Office of Internal Oversight Services

INTERNAL AUDIT DIVISION

REPORT 2026/003

Audit of waste management and environmental protection in MINUSCA

The Mission needed significant improvements in waste management and environmental protection

10 April 2026
Assignment No. AP2025-637-01

Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

EXECUTIVE SUMMARY

The Office of Internal Oversight Services (OIOS) conducted an audit of waste management and environmental protection in the United Nations Integrated Stabilization Mission in the Central African Republic (MINUSCA). The objective of the audit was to assess the adequacy and effectiveness of the controls over waste management and environmental protection in MINUSCA. The audit covered the period from January 2023 to June 2025 and included: (a) environmental management system; (b) water and wastewater management; (c) solid waste management; (d) energy management; and (e) environmental impact assessment.

MINUSCA developed an Environmental Policy; however, its waste management and environmental protection required significant improvement. The Environment Management Committee's terms of reference were not finalized, and it did not meet regularly to review and address the Mission's environmental challenges. As a result, key environmental actions were delayed. The Mission did not consistently conduct key activities including: maintaining complete and accurate environment data; recording and investigation of environmental incidents; contingency drills; testing of potable water and wastewater; and maintaining solid waste records. It also did not implement adequate waste disposal practices. Finally, the Mission was yet to finalize its energy management plan to ensure the efficient utilization of the Mission's energy sources.

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

- Enhance the controls and accuracy of data recorded in the Environmental Action Plan and Performance platform.
- Enhance operations of the Environmental Management Committee.
- Enhance the recording of environmental related incidents; and consistently investigate incidents with high environmental risk exposures.
- Conduct contingency drills for responding to and handling of environmental emergencies.
- Develop a water conservation programme.
- Take measures to enhance compliance with requirements to test potable water and wastewater; and establish a plan for the utilization of treated wastewater.
- Ensure adequate segregation of solid waste at all Mission camps.
- Enhance the safe disposal of solid waste.
- Determine the disposition of long-stored equipment.
- Update and finalize its energy management plan.
- Take measures to conduct environmental impact assessments for all major environmental projects.

MINUSCA accepted all recommendations and has initiated action to implement them. Actions required to close the recommendations are indicated in Annex I.

CONTENTS

Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

I. BACKGROUND

1. The Office of Internal Oversight Services (OIOS) conducted an audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA).

2. The environmental strategy for field missions led by the Department of Operational Support (DOS) is based on five pillars: energy, water and wastewater, solid waste, wider impact, and environmental management system. To assess and monitor environmental performance in line with the strategy, field missions collect, validate, review and report relevant data under the five pillars using an online application, the Environmental Action Planning and Performance (eApp) system.

3. MINUSCA environmental strategy is implemented through the Environment Unit, the Engineering and Facilities Management Section (EFMS) and the Environment Management Committee (EMC). The Environment Unit is responsible for coordinating and advising senior management on the Mission's activities on waste management and environmental protection. EFMS is responsible for maintaining energy, solid waste and wastewater infrastructure, and monitoring the performance of waste disposal services. The EMC, chaired by the Special Representative of the Secretary-General (SRSG), plays important second line functions as it is responsible for reviewing and monitoring environmental strategies and actions of the Mission.

4. The Environment Unit is headed by a Chief Environmental Officer at P-4 level and reports to the Director of Mission Support (DMS). The Chief Environmental Officer is supported by one international staff at FS6 level, one national professional staff and four United Nations volunteers. The Unit also operates a network of focal points including a Force Military environmental officer at Major level.

5. MINUSCA operational budgets for waste management and environmental protection for the financial years 2023/24 and 2024/25 were $2 million and $2.2 million, respectively. At the time of the audit, the Mission operated from 131 camps, which comprised of 9 integrated camps occupied by civilian and uniformed personnel (main operating bases), 75 permanent operating bases (POBs) and 47 temporary operating bases (TOBs).

6. Comments provided by MINUSCA are incorporated in italics.

II. AUDIT OBJECTIVE, SCOPE AND METHODOLOGY

7. The objective of the audit was to assess the adequacy and effectiveness of the controls over waste management and environmental protection in MINUSCA.

8. This audit was included in the 2025 risk-based work plan of OIOS due to the risk that potential weaknesses in environmental practices could have an adverse impact on the environment, health of the Mission’s personnel and the local population and on the operations and reputation of the organization.

9. OIOS conducted this audit from July to November 2025. The audit covered the period from January 2023 to June 2025. Based on an activity-level risk assessment, the audit covered higher and medium risk

areas in waste management and environmental protection in MINUSCA, which included: (a) environmental management system; (b) water and wastewater; (c) solid waste; (d) energy; and (e) environmental impact assessment.

10. The audit methodology included: (a) interview of key personnel involved in waste management and environmental protection; (b) review of relevant documentation on key processes to assess their design and effectiveness; (c) analytical reviews of data from eApp, and Field Remote Infrastructure Monitoring system (FRIM) [1] and (d) field visits in Bangui and field offices.

11. To assess the reliability of data in eApp and FRIM, OIOS: (a) performed data analytical reviews to determine accuracy and reasonableness, and compared physical source documents such as reports of waste generated and generator readings of the data held in eApp and FRIM; and (b) reviewed the approval levels of data in eApp to ascertain that data input was approved and verified at appropriate levels. OIOS determined that the data had material issues that were brought to MINUSCA's attention.

12. The audit was conducted in accordance with the Global Internal Audit Standards.

III. AUDIT RESULTS

A. Environmental Management System [2]

Need to enhance controls and accuracy of the data in the eApp System

13. To strengthen the quality and reliability of environmental data, the United Nations introduced the eApp system, replacing the previously used Microsoft Excel–based Mission Environmental Action Plans, which was vulnerable to data corruption and formula distortions. In the eApp system, technical sections, who are the data owners, are required to input data on environmental performance subject to verification by the Environment Unit.

14. A review of data in eApp indicated that there were significant unreconciled discrepancies across key environmental indicators as exampled below:

- **Electricity**: July-December 2024 showed 5.9 million kWh (or 18 per cent of the 32.6 million kWh of electricity generated and reported by the Mission) could not be reconciled and supported by relevant documents; similarly, prior periods also had notable unreconciled discrepancies.
- **Water**: January-June 2024 had 102 million litres (or 30 per cent of the 344 million litres of water that were reported consumed) that were not supported by relevant documents, with similar gaps in other periods.
- **Fue**l: July-December 2024, 500,000 litres (or 5 per cent of 9.7 million litres reported as consumed) could not be supported as to how it was used.

