operated autonomously and were discharged into the ground. Also, the Mission prioritized testing of wells that were close to septic tanks or soak pits, and only inspected the tanks during sludge removal and conducted repairs when a problem was reported. This was contrary to Mission guidelines on the management of septic tanks and increased environmental contamination, health and reputation risks, which were exacerbated by discharging inadequately treated wastewater into the ground

and water bodies. In addition, as pointed out by the contractor, increased levels of fecal coliforms provided a warning of failure in water treatment, a break in the integrity of the distribution system, possible contamination with pathogens and an elevated risk of waterborne gastroenteritis.

**(8) UNIFIL should take steps to ensure that all parameters required for water and wastewater effluent testing under the national regulations are adhered to. Deviations from regulations should be endorsed or ratified by the Senior Environment Committee.**

*UNIFIL accepted recommendation 8 and stated that the Mission would adhere to all parameters required for water and wastewater effluent testing under the national regulations and ensure that deviations from regulations are endorsed or ratified by SEC. Recommendation 8 remains open pending receipt of evidence of measures implemented to ensure compliance with national regulations for water and wastewater effluent testing, including SEC ratification or endorsement of deviations.*

**(9) UNIFIL should ensure that: (i) all deep wells are tested at least annually to assess ground water contamination; and (ii) the schedule for maintenance of septic tanks is reviewed, if necessary, and adhered to in order to avoid overflow of septic and soak pits.**

*UNIFIL accepted recommendation 9 and provided evidence that all but four of deep-water wells had been tested. The remaining test results would be provided when received from the service provider. The Mission also stated that it would adhere to the maintenance schedule for septic tanks. Recommendation 9 remains open pending receipt of the deep-water well test results and evidence of adherence to the maintenance schedule for septic tanks.*

### C. Solid waste management

#### Need to reduce solid waste and improve their classification and disposal

41. Field missions are accountable for all materials and equipment brought to the mission and later disposed of as waste. As part of waste management, missions are required to take appropriate action to deal with different types of waste.

#### (a) Generation of solid waste

42. A review of the Mission’s waste collection records showed that waste generated was on the increase during the audit period as per Table 1. The amount of waste generated per person per day was 1.32 kg by December 2018 from 1.27 kg in the period to December 2017; an increase of 5 per cent, compared to a 1 per cent increase in personnel.

**Table 1: Non-hazardous solid waste generated in UNIFIL**

Period	Waste generated “kg”	Waste generated per day “kg”	No. of civilian and military personnel	Waste generation per person per day
Jul – Dec 17	2,599,162	14,440	11,330	1.27
Jan – Jun 18	2,654,852	14,749	11,330	1.30
Jul – Dec 18	2,726,884	15,149	11,487	1.32

#### (b) Classification and separation of solid waste

43. Visits to 12 out of 53 positions (23 per cent) indicated that UNIFIL did not adequately segregate organic waste, recyclables and other solid waste and the waste disposal contractor also disposed of them without separation. The need to separate recyclable and non-recyclable waste was reiterated by respective military environmental focal points and in two SEC and environmental quarterly meetings, but this was not

addressed at monthly performance review meetings with the contractor. Also, at 7 of the 12 positions, most of the garbage bins were broken and did not have lids. Other than at one contingent position, there was no composting of organic waste by contingents, including at Naqoura headquarters.

(c) Disposal of waste

44. Waste collected was dumped at six sites, but valid approvals were provided for only two sites. The Mission did not exercise its right to call on the contractor's performance bond for failure to dump waste at approved sites. Impact assessments were also not performed at any of the sites to determine likely adverse environmental consequences of dumping waste and determine necessary mitigating measures. While medical waste was dumped at an approved site, UNIFIL Hospital was not listed as one of the institutions from which the site would receive waste for appropriate disposal, but the Mission stated that it did not pose any risk to the Mission. Other hazardous waste like tyres were dumped at a site that could not be inspected as the owners declined to grant access to UNIFIL inspectors citing business confidentiality concerns.

