Office of Internal Oversight Services

INTERNAL AUDIT DIVISION

REPORT 2022/063

Audit of engineering projects in the United Nations Mission in the Republic of South Sudan

There was a need to strengthen the project governance mechanism, enhance the process of contractor selection, improve monitoring, supervision, and reporting of work progress, and ensure timely payments to contractors executing the Mission's engineering projects

23 November 2022
Assignment No. AP2020-633-11

Audit of engineering projects in the United Nations Mission in the Republic of South Sudan

EXECUTIVE SUMMARY

The Office of Internal Oversight Services (OIOS) conducted an audit of engineering projects in the United Nations Mission in the Republic of South Sudan (UNMISS). The audit objective was to assess the adequacy of the project governance, risk management, and control processes established by UNMISS management for effectively managing its engineering projects. The audit covered the period from July 2019 to December 2021 and it included a review of project initiation and planning, the engineering project procurement process, project execution, monitoring and controlling, and the project close-out process.

UNMISS had established a Project Management Group (PMG) to provide project governance and oversight on selecting and executing the Mission's major construction projects. However, there was a need to strengthen the governance mechanism, enhance the process of contractor selection, improve monitoring, supervision, and reporting of work progress, and ensure timely payments to contractors executing the Mission's engineering projects.

OIOS made eight recommendations. To address issues identified in the audit, UNMISS needed to:

- Enhance governance and oversight of engineering projects;
- Strengthen the project planning and design process, and the preparation, collation and retention/ filing of project planning documents;
- Strengthen the procedures for the selection of vendors to execute its engineering projects;
- Ensure that project managers receive the requisite Umoja training to be able to capture and review project costs effectively;
- Enhance its supervision of engineering projects by ensuring that: (a) physical inspections of engineering projects and performance evaluations of contractors are regularly conducted; and (b) key performance indicators specified in individual contracts are monitored;
- Ensure timely payments to contractors by establishing and monitoring appropriate processing timelines and benchmarks;
- Ensure that the Engineering Section collated, analyzed, and reported on performance data related to tasks assigned to military engineering units; and
- Strengthen the supervisory controls over close-out procedures for completed projects.

UNMISS accepted all recommendations, of which three were implemented, and it has initiated action to implement the remaining recommendations. Actions required to close the recommendations are indicated in Annex I.

CONTENTS

Audit of engineering projects in the United Nations Mission in the Republic of South Sudan

I. BACKGROUND

1. The Office of Internal Oversight Services (OIOS) conducted an audit of engineering projects in the United Nations Mission in the Republic of South Sudan (UNMISS).

2. The Mission's mandate implementation plan determines its engineering requirements, the level of engineering infrastructure and the use of engineering resources. UNMISS has a three-tier Project Management Group (PMG) responsible for identifying mission priority projects (MPP)[1], including but not limited to engineering projects. PMG is made up of: (i) a Steering Group composed of the Mission's Senior Leadership[2] and tasked with providing strategic guidance and taking key decisions on resource allocation; (ii) an Integrated Project Team (IPT) with the responsibility for regularly monitoring and reporting on the execution of the mission-wide MPPs; and (iii) an Execution Group comprised of designated project managers tasked with undertaking the execution of individual projects.

3. Engineering activities are guided by the United Nations Engineering Support Manual, Field Support Guidelines on Governance of Major Construction Projects in Field Missions, UNMISS standard operating procedures on the management of engineering projects, and United Nations Financial Regulations and Rules.

4. The Engineering Section is responsible for planning and implementing engineering works in the Mission area, including coordinating, supervising and reporting on the construction, rehabilitation and maintenance of the Mission's facilities and infrastructure. It is headed by a Chief Engineer at the P-5 level who reports to the Director of Mission Support through the Chief of Service Delivery. The Engineering Section had 458 authorized posts comprising 57 international staff, 58 United Nations volunteers, 191 national staff, and 152 individual contractors.