[1] The FRIM system is the United Nations' Internet of Things (IoT) ecosystem designed to remotely monitor, manage, and optimize infrastructure and resource use in field missions. Its purpose is to enhance operational efficiency, environmental sustainability, and staff safety by collecting real-time data on energy, water, fuel, and wastewater systems.

[2] The Environmental Management System (EMS) provides a structured framework for managing environmental performance through clear objectives, monitoring and reporting mechanisms, mission-specific policies and guidelines, senior management oversight, and the promotion of environmental awareness among United Nations personnel and uniformed contingents.

- **Solid Waste**: eApp data for the six-month period to June 2025 understated the solid waste by 3.5 million kg (67 per cent) compared to EFMS records.

15. These were mainly due to weak arrangements for data collation, particularly in remote locations. For example, some technical sections submitted raw data to the Environment Unit for entry, contrary to the requirement that data owners should retain responsibility for the datasets and input them directly into eApp.

16. The Mission reported that its performance against targets for each of the five priority pillars in eApp showed consistent improvement by reaching a provisional 79 per cent in 2024-25, up from 77 per cent in both 2023-24 and 2022-23, and significantly higher than the 70 per cent achieved in 2019-20. However, such progress could not be sustained in the absence of reliable and accurate data, which also had the potential of impairing decision making.

(1) MINUSCA should strengthen the data-collection capacity of data owners to improve accuracy and reinforce ownership.

MINUSCA accepted recommendation 1 and stated that it required support from the Department of Operational Support/Rapid Expert Assistance and Cooperation Teams to provide training to data owners and contingents' logistics officers.

Operations of the Environmental Management Committee needed enhancement

17. MINUSCA developed a Mission-specific Environmental Policy in 2016 and subsequently established the EMC to provide strategic guidance on the implementation of waste management and environmental protection measures within the Mission.

18. However, the EMC's terms of reference were not finalized, and it met only twice during the audit period, despite the requirement for quarterly meetings. The limited frequency of EMC meetings and the delay in finalizing the terms of reference were primarily due to competing priorities at the senior management level that led to challenges in convening meetings.

19. As a result, key environmental actions such as power purchase agreements, renewable energy adoption, and the rehabilitation of the Kolongo landfill experienced delays. The rehabilitation of the Kolongo landfill by United Nations Office for Project Services, contracted by the Mission in 2019, was completed in 2024 instead of 2022, resulting in an 11 per cent cost overrun of ($333,000) as the cost increased from $2.8 million to $3.1 million.

(2) MINUSCA should finalize the Environmental Management Committee's terms of reference and ensure regular meetings are held to effectively monitor implementation of the Mission's waste management and environmental protection activities.

MINUSCA accepted recommendation 2 and stated that it was updating the terms of reference of the Environment Management Committee and would be submitted for approval.

Need to enhance recording of environment-related incidents and the conduct of contingency drills

20. The Mission is required to report all incidents such as wastewater or chemical spills to the Environment Unit or focal points within 48 hours of occurrence. The Mission is also required to maintain plans and procedures for responding to environmental emergencies and conduct annual rehearsals.

21. The Mission lacked a centralized database of environmental incidents. A review of 503 regular inspection reports (January 2023 to June 2025) identified 23 wastewater-related incidents with no evidence that they were reported to the Environment Unit as required. Additionally, only 5 of 34 significant-risk incidents were investigated, contrary to guidelines.

22. Furthermore, aside from fuel-spill drills conducted by the Fuel Unit, MINUSCA did not carry out the required annual rehearsals for wastewater, hazardous materials, or used-oil contamination due to logistical and staffing constraints.

23. These gaps undermined the Mission's preparedness and its ability to effectively respond to environmental emergencies.

(3) MINUSCA should establish a database to timely record and track environmental incidents and ensure that incidents with high environmental risk exposures are consistently investigated and remedial measures effected.

MINUSCA accepted recommendation 3 and stated that it would develop a database to timely record and track environmental incidents.

(4) MINUSCA should conduct rehearsals of response actions to environmental emergencies at least once a year to enhance preparedness for responding to and handling environmental emergencies.

MINUSCA accepted recommendation 4 and stated that the Mission, through the Environment Unit, would prepare a rehearsal plan in consultation with all relevant stakeholders.

The Mission initiated action to enhance the conduct of environmental inspections

24. The Environment Unit conducted 503 regular inspections across 131 camps from January 2023 to June 2025, achieving 95 per cent of its inspection plan. The inspections covered key areas such as waste, water, wastewater, energy and wider impact. However, several weaknesses were identified, as below:

- **Incomplete inspection documentation**: Six per cent of checklist tests had no recorded results, and only 6 per cent of reports were acknowledged by camp representatives, affecting the reliability of findings.
- **Inadequate mitigation**: Only two risk mitigation plans were available for the 34 significant and 134 moderate-to-high risk cases of non-conformities that were identified. Some risks were incorrectly rated as significant, leading to inconsistent profiling that could impact their effective mitigation.
- **Inadequate recommendations**: From the inspections, the Environment Unit issued 3,071 recommendations on issues such as soil remediation, solid waste segregation, and hazardous-waste storage. However, recommendations were not always aligned with findings, and follow-up was insufficient, resulting in repeated issues and unverifiable implementation rates. In 71 cases, recommendations were not issued despite instances of non-compliance having been identified.

25. The above was due to inadequate oversight within the Environment Unit and the absence of documented standard operating procedures for inspections. Though the Environment Unit indicated that it conducted ad hoc reviews during the drafting of inspection reports, only 4 of 503 regular inspection reports (0.7 per cent) had evidence of review within the Environment Unit, raising concerns about quality assurance. Also, the Environment Unit stated that due to the high number of observations and related

recommendations that were identified during the inspections, the Chief of Environment Unit only reviewed reports that required immediate remedial measures.

26. The Environment Unit had since initiated efforts to improve recommendation tracking by maintaining a Corrective and Preventive Actions register that would be used to record and monitor recommendations, their implementation dates and designated responsible personnel. Also, the Environment Unit had developed an escalation criteria and process and would further establish guidelines on risk profiling. A technical meeting on risk profiling was held with all Environmental Officers in February 2026. Based on these initiatives OIOS is not making a recommendation.