45. The above happened because UNIFIL did not provide the necessary materials such as colour-coded bins and waste bags or implement measures to monitor the separation of waste. Also, the Mission explained that an environmental impact assessment had not been conducted at any dumpsite in South Lebanon and that it had relied on representation from the contractor that a verbal agreement was in place for use of one of the dump sites that had no valid approval. These may expose the Mission to reputational risk. It was reported that a village had complained about waste disposal by the Mission in September 2017.

**(10) UNIFIL should: (i) implement measures to monitor the separation of organic waste and recyclables from other waste by both Mission personnel and the waste disposal contractor; and (ii) require contractors to obtain relevant municipality approvals and ensure that only approved disposal sites are used to process waste.**

*UNIFIL accepted recommendation 10 and stated that it would implement measures to monitor the separation of organic and recyclable waste from other waste, require contractors to obtain relevant municipality approvals and ensure that only approved dump sites are used to process waste. Recommendation 10 remains open pending receipt of evidence of implementation of these actions.*

## **D. Energy conservation**

### The Mission was taking steps to address energy and fuel consumption

46. The Environmental Policy for UNIFIL requires ESS and the Transport Section to reduce energy consumption through the appropriate monitoring and management of use of air conditioners and generators, and minimization of idling time for vehicles.

47. Estimates of fuel consumption in the Mission was 3.8 litres per person per day against a DOS benchmark of 3.4 litres per person per day. Energy consumption was mostly driven by air conditioners, while fuel consumption was mostly due to motor vehicles and generators.

(a) Air conditioners

48. The Mission was running an air conditioner replacement exercise to replace ozone depleting and energy inefficient air conditioners with more efficient and eco-friendly air conditioners. So far, 735 air conditioners had been replaced and the project was expected to be substantially completed by July 2021.

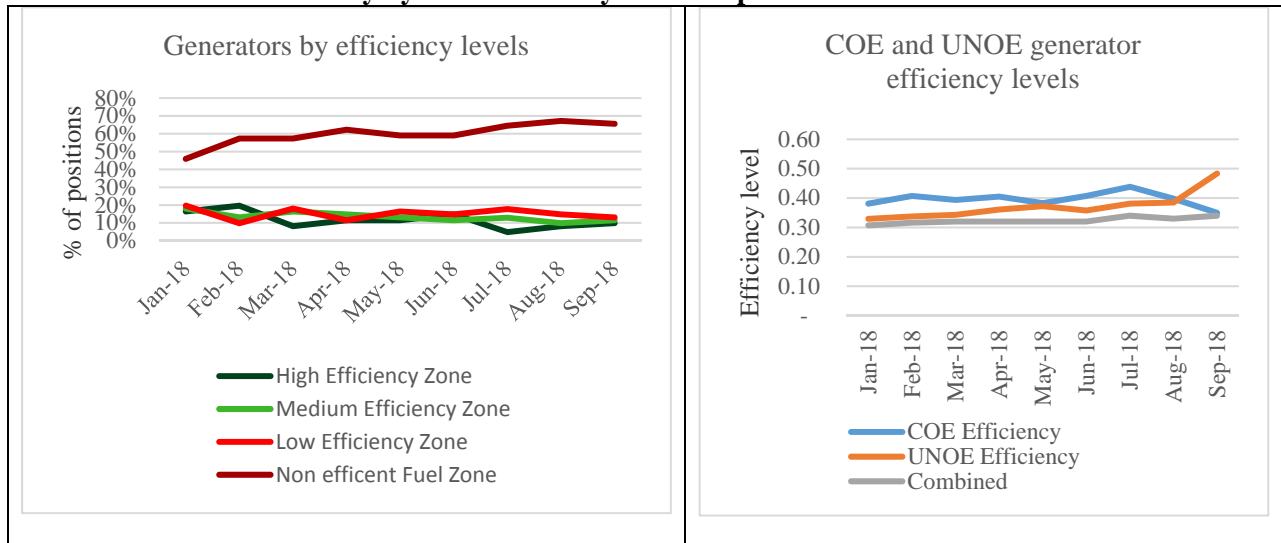
(b) Vehicles

49. The Mission frequently issued awareness messages on conserving fuel consumption by sharing vehicles and minimizing the idling of engines. As UNIFIL’s fleet of 2,800 vehicles was almost entirely composed of diesel cars, the Mission had made submissions to DOS to introduce lighter sedan vehicles to replace some of the diesel consuming vehicles.