B. Water and wastewater management

Need to develop a water conservation programme

27. The Mission had 91 boreholes, from which it abstracted water, and received water from local municipalities. During 2024-25, MINUSCA recorded water abstraction and consumption of 595 million litres (87 litres per capita) from 680 million litres in 2023-24 (104 litres per capita), representing an improvement of 20 per cent. However, as mentioned earlier, the water consumption records could not be reconciled with supporting documents. This was because the water records were largely based on estimates and not actual data of water abstracted and consumed, as camps did not provide EFMS with monthly water consumption records, despite 81 per cent of the camps having infrastructural capability to do so.

28. To address this, the Mission in August 2025, distributed 43 smart water meters to enhance accuracy of data on water abstraction and consumption, and expected to complete this project in 2026. The smart meters would subsequently enable connection to the FRIM system for real-time monitoring. This initiative, although commendable, remained isolated and was not part of a coherent plan aimed at reducing water consumption in the short and long term as the Mission had not finalized a water conservation programme to provide strategic and operational direction to plan and manage its water consumption.

(5) MINUSCA should finalize the water conservation programme; and implement interim measures for enhancing accuracy of manual computations for abstracted and consumed water until full installation of smart water meters.

MINUSCA accepted recommendation 5 and stated that it would expedite the finalization of the water conservation program, and that it had completed the distribution of water meters across the field offices to enhance the accuracy of information on the water abstracted.

Need to enhance testing of water and wastewater

29. Water and Sanitation guidelines require that water and wastewater are treated in accordance with established standards of host government and Mission requirements to ensure safe water and proper disposal of treated wastewater. In this regard, as of June 2025 the Mission had installed 66 water treatment plants to treat water abstracted from its 91 boreholes/wells and received from the municipalities.

(a) Testing of water was not consistently conducted

30. The water treatment process included chlorination and use of ultraviolet light. OIOS visits to 12 out of 66 water treatment plants indicated that MINUSCA conducted monthly maintenance of the plants, including inspection of pipes, tanks, and treatment systems to check for leakages, overflow, or other

problems. Also, during visits to 9 of the 131 camps, OIOS noted that each site conducted basic testing of the potable water to ascertain the chlorine and pH[3] levels prior to consumption.

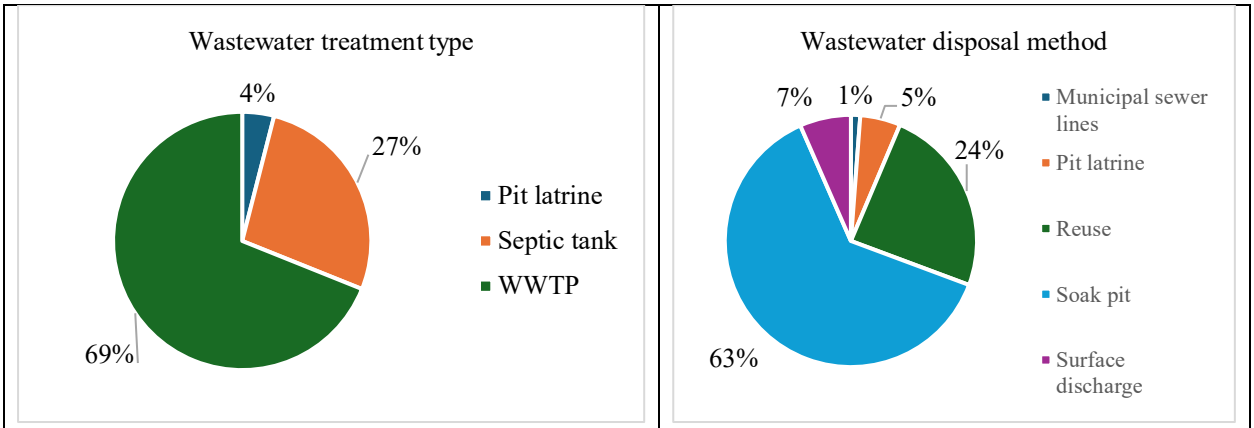
31. However, the water testing was not consistently conducted across the Mission, as indicated in the examples below.

- Only 24 of the 66 water treatment plants submitted at least 7 samples (minimum requirement) to the MINUSCA laboratory over the nine-month period from January to September 2025, reflecting a compliance rate of 36 per cent.
- 16 per cent of the 603 water samples received from all water treatment plants over the period were deemed not potable due to fecal coliform contamination. The contingents that provided the failed samples were given actions to take but there was no evidence they provided new samples for testing to confirm resolution of the issues. MINUSCA stated that contingents are responsible for water sampling and testing for their camps.
- The laboratory did not test two of the required 17 parameters, namely amounts of chlorides and dissolved oxygen due to lack of necessary reagents. High chloride concentrations had the capability to corrode metal pipes and infrastructure. The low compliance was attributed to Mission components not adhering to guidelines despite several reminders by the EFMS as well as lack of trained EFMS technicians to collect water samples and subsequently transport them to Bangui for testing. The incomplete testing compromised the credibility of the laboratory results and exposed Mission personnel to potential contamination risks.

(b) Wastewater was not adequately monitored

32. As of June 2025, MINUSCA had installed 88 wastewater treatment plants (WWTPs) to treat wastewater at the Mission's locations. For TOBs which were situated in remote locations and had low personnel numbers where it was not feasible to install WWTPs, the Mission constructed pit latrines and septic tanks to treat wastewater prior to transferring to soak pits. The major wastewater treatment types and wastewater disposal methods are outlined in Figure 1.

Figure 1: Methods for treatment and disposal of wastewater



Source: Environment Unit inspection reports

[3] pH is a measure of the hydrogen ion concentration in a solution, indicating how acidic or alkaline it is, on a scale from 0 to 14.

33. Review of records maintained by the EFMS laboratory in Bangui indicated the following issues:

- Only 42 of the 88 WWTPs (48 per cent) submitted samples to the laboratory to assess whether the treated wastewater met environmental parameters, albeit the submissions were also irregular and inconsistent, with an average of two times in 9 months from January to September 2025.
- Seven per cent of the 88 samples received by the laboratory during the period failed quality tests due to excessive solid effluents, posing environmental risks. The contingents with the failed samples were given actions to take but there was no evidence that new samples were taken to confirm resolution of the issues.
- There were delays between sample collection and testing, averaging five days for wastewater (range: 4–7 days) and six days for potable water (range: 1–41 days), contrary to Mission's Laboratory Guidelines which require testing to be conducted within 24-48 hours for both potable water and wastewater to ensure credible results.

34. The laboratory attributed the low rate of samples to a reduction in the sampling frequency from monthly to quarterly due to shortages of chemicals and reagents; however, there was no documentation to support this. The limited sampling and non-compliance with testing requirements undermined the Mission's ability to effectively monitor and mitigate environmental risks. This was also due to the absence of a mechanism to monitor compliance with testing requirements. Delaying water testing reduces accuracy in detecting fecal contamination and increases health risks by masking environmental issues.

35. Furthermore, the Mission did not establish or implement a plan to appropriately utilize treated wastewater to reduce its overall water consumption. For example, the treated wastewater was rarely reused for gardening but rather discharged through storm-water drainage systems or released into the ground. This occurred because the Mission had not yet finalized its water-supply concept and conservation programme, as referenced in recommendation 5.

(6) MINUSCA should establish: (i) a mechanism for tracking compliance and escalating cases of non-compliance with the water and wastewater testing requirements; and (ii) a plan to effectively utilize treated wastewater.

MINUSCA accepted recommendation 6 and stated that its existing mechanism of submission of potable water samples for analysis would be extended to wastewater in the field offices. The Mission would also share procedures on water sampling, transportation, storage and testing with all contingents that utilized the laboratory to improve their awareness and ensure compliance. In addition, the Mission would develop a plan for the re-use of treated wastewater.

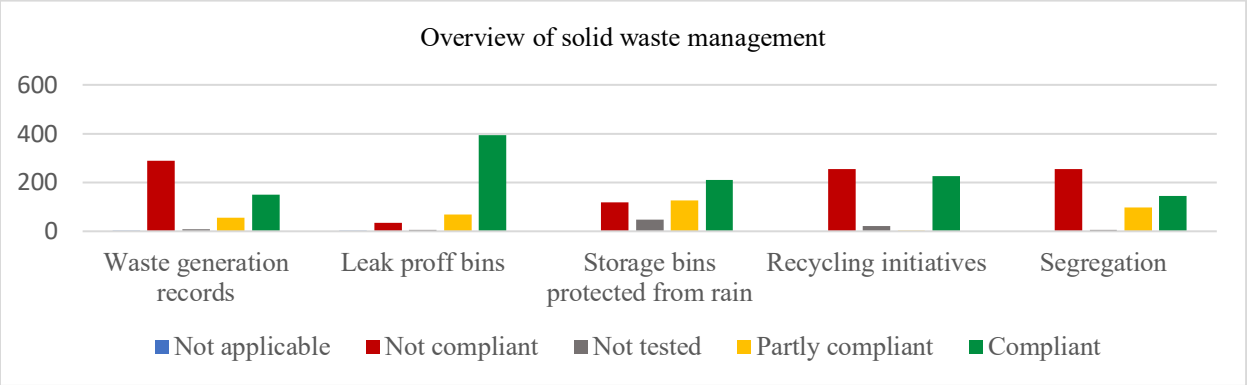
C. Solid waste management

36. Field missions are accountable for all materials and equipment brought to the mission and later disposed of as solid waste[4]. As part of waste management, missions are required to ensure: proper handling and disposal of hazardous waste; adequate segregation and recycling, appropriate storage and disposal; and accurate records on the waste generated.

[4] Solid waste generated included: food waste; paper and cardboards; recyclable waste comprising of glass, metal and plastic; biomedical waste comprising of used bandages, syringes/needles and expired medicines from the Mission's health facilities; and electronic waste including old computers and batteries

37. An analysis of 503 regular inspection reports for the period January 2023 to June 2025 indicated varying levels of compliance across the Mission's camps against each of these metrics as summarized in Figure 2.

Figure 2: Solid waste management parameters in MINUSCA



Source: Environment Unit inspection reports

Adequate records on solid waste generated were not maintained

38. OIOS visits to 27 camps, and analysis of 503 regular inspection reports (January 2023 to June 2025) indicated that there were no adequate measures to accurately report solid waste quantities and manage related risks. Although the Mission's scorecard showed a reduction from 15.9 million kg (2.45 kg per capita/day) in 2023–24 to 11.2 million kg (1.65 kg per capita/day) in 2024–25, against a 1.5 kg benchmark, the data could not be verified against EFMS source documents. The Environment Unit inspections indicated that only 40 per cent of camps recorded waste quantities, relying heavily on estimates. Camps without actual data just multiplied the number of their personnel by 1.5 kg, apparently misrepresenting waste generation. Also, locations with garbage trucks estimated waste using truck capacity (18m³) and a 210 kg/m³ conversion factor per United Nations guidelines.

39. Absence of weighing scales at waste management yards was attributed as a main reason for inaccurate measurement. OIOS has included as recommendation 1 measures to be implemented by the Mission to enhance the accuracy of records on solid waste generated.

Segregation of solid waste was inadequate

40. Effective segregation at the source was essential for efficient sorting at waste management facilities. However, OIOS noted the following:

- While 58 per cent of the camps inspected by the Environment Unit had color-coded bins, few had all five types (organic waste, metals and cans, paper and cardboards, inorganic mixed waste, and plastics and bottles) required for proper segregation. Most had only three. The available bins were also not used correctly, as the Mission did not consistently conduct awareness campaigns to reinforce proper waste-segregation practices.
- In 14 of the 27 camps visited, OIOS observed numerous broken and uncovered bins, increasing the risk of solid waste spillage. Further analysis of the inspection reports over the audit period indicated that only 42 per cent of camps with garbage bins had placed them under sheds to prevent rain-related overflows.

- OIOS inspection of three out of six waste management yards showed inadequate segregation practices, with waste largely mixed. Although the waste management yards attempted to segregate recyclables such as cans, plastic bottles, and biomedical waste, these efforts remained insufficient.
- MINUSCA reported low composting figures in its scorecard (9 per cent). Considering that organic waste accounts for about 40–50 per cent of the Mission's total solid waste, the low composting rates highlighted a missed opportunity for effective solid waste management.