(c) Generators

50. The Mission continued to experience high fuel consumption on generators as 75 per cent of positions had either “non-efficient” or “low-efficient” generators and only 25 per cent had either “high efficient” or “medium efficient” generators (See Chart 1 below and footnote<sup>3</sup>). According to ESS, “non-efficient” or “low-efficient” generators incurred high financial costs and needed to be replaced. During the audit period, 11,660,000 litres of fuel were consumed by both United Nations-owned (UNOE) generators and contingent-owned (COE) generators to produce 35.95 million kilowatts of power, translating into an overall efficiency of 0.32 (low efficiency zone). The average efficiency levels of generators are also shown in Chart 1 below.

**Chart 1: Generator efficiency by location and by ownership**



51. The Mission has embarked on a generator replacement exercise to enhance efficiency levels and replaced approximately 23 generators between January and September 2018. The Mission also embarked on re-sizing generators to operate at optimum efficiency conditions, and on synchronizing multiple generators in power houses. Further, UNIFIL pointed out that DOS and the Department of Peace Operations were working on a system that would grant incentives to contingents that deployed more efficient generators and more energy efficient equipment.

<sup>3</sup>

1	<i>Below 0.29</i>	<i>High Efficiency Zone (60 – 80 per cent power generated per litre) - highly recommended</i>
2	<i>0.29 - 0.31</i>	<i>Medium Efficiency Zone (40 – 60 per cent power generated per litre) - transitional</i>
3	<i>0.31 - 0.35</i>	<i>Low Efficiency Zone (25 – 40 per cent power generated per litre) - financial loss</i>
4	<i>Above 0.35</i>	<i>Non-efficient Fuel Zone (0 – 25 per cent power generated per litre) - high financial loss</i>

52. OIOS did not make any specific recommendations on the matters above as they will be comprehensively addressed in the audit of fuel management, which is in progress.

## **E. Environmental wider impacts**

### Implementation of projects on the environment were adequate

53. In line with the Secretary-General's Guidance on Environment, the Mission embarked on a number of initiatives to improve environmental responsibility. In addition to the efforts already mentioned above, UNIFIL reused treated wastewater for irrigation (70 per cent of treated wastewater was used for irrigation); reused plastic bottles and pallets to make furniture, construct green houses and build eco-friendly air conditioners; and used scrap metal to construct a statue. It also embarked on other projects such as replacement of inefficient air conditioning units, increased use of light-emitting diode (LED) lights, increased use of solar energy, rainwater harvesting, reforestation and replacement of energy efficient prefabricated structures. These projects were expected to be completed by the year 2024.

54. In addition, for the financial years 2016/17 and 2017/18, UNIFIL spent \$284,000 or 28 per cent of its quick impact projects (QIPs) budget on water, energy and sanitation projects for the community. Troop-contributing countries also spent \$1.6 million or 41 per cent of their QIPs budgets on environmental projects in the areas of water, sanitation, culture and energy.

55. Subject to funding constraints, the controls around the implementation of projects on environment were considered adequate.

## **F. Review of the monitoring of environmental action plans**

### Need to review accuracy of environmental actions plans

56. The DPKO/DFS Environmental Policy requires missions to monitor KPIs in MEAPs to assess the overall performance of the mission. Based on the MEAPs, an environmental score is derived on the extent of compliance with environmental guidelines and compared with other missions. MEAPs should be reviewed and endorsed by Head of Mission.

57. The UNIFIL Head of Mission and Force Commander endorsed the MEAPs for the periods July to December 2017 and January to June 2018. As at June 2018, UNIFIL scored 76 points out 100, which was significantly higher than the field mission average of 57 points.

58. DOS assessed many aspects of UNIFIL's MEAPs positively; however, a review of the December 2017 and June 2018 MEAPs revealed some inaccuracies as detailed in Table 2:

**Table 2: Summary of MEAP submissions to be enhanced**

<b>Pillar</b>	<b>December 2017 MEAPs</b>	<b>June 2018 MEAPs</b>
Environmental Management System	<ul style="list-style-type: none"> <li>• MEAPs reported unresolved environmental corrective actions at 0 per cent instead of 22 per cent.</li> <li>• Periodic review of guidance documents had some weaknesses (see <b>recommendation 1</b>). This was scored as fully compliant.</li> </ul>	<ul style="list-style-type: none"> <li>• MEAPs reported unresolved environmental corrective actions at 0 per cent instead of 16 per cent.</li> <li>• Periodic review of guidance documents had some weaknesses (see <b>recommendation 1</b>). This was scored as fully compliant.</li> </ul>
Water and wastewater	<ul style="list-style-type: none"> <li>• No formal assessment done to validate the high levels of water abstraction and consumption (see <b>recommendation 7</b>).</li> <li>• Septic tanks not emptied on schedule resulting in overflows in two locations (see <b>recommendation 9</b>).</li> </ul>	
Solid waste	<ul style="list-style-type: none"> <li>• Generation of solid waste was reported at 1.0 kilogram (kg)/capita per day. Actual results showed waste generated was understated by 450.114 kg. Actual should have been 1.27 kg/capita per day.</li> <li>• MEAPs reported improved disposal methods and 60 per cent of waste recycled. However, only about 20 per cent of waste was dumped at the site with recycling facility and 80 per cent was not segregated or recycled.</li> </ul>	<ul style="list-style-type: none"> <li>• Generation of solid waste was reported at 1.1 kg/capita per day. Actual results showed weight of waste generated was understated by 453.408 kg. Actual should have been 1.3 kg/capita per day.</li> <li>• MEAPs reported 50 per cent waste recycled, 40 per cent composited and 10 per cent landfilled. However, only about 20 per cent of waste was dumped at site with recycling facility and 80 per cent was landfilled.</li> </ul>
Energy	<ul style="list-style-type: none"> <li>• Minor statistical inaccuracies noted on fuel consumption and power produced.</li> <li>• Audit results showed low generator efficiency.</li> </ul>	
Wide impacts	<ul style="list-style-type: none"> <li>• Minor inaccuracies.</li> </ul>	

59. The above inaccuracies happened because of inadequate verification of some figures prior to finalization of the MEAPs. As a result, the Mission submission was misstated, which may lead to an inaccurate assessment of its environmental performance.

**(11) UNIFIL should take steps to enhance the accuracy of the Mission-wide environmental action plans and to ensure that all key units verify data included in the plans.**

*UNIFIL accepted recommendation 11 and stated that the Mission would take steps to enhance accuracy of MEAPs and to ensure that all key units verify data included in the MEAPs. Recommendation 11 remains open pending receipt of evidence of enhanced accuracy of MEAPs.*

#### **IV. ACKNOWLEDGEMENT**

60. OIOS wishes to express its appreciation to the management and staff of UNIFIL for the assistance and cooperation extended to the auditors during this assignment.