41. Moreover, the Policy requires missions to promote the use of reusable bottles and water dispensers where feasible. When single-use plastics are unavoidable, the largest practicable bottle size should be used. MINUSCA continued using single-use plastics, including 500 ml bottled water and facilitated purchase of 1.5-litre bottled water for its personnel. In line with the theme for the 2025 World Environment Day (June 2025), the Mission should explore phasing single-use plastics as done by other missions which banned the use of single use plastics or switch to the use of 20 litres reusable containers.

42. Inadequate segregation of solid waste stemmed from behavioral attitudes of mission personnel that prioritized convenience over responsibility, limited awareness of its environmental impact, and absence of sufficient color-coded bins.

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(7) MINUSCA should ensure that: (i) labelled, color-coded waste bins are available at Mission locations; and (ii) targeted awareness campaigns are conducted to promote a culture of waste reduction and appropriate segregation of solid waste by Mission personnel at all camps and waste management yards.

MINUSCA accepted recommendation 7 and stated that it would provide colour-coded waste bins to all contingent camps that were not self-sustained. Contingents would receive support to strengthen their waste segregation practices. The Mission trained the Environmental Focal Points in February 2026 to raise awareness on waste segregation.

Need to enhance disposal of solid waste

43. MINUSCA targeted to operate 15 waste management yards, of which six were operational, five under construction and four were yet to be constructed. In some locations including Bangui, the Mission used municipally owned landfills. The following issues indicate that the Mission needed to implement adequate measures to ensure the proper disposal of solid waste.

(a) Biomedical waste and other hazardous materials were not adequately disposed of

44. As of June 2025, the Mission operated 13 biomedical incinerators. However, the ash from biomedical waste was improperly mixed with general waste, risking contamination. In Bangui, Bria, and Bouar, biomedical waste records were incomplete, and expired drugs were stored in unsheltered containers, exposing them to heat that can cause toxic breakdown, pollution, and hazardous emissions. These gaps highlighted urgent need for proper disposal, secure storage, and improved documentation of biomedical waste.

(b) Operation of the take-back scheme for used oil and lubricants was below target

45. Between October 2024 and October 2025, MINUSCA's fuel vendor operated a take-back scheme requiring 70 per cent used engine oil return for new oil. Records showed only 150,550 litres were returned against 329,116 litres issued, reflecting a 46 per cent return rate, far below target. Of the returned oil, 136,550 litres were disposed through a government-approved recycler in Bangui. The shortfall indicated

potential environmental risks from improper disposal. The Mission stated the 70 per cent target was verbally communicated, not documented, with compliance varying widely from 14 to 70 per cent, underscoring the need for formal requirements and stronger monitoring.

(c) Disposal of solid waste at waste management yards was inadequate

46. The Mission disposed of waste at several landfills, including at its six waste management yards. At the Kolongo landfill in Bangui, waste was placed in designated cells with no evidence of open burning. However, at the MINUSCA waste management yards visited in Bria and Bouar, solid waste was mixed (not appropriately segregated) and openly burned (see **Figure 3**), a prohibited practice. Bria cited lack of incinerators, while Bouar had three incinerators that had been installed and functional but still resorted to burning. Open burning of unsegregated waste releases toxic gases, heavy metals, and carcinogens, posing serious health and environmental risks such as air pollution, and long-term ecological harm.

Figure 3: Open burning at field waste management yards

Source: OIOS

47. EFMS managed solid waste disposal for all Mission camps and required contingents to coordinate with it before accessing waste management yards/landfills. However, OIOS observed two cases in three visits to waste management yards and a landfill, where contingents disposed of waste independently without EFMS clearance, increasing the risk of hazardous or prohibited waste contaminating waste management yards/landfills. This risk was further elevated by ongoing contingent repatriations under the Mission's downsizing plan, which may lead to more unsupervised disposal activities. Strengthened oversight and enforcement of disposal protocols are essential to prevent environmental contamination and ensure compliance.

48. The inadequate waste disposal was attributed to limited stakeholder awareness. Although the Mission conducted some awareness activities, significant gaps remained: Only 25 per cent of environmental focal points conducted awareness actions, and the Mission commemorated and promoted only one of the 12 United Nations environmental observances in 2024–25. Key operational guidelines covering incinerators, energy, environmental frameworks, waste management yards, and wastewater, remained in draft. The Mission also had not conducted a communication channel analysis to identify effective platforms for environmental messaging.

(8) MINUSCA should: (i) strengthen its environmental awareness initiatives to effectively promote proper waste management practices by all the stakeholders; and (ii) formalise guidelines on management of incinerators, energy, environmental frameworks, waste management yards and returned used oil and adhering to them.

MINUSCA accepted recommendation 8 and stated that it would: (i) increase its environmental awareness initiatives including trainings on proper waste management practices; and (ii) formalise guidelines on waste management equipment and returned oil policy.

Need to ensure prompt installation of waste management equipment

49. In 2022, MINUSCA invested $1.9 million in equipment to improve waste and environmental management across mission camps. The investment included 21 incinerators at a cost of $1.4 million to support safe disposal of non-hazardous solid waste. Properly operated incinerators can reduce solid and biomedical waste volumes by up to 90 per cent, offering a viable solution to the open burning practices observed at waste management yards. However, as of October 2025, only nine incinerators had been installed and commissioned, while the remaining 12 were still in stock, four years after their procurement, awaiting dispatch. The Mission attributed the delay to logistical and transportation challenges, including poor road conditions and the delicate nature of the equipment.

50. In addition, out of 10 heavy-duty shredders valued at $480,000 procured in 2022, only five were deployed and installed while four had been deployed but yet to be installed. Installation delays were attributed to logistical challenges encountered by the contractor, leading to its inability to fulfill the contract timely. Additionally, only 6 of the 8 balers (valued at $52,000) received in 2022 had been installed.

51. The Mission indicated that it would expedite the installation and commissioning of the remaining equipment, including incinerators, shredders and balers, and that it would also enhance its power supply capacity across the Mission to support the high energy demands of the shredders.

(9) MINUSCA should: (i) determine the disposition of long-stored equipment by either delivering them to intended sites or assigning alternative uses to prevent further value loss and operational delays; and (ii) take appropriate measures to hold the contractor accountable for its failure to install heavy-duty shredders, including recovery of payment, if warranted.