*(Signed)* Eleanor T. Burns  
 Director, Internal Audit Division  
 Office of Internal Oversight Services



## STATUS OF AUDIT RECOMMENDATIONS

## Audit of environmental management in the United Nations Interim Force in Lebanon

Rec. no.	Recommendation	Critical <sup>4</sup> / Important <sup>5</sup>	C/ O <sup>6</sup>	Actions needed to close recommendation	Implementation date <sup>7</sup>
1	UNIFIL should enhance oversight of environmental matters by: (i) reviewing the terms of reference of the Senior Environmental Committee, including its composition, to ensure key units are adequately represented and substantive members attend meetings regularly; (ii) reviewing the roles of working groups, and if necessary, realigning their terms of reference with current Mission structures; and (iii) harmonizing and consolidating the UNIFIL Environmental Policy with related guidelines to ensure they are coherent and concise.	Important	O  C	Parts (i) and (ii) - Receipt of the revised terms of reference for SEC and evidence of review of the roles of working groups and their alignment with current Mission structures.  Part (iii) has been implemented.	30 November 2019
2	UNIFIL should clarify with local authorities the requirements for constructing or installing fuel tanks and generators and implement measures to comply with them.	Important	O	Receipt of evidence of engagement with local authorities and implementation of measures to comply with Lebanese and international standards on construction or installation of fuel tanks and generators.	30 November 2019
3	UNIFIL should conduct comprehensive environmental risk assessments of all its locations and use the results to effectively prioritize Mission locations for environmental assessments.	Important	O	Receipt of a methodology to effectively prioritize mission locations for environmental assessments.	30 November 2019
4	UNIFIL should update the environmental communication strategy and develop an appropriate plan to guide implementation activities. The implementation plan should, among others: (i) require inclusion of relevant environmental clauses in contracts and vendors' commitment to uphold	Important	O	Receipt of an updated environmental communication strategy and plan to guide its implementation as well as evidence of regular update of environmental information on the Mission's internet and intranet.	30 November 2019

<sup>4</sup> Critical recommendations address critical and/or pervasive deficiencies in governance, risk management or control processes, such that reasonable assurance cannot be provided with regard to the achievement of control and/or business objectives under review.

<sup>5</sup> Important recommendations address important (but not critical or pervasive) deficiencies in governance, risk management or control processes, such that reasonable assurance may be at risk regarding the achievement of control and/or business objectives under review.

<sup>6</sup> C = closed, O = open

<sup>7</sup> Date provided by UNIFIL in response to recommendations.

## STATUS OF AUDIT RECOMMENDATIONS

## Audit of environmental management in the United Nations Interim Force in Lebanon

Rec. no.	Recommendation	Critical <sup>4</sup> / Important <sup>5</sup>	C/ O <sup>6</sup>	Actions needed to close recommendation	Implementation date <sup>7</sup>
	United Nations environmental ethics and norms; and (ii) ensure information on the environment is updated regularly on the Mission's internet and intranet.				
5	UNIFIL should: (i) establish thresholds for determining which environmental-related incidents should be investigated; (ii) provide operational guidelines for determining the severity of incidents and reporting them; and (iii) ensure incidents and investigations are accurately recorded and reported to Mission management.	Important	O	Receipt of established thresholds and operational guidelines on determining severity of incidents, and implementation of measures to ensure accurate reporting of investigations related to environmental incidents.	30 November 2019
6	UNIFIL should take steps to improve the management of waste disposal contracts including: (i) establishing an adequate mechanism for independent verification of services performed by the contractor prior to making payments; (ii) conducting and documenting minutes of monthly and quarterly review meetings consistently; and (iii) setting and monitoring practical contractual performance deliverables.	Important	O	Receipt of evidence of improved management of waste disposal contracts by adequately verifying services performed prior to processing payments, documenting meeting proceedings and monitoring contract deliverables.	31 December 2019
7	UNIFIL should conduct a formal assessment of the factors used in adjusting the per capita water consumption rate and determine reasons and possible solutions for managing water losses or over-consumption.	Important	O	Receipt of a formal assessment of the factors used in adjusting per capita water consumption and possible solutions for managing water losses or over-consumption.	31 December 2019
8	UNIFIL should take steps to ensure that all parameters required for water and wastewater effluent testing under the national regulations are adhered to. Deviations from regulations should be endorsed or ratified by the Senior Environment Committee.	Important	O	Receipt of evidence of adherence to parameters required for water and wastewater effluent testing under the national regulations and that deviations are endorsed by SEC.	30 November 2019
9	UNIFIL should ensure that: (i) all deep wells are tested at least annually to assess ground water contamination; and (ii) the schedule for maintenance	Important	O	Receipt of all deep-water well test results and evidence of adherence to the maintenance schedule for septic tanks.	30 November 2019

## STATUS OF AUDIT RECOMMENDATIONS

## Audit of environmental management in the United Nations Interim Force in Lebanon

Rec. no.	Recommendation	Critical <sup>4</sup> / Important <sup>5</sup>	C/ O <sup>6</sup>	Actions needed to close recommendation	Implementation date <sup>7</sup>
	of septic tanks is reviewed, if necessary, and adhered to in order to avoid overflow of septic and soak pits.				
10	UNIFIL should: (i) implement measures to monitor the separation of organic waste and recyclables from other waste by both Mission personnel and the waste disposal contractor; and (ii) require contractors to obtain relevant municipality approvals and ensure that only approved disposal sites are used to process waste.	Important	O	Receipt of evidence of measures implemented to monitor separation of waste and disposal of waste in approved sites.	31 December 2019
11	UNIFIL should take steps to enhance the accuracy of the Mission-wide environmental action plans and to ensure that all key units verify data included in the plans.	Important	O	Receipt of evidence of enhanced accuracy of MEAPs.	30 November 2019

# **APPENDIX I**

## **Management Response**

## Management Response

## Audit of environmental management in the United Nations Interim Force in Lebanon

Rec. no.	Recommendation	Critical <sup>1</sup> / Important <sup>2</sup>	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
1	UNIFIL should enhance oversight of environmental matters by: (i) reviewing the terms of reference of the Senior Environmental Committee, including its composition, to ensure key units are adequately represented and substantive members attend meetings regularly; (ii) reviewing the roles of working groups, and if necessary, realigning their terms of reference with current Mission structures; and (iii) harmonizing and consolidating the UNIFIL Environmental Policy with related guidelines to ensure they are coherent and concise.	Important	Yes	EMU	30 Nov.2019	Recommendation 1 parts (i) and (ii) are agreed to and currently under implementation. Part (iii) is accepted noting that the revised UNIFIL Environment Policy abolishes and replaces all existing Environmental guidelines for UNIFIL.
2	UNIFIL should clarify with local authorities the requirements for constructing or installing fuel tanks and generators and implement measures to comply with them.	Important	Yes	ENG & Fuel Unit	30 Nov.2019	UNIFIL will follow Lebanese and International standards when constructing and installing fuel tanks and generators and implement any necessary additional compliance measures as feasible.
3	UNIFIL should conduct comprehensive environmental risk assessments of all its locations and use the results to effectively prioritize Mission locations for environmental assessments.	Important	Yes	EMU	30 Nov.2019	Environmental risk assessments will be conducted for all positions and a methodology to effectively prioritize mission locations for environmental assessments will be established

<sup>1</sup> Critical recommendations address critical and/or pervasive deficiencies in governance, risk management or control processes, such that reasonable assurance cannot be provided with regard to the achievement of control and/or business objectives under review.

<sup>2</sup> Important recommendations address important (but not critical or pervasive) deficiencies in governance, risk management or control processes, such that reasonable assurance may be at risk regarding the achievement of control and/or business objectives under review.