MINUSCA accepted recommendation 9 and stated that nine of the 10 shredders were deployed but only five were installed. Four had not been installed due to lack of electrical power. MINUSCA would expedite the purchase of generators to complete the installation and commissioning of the remaining equipment.

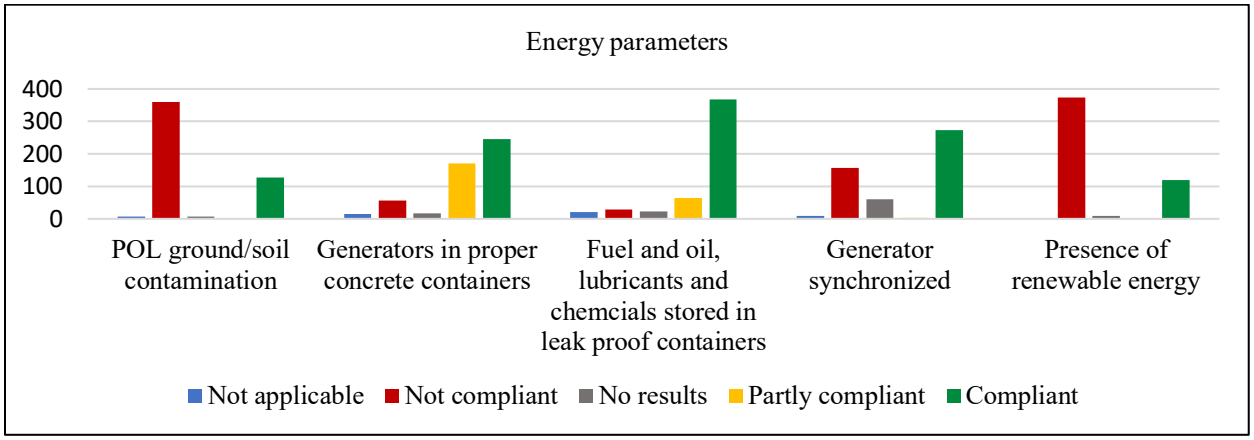
D. Energy management

Need to finalize the Mission energy management plan

52. MINUSCA is required to analyze energy production and consumption at key camps and manage demand efficiently to increase energy savings. To achieve this, a four-year energy management plan (2021- 2024) was drafted, detailing sources, uses, and conservation initiatives.

53. An analysis of 503 regular inspection reports for the period January 2023 to June 2025 indicated different levels of implementation of the Mission's key energy parameters by the camps as summarized in Figure 4.

Figure 4: Mission performance on key energy parameters



Source: Environment Unit inspection reports

(a) Electricity generation from renewable sources was below the target

54. Between 2024 and 2025, MINUSCA generated 56 million kWh of electricity (up from 38 million kWh in 2023-24), with only 1 per cent from renewable sources, down from 2 per cent previously and far below the peace operations average of 6 per cent. The Mission missed its 12 per cent renewable energy target for 2025 and remained far from the United Nations Climate Action Plan goals of 40 per cent by 2025 and 80 per cent by 2030.

55. On the other hand, data reliability was not assured, as only 49 per cent of camps could record generation, leaving figures based on eApp estimates from fuel consumption[5]. A 47 per cent increase in generation lacked explanation, compounded by unreconciled discrepancies as mentioned in Section A. To improve accuracy, 45 smart sensors were distributed to 42 camps, with 24 installed and 21 connected to FRIM for real-time monitoring.

(b) Prevention of soil contamination was inadequate

56. To manage incidences of oil spillage and ground contamination, generators were required to be housed in concrete enclosures and 49 per cent complied with this requirement while the rest showed partial or no containment, increasing the risk of oil soil contamination. This was confirmed during OIOS visits to 27 camps. Soil contamination from oil was noted in 72 per cent of the camps.

(c) Electricity efficiency measures needed enhancement

57. MINUSCA launched a few initiatives to enhance the electricity efficiency, such as installation of timers in air condition units and light-motion sensors in common areas. However, more concerted efforts were needed, as noted below:

- Only 2 per cent of air conditioners were equipped with timers. As of June 2025, only 25 per cent of the Mission's lighting had been upgraded from fluorescent light tubes to energy-efficient light-emitting diodes (LED) fixtures.
- Only 8 per cent of camps had detailed energy consumption data.

[5] The Mission consumed 18.2 million litres of diesel in 2024-25, 17.4 million litres in 2023-24 and 18.7 million litres to generate 49.4 million kWh, 37.4 million kWh, and 43.9 million kWh, respectively.

- 45 per cent of the generators were synchronized[6] and 42 per cent were right sized to efficiently manage peak loads and conserve power.
- MINUSCA's greenhouse gas emission score of 2.3 tons of carbon dioxide (CO_2) per capita, was significantly higher than the 1-ton CO_2 per capita score of best performing missions.

58. The above occurred as the energy management plan remained in draft form, while OIOS noted that actions were underway to finalize it. Lack of an approved plan may hinder efforts to improve energy efficiency and reduce environmental impact.

(10) MINUSCA should update and finalize its energy management plan to ensure effective and efficient implementation of all planned energy management measures in all Mission camps.

MINUSCA accepted recommendation 10 and stated that it would expedite the finalization of its Energy Management Plan by 30 June 2026.

E. Environmental impact assessment

Need to enhance environmental impact assessments

59. The standard operating procedures on Environmental Impact Assessment (EIA) for United Nations field missions required Missions to conduct EIAs to assess the initial environmental conditions of a site prior to its use. In particular, major construction projects and waste management yards required an EIA to ensure all environmental aspects were reviewed and appropriate mitigation measures considered.

- During the period, MINUSCA implemented 9 major projects valued at $11.6 million, of which four were completed. There were no EIAs for any of the 9 projects.
- For the six waste management yards that MINUSCA was operating, the Environment Unit conducted rapid environmental screenings for four. Two screening reports recommended EIAs, yet only one (Bimbo site in Bangui) was completed, with no explanation for the other.

60. Decisions to conduct or waive EIAs were not escalated to the DMS for approval, contrary to guidelines. The Mission indicated that screenings were only prepared for waste management yards outside MINUSCA premises, without documented justification. Failure to conduct required EIAs risked breaching environmental standards, harming communities and ecosystems, triggering legal liabilities, and undermining accountability.

(11) MINUSCA should implement measures to ensure environmental impact assessments are duly approved and conducted prior to the commencement of major environmental projects.