## Management Response

## Audit of environmental management in the United Nations Interim Force in Lebanon

Rec. no.	Recommendation	Critical <sup>1</sup> / Important <sup>2</sup>	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
4	UNIFIL should update the environmental communication strategy and develop an appropriate plan to guide implementation activities. The implementation plan should, among others: (i) require inclusion of relevant environmental clauses in contracts and vendors' commitment to uphold United Nations environmental ethics and norms; and (ii) ensure information on the environment is updated regularly on the Mission's internet and intranet.	Important	Yes	EMU	30 Nov.2019	i)If confirmed as still mandatory by the Department of Operational Support, UNIFIL will require inclusion of relevant environmental clauses in contracts and vendors' commitment to uphold United Nations environmental ethics and norms; (ii)UNIFIL will ensure information on the environment is updated regularly on the Mission's internet
5	UNIFIL should: (i) establish thresholds for determining which environmental-related incidents should be investigated; (ii) provide operational guidelines for determining the severity of incidents and reporting them; and (iii) ensure incidents and investigations are accurately recorded and reported to Mission management.	Important	Yes	EMU	30 Nov.2019	UNIFIL will (i) establish thresholds for determining which environmental-related incidents should be investigated; (ii) provide operational guidelines for determining the severity of incidents and reporting them; and (iii) ensure incidents and investigations are accurately recorded and reported to Mission management
6	UNIFIL should take steps to improve the management of waste disposal contracts including: (i) establishing an adequate mechanism for independent verification of services performed by the contractor prior to making payments; (ii) conducting and documenting minutes of monthly and quarterly review meetings consistently;	Important	Yes	ENG and Disposal Unit	31 Dec. 2019	UNIFIL will (i) ensure that the services performed by the waste contractor are properly verified prior to making payments (ii) there is proper documentation and minutes for all meetings and quarterly site visit with the contractor (iii) ensure

## Management Response

## Audit of environmental management in the United Nations Interim Force in Lebanon

Rec. no.	Recommendation	Critical <sup>1</sup> / Important <sup>2</sup>	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
	and (iii) setting and monitoring practical contractual performance deliverables.					that the waste contractor performances are monitor accurately.
7	UNIFIL should conduct a formal assessment of the factors used in adjusting the per capita water consumption rate and determine reasons and possible solutions for managing water losses or over-consumption.	Important	Yes	ENG	31 Dec. 2019	UNIFIL will carry out an assessment of the factors used in adjusting the per capita water consumption rate and determine reasons and possible solutions for managing water losses or over-consumption.
8	UNIFIL should take steps to ensure that all parameters required for water and wastewater effluent testing under the national regulations are adhered to. Deviations from regulations should be endorsed or ratified by the Senior Environment Committee.	Important	Yes	EMU and ENG	30 Nov. 2019	UNIFIL will ensure that all parameters required for water and wastewater effluent testing under the national regulations are adhered to and that any deviations from regulations are endorsed or ratified by the Senior Environment Committee.
9	UNIFIL should ensure that: (i) all deep wells are tested at least annually to assess ground water contamination; and (ii) the schedule for maintenance of septic tanks is reviewed, if necessary, and adhered to in order to avoid overflow of septic and soak pits.	Important	Yes	EMU	30 Nov. 2019	Part (i) is implemented – All deep water wells were tested. The results were shared with OIOS with the exception of the test results for four wells which will not be received by the mission until end April 2019. These results will be shared upon receipt.  (ii) UNIFIL will adhere to the schedule for maintenance of septic tanks.
10	UNIFIL should: (i) implement measures to monitor the separation of organic waste and recyclables from other waste by both Mission personnel and the waste disposal	Important	Yes	EMU, ENG and Disposal Unit	31 Dec. 2019	UNIFIL will (i)implement measures to monitor the separation of organic waste and recyclables from other

## Management Response

## Audit of environmental management in the United Nations Interim Force in Lebanon

Rec. no.	Recommendation	Critical <sup>1</sup> / Important <sup>2</sup>	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
	contractor; and (ii) require contractors to obtain relevant municipality approvals and ensure that only approved disposal sites are used to process waste.					waste by both Mission personnel and the waste disposal contractor (ii) require contractors to obtain relevant municipality approvals and ensure that only approved disposal sites are used to process waste.
11	UNIFIL should take steps to enhance the accuracy of the Mission-wide environmental action plans and to ensure that all key units verify data included in the plans.	Important	Yes	EMU	30 Nov. 2019	UNIFIL will take steps to enhance the accuracy of the mission-wide environmental action plans and to ensure that all key units verify data included in the plans.