MINUSCA accepted recommendation 11 and stated that it would take measures to implement the recommendation.

[6] Generator synchronization means matching two or more generators, so they work together to share the loads. Their voltage, speed, and power must align before connecting them, preventing damage and ensuring stable, uninterrupted electricity supply.

IV. ACKNOWLEDGEMENT

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

Internal Audit Division
Office of Internal Oversight Services

ANNEX I

STATUS OF AUDIT RECOMMENDATIONS

Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

Rec. no.	Recommendation	Critical[7]/ Important[8]	C/ O[9]	Actions needed to close recommendation	Implementation date[10]
1	MINUSCA should strengthen the data-collection capacity of data owners to improve accuracy and reinforce ownership.	Important	O	Evidence of strengthened data collection capacity and ownership by technical sections.	30 June 2026
2	MINUSCA should finalize the Environmental Management Committee's terms of reference and ensure regular meetings are held to effectively monitor implementation of the Mission's waste management and environmental protection activities.	Important	O	Evidence of finalised terms of reference of the Environmental Management Committee (EMC) and regular EMC meetings to effectively monitor implementation of the Mission's waste management and environmental protection activities.	30 April 2026
3	MINUSCA should establish a database to timely record and track environmental incidents and ensure that incidents with high environmental risk exposures are consistently investigated and remedial measures effected.	Important	O	Evidence of established database to timely record and track environmental incidents, and that incidents with high environmental risk exposures are consistently investigated	30 June 2026
4	MINUSCA should conduct rehearsals of response actions to environmental emergencies at least once a year to enhance preparedness for responding to and handling environmental emergencies.	Important	O	Evidence that rehearsals of response actions to environmental emergencies are conducted at least once a year to enhance preparedness and response.	30 September 2026
5	MINUSCA should finalize the water conservation programme; and implement interim measures for enhancing accuracy of manual computations for abstracted and consumed water until full installation of smart water meters.	Important	O	Evidence of finalized water conservation programme; and implementation of interim measures for enhancing accuracy of manual computations for abstracted and consumed water until full installation of smart water meters.	30 June 2026
6	MINUSCA should establish: (i) a mechanism for tracking compliance and escalating cases of non-compliance with the water and wastewater testing requirements; and (ii) a plan to effectively utilize treated wastewater.	Important	O	Evidence of a mechanism for tracking compliance and escalating cases of non-compliance with the water and wastewater testing requirements; and implementation of a plan to effectively utilize treated wastewater.	30 May 2026
7	MINUSCA should ensure that: (i) labelled, color-coded waste bins are available at Mission locations; and (ii) targeted awareness campaigns are conducted to promote a culture of waste reduction and appropriate segregation of	Important	O	Evidence of provision of labelled, color-coded waste bins at Mission locations; and planned targeted awareness campaigns aimed at promoting a culture of waste reduction and	31 December 2026

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STATUS OF AUDIT RECOMMENDATIONS

Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

Rec. no.	Recommendation	Critical[7]/ Important[8]	C/ O[9]	Actions needed to close recommendation	Implementation date[10]
	solid waste by Mission personnel at all camps and waste management yards.			appropriate segregation of solid waste by Mission personnel at all camps and waste management yards.	
8	MINUSCA should: (i) strengthen its environmental awareness initiatives to effectively promote proper waste management practices by all the stakeholders; and (ii) formalise guidelines on management of incinerators, energy, environmental frameworks, waste management yards and returned used oil and adhering to them.	Important	O	Evidence of strengthened environmental awareness initiatives for proper waste management practices by all the stakeholders; finalisation and adherence to guidelines on management of incinerators, energy, environmental frameworks, waste management yards and returned used oil.	30 June 2026
9	MINUSCA should (i) determine the disposition of long-stored equipment by either delivering them to intended sites or assigning alternative uses to prevent further value loss and operational delays; and (ii) take appropriate measures to hold the contractor accountable for its failure to install heavy-duty shredders, including recovery of payment, if warranted.	Important	O	Evidence of resolution of the long-stored equipment.	30 September 2026
10	MINUSCA should update and finalize its energy management plan to ensure effective and efficient implementation of all planned energy management measures in all Mission camps.	Important	O	Evidence of finalisation of the energy management plan to ensure effective and efficient implementation of all planned energy management measures in all Mission camps.	30 June 2026
11	MINUSCA should implement measures to ensure environmental impact assessments are duly approved and	Important	O	Evidence of duly approved environmental impact assessments for all major environmental projects	30 June 2026

[7] Critical recommendations address those risk issues that require immediate management attention. Failure to take action could have a critical or significant adverse impact on the Organization.
[8] Important recommendations address those risk issues that require timely management attention. Failure to take action could have a high or moderate adverse impact on the Organization.
[9] Please note the value C denotes closed recommendations whereas O refers to open recommendations.
[10] Date provided by MINUSCA in response to recommendations.

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STATUS OF AUDIT RECOMMENDATIONS

Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

Rec. no.	Recommendation	Critical[7]/ Important[8]	C/ O[9]	Actions needed to close recommendation	Implementation date[10]
	conducted prior to the commencement of major environmental projects.				

APPENDIX I

Management Response

United Nations | **Nations Unies**

United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

MINUSCA

Mission Multidimensionnelle Intégrée des Nations Unies Pour la Stabilisation en République centrafricaine

INTEROFFICE MEMORANDUM | **MEMORANDUM INTERIEUR**

TO: Mr. Byung-Kun Min
A: Chief, Peacekeeping Audit Service
Internal Audit Division, OIOS

DATE: 27 March 2026

REFERENCE: MINUSCA/OSRSG/051/2026

FROM: Valentine Rugwabiza
DE: SRSG and Head of MINUSCA

SUBJECT: **MINUSCA's comments on a Draft report on an audit of waste management and environmental protection in MINUSCA (Assignment No. AP2025-632-01)**
OBJET:

1. With reference to your interoffice memorandum dated 13 March 2026 on the above captioned subject, kindly find attached MINUSCA's comments on a Draft report on an audit of waste management and environmental protection in MINUSCA.

2. I take this opportunity to thank your team for the findings and recommendations issued in this audit.

Annex: – MINUSCA's comments on a Draft report on an audit of waste management and environmental protection in MINUSCA

CC: Lt. Gen. Humphrey Nyone, Force Commander, MINUSCA
Comptroller General Amadou Fofana, Acting Head of Police Component, MINUSCA
Mr. Bernard Ibrahim Kane, Chief Facilities and Maintenance Unit, MINUSCA
Mr. Sory Sangaré, Director of Mission Support, MINUSCA
Ms. Sahon Flan, Chief Environment Unit
Mr. Seydou Sirpe, Chief Resident Auditor for MINUSCA, Internal Audit Division, OIOS
Ms. Tiphaine Dickson, Risk Management and Compliance Officer, MINUSCA

APPENDIX I

Management Response

Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

Rec. no.	Recommendation	Critical[1]/ Important[2]	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
1	MINUSCA should strengthen the data-collection capacity of data owners to improve accuracy and reinforce ownership.	Important	Yes	1. Head of Environment Unit 2. Military Logistic officers 3. Chief Engineering & Facilities Management Section (EFMS)	30 June 2026	DOS Rapid Environmental and Climate Technical Assistance (REACT) support required to provide training to Data owners. The training will be extended to Contingents' Logistic Officers.
2	MINUSCA should finalize the Environmental Management Committee's terms of reference and ensure regular meetings are held to effectively monitor implementation of the Mission's waste management and environmental protection activities.	Important	Yes	Head of Environment Unit	30 April 2026	The Terms of Reference (TORs) of the Environment Management Committee are being updated and will be submitted for approval.
3	MINUSCA should establish a database to timely record and track environmental incidents and ensure that incidents with high environmental risk exposures are consistently investigated and remedial measures effected.	Important	Yes	Head of Environment Unit	30 June 2026	The Mission accepts the recommendation and a database will be established to timely record and track environmental incidents.

[1] Critical recommendations address those risk issues that require immediate management attention. Failure to take action could have a critical or significant adverse impact on the Organization.

[2] Important recommendations address those risk issues that require timely management attention. Failure to take action could have a high or moderate adverse impact on the Organization.

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Management Response

Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

Rec. no.	Recommendation	Critical[1]/ Important[2]	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
4	MINUSCA should conduct rehearsals of response actions to environmental emergencies at least once a year to enhance preparedness for responding to and handling environmental emergencies.	Important	Yes	Head of Environment Unit	30 September 2026	MINUSCA accepts the recommendation. The Mission, through its Environment Unit will prepare a rehearsal plan in consultation with all relevant stakeholders.
5	MINUSCA should finalize the water conservation programme; and implement interim measures for enhancing accuracy of manual computations for abstracted and consumed water until full installation of smart water meters.	Important	Yes	Head of Water & Sanitation Unit	30 June 2026	The Mission accepts the recommendation and will expedite the finalization of the water conservation programme. The Mission has distributed water meters across Field Offices to enhance the accuracy of the water abstracted. Evidence: Cargo Movement Requests (CMRs) and distribution list of the water meters are attached – ITEM 5 (already provided)
6	MINUSCA should establish a: (i) mechanism for tracking compliance and escalating cases of non-compliance with the water and wastewater testing requirements; and (ii) plan to effectively utilize treated wastewater.	Important	Yes	Head of Water & Sanitation Unit	30 May 2026	MINUSCA accepts the recommendation. The existing mechanism of submission of water samples for analysis will be extended to wastewater in the Field Offices. In addition, and as part of the implementation of the recommendation, Water sampling, transportation, storage, and testing procedures will be shared with all T/PCC using the water laboratory to ensure compliance.

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Management Response

Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

Rec. no.	Recommendation	Critical[1]/ Important[2]	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
						Furthermore, a plan for the reuse of wastewater will be developed. This is already implemented in Bangui Logistics Base (LogBase) and in few field locations. Evidence: sample water testing weekly reports. ITEM 6 (already provided)
7	MINUSCA should ensure that: (i) labelled, color-coded waste bins are available at Mission locations; and (ii) targeted awareness campaigns are conducted to promote a culture of waste reduction and appropriate segregation of solid waste by Mission personnel at all camps and waste management yards.	Important	Yes	(i). Waste Management Engineer (ii). Head of Environment Unit	31 December 2026	MINUSCA will reinforce its plan to provide color-coded waste bins for all camps that are not covered by COE self-sustainment. COE units will receive support to strengthen waste segregation practices. Color-coded waste bins have been distributed across the mission. Environmental Focal Points Training was conducted on 16-17 February 2026 and was an opportunity to raise awareness on waste segregation. Evidence: CMRs and distribution list of color-coded are attached - ITEM 7 (already provided)
8	MINUSCA should: (i) strengthen its environmental awareness initiatives to effectively promote proper waste management practices by all the stakeholders; and (ii) formalise guidelines on management of incinerators, energy,	Important	Yes	i). Head of Environment Unit ii). EFMS / Head of Waste	30 June 2026	MINUSCA accepts the recommendation. i) MINUSCA will increase its environmental awareness initiatives

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Audit of waste management and environmental protection in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic

Rec. no.	Recommendation	Critical[1]/ Important[2]	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
	environmental frameworks, waste management yards and returned used oil and adhering to them.			Management Unit / Head of Electrical Unit		including trainings on proper/good waste management practices ii) MINUSCA will formalise guidelines on waste management equipment and returned oil policy.
9	MINUSCA should (i) determine the disposition of long-stored equipment by either delivering them to intended sites or assigning alternative uses to prevent further value loss and operational delays; and (ii) take appropriate measures to hold the contractor accountable for its failure to install heavy-duty shredders, including recovery of payment, if warranted.	Important	Yes	Chief EFMS / Head of Waste Management Unit / Head of Electrical and Mechanical Unit	30 September 2026	Nine out of ten shredders are deployed, among which five are installed. Four have not been installed due to lack of electrical power. MINUSCA will expedite the purchase of generators to complete the installation and commissioning of the remaining equipment.
10	MINUSCA should update and finalize its energy management plan to ensure effective and efficient implementation of all planned energy management measures in all Mission camps.	Important	Yes	Chief EFMS / Head of Electrical and Mechanical Unit	30 June 2026	MINUSCA will expedite the finalization of its Energy Management Plan by 30 June 2026.
11	MINUSCA should implement measures to ensure environmental impact assessments are duly approved and conducted prior to the commencement of major environmental projects.	Important	Yes	Head of Environment Unit	30 June 2026	MINUSCA accepts the recommendation.