5. The Mission's engineering projects included planning, design, construction and maintenance of buildings and other physical infrastructure; upgrade of main supply routes (MSR)[3], internal camp roads and bridges; and maintenance of airfields. Due to its lack of specialized equipment and technical knowledge, UNMISS outsourced complex engineering works to external contractors. The Mission also utilized Horizontal Military Engineering Companies (HMECs)[4], deployed as part of the military contingent units under memoranda of understanding between troop-contributing countries (TCC) and the United Nations. HMECs were not involved in significant vertical construction projects such as buildings due to their limited capacity to perform complex and time-bound tasks.

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[1] MPPs are projects identified as essential to support the effective achievement of the Mission's mandate and are prioritized by the Senior Mission Leadership. Typically, MPPs relate to in-mission infrastructure, supply and information technology projects.

[2] The UNMISS project management group terms of reference defines the Steering Group as the UNMISS principal management meeting (PMM) as advised by the operational coordinating committee (OCC).

[3] MSRs are roads not owned but that are frequently used by the Mission to facilitate the delivery of supplies.

[4] HMECs constitute UNMISS' military engineering capability. Their configuration and capabilities make them suitable to conduct tasks in environments where civilian contractors would not typically work due to either security threats or an otherwise hostile environment.

6. During the period under review, UNMISS outsourced 26 major projects to external contractors and used its engineering resources to implement eight in-house projects (five completed and three in progress). The Mission issued 341 task orders to the HMECs for the rehabilitation and construction of six MSRs within its area of operations and other routine tasks such as repairs, rehabilitation, and maintenance for roads, drainages, runways and fencing. The outsourced projects were at various stages of implementation, as shown in table 1.

Table 1: Status of outsourced engineering projects as of 31 December 2021

Status of project	Number of projects	Total not-to-exceed value ($'000)	Expenditure ($'000)
Completed	13	15,665	14,257
In progress	12**	20,835	10,598
Cancelled	1	876	266
Total	**26**	**37,376**	**25,121**

** The Mission was in the process of terminating a project for the construction of ablution units for which an expenditure of $266,000 had been made

7. Three of the 26 outsourced projects were mission-wide projects for the construction of: (a) ablution units for contingents for a total not-to-exceed (NTE) amount of $7.6 million; (b) kitchens for contingents for a total NTE amount of $2.3 million; and (c) camp entrances with a total NTE amount of $3 million. These projects were outsourced to seven contractors, and they were being carried out concurrently at various locations.

II. AUDIT OBJECTIVE, SCOPE, AND METHODOLOGY

8. The objective of the audit was to assess the adequacy of the project governance, risk management, and control processes established by UNMISS management for effectively managing its engineering projects.

9. This audit was included in the 2021 risk-based work plan of OIOS due to operational and financial risks and the criticality of engineering projects for supporting the implementation of mandated activities.

10. OIOS conducted this audit from November 2021 to May 2022 and covered the period from July 2019 to December 2021. Based on an activity-level risk assessment, the audit covered the following areas: (i) project initiation and planning; (ii) procurement process; (iii) project execution, monitoring and controlling; and (iv) project close-out process.

11. The audit methodology included: (a) interviews of key personnel involved in engineering support activities, services and works; (b) a review of relevant documentation related to 17 ($35.5 million) of the 26 ($37.4 million) outsourced projects and 93 ($17.2 million) out of 418 ($24.9 million) contractor payments; and (c) analytical review of data.

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

III. AUDIT RESULTS

A. Project initiation and planning

There was a need to improve the project governance framework for engineering projects

13. An adequate governance framework for engineering projects includes oversight of identifying, selecting, and implementing engineering projects to ensure that the Mission's engineering needs are aligned with its mandated activities and operational requirements. The terms of reference for the PMG lays out the mechanisms for allocating resources for the Mission's engineering needs and for selecting, prioritizing and monitoring MPPs. However, OIOS noted several weaknesses in the functioning of the project governance, as explained below.

(a) Need to formalize and document the Steering Group's governance and oversight over projects through its interactions with the Integrated Project Team

14. There were no records to show that the Steering Group provided guidance to the IPT or that the IPT Chairperson provided regular briefings to the Steering Group on MPPs as specified in the PMG terms of reference. The IPT Chairperson explained that the interactions with the Steering Group were ad-hoc and informal, therefore, there were no records.

(b) Need to improve project identification and selection process

15. Mission components submitted project proposals to the IPT for consideration and subsequent approval by the Steering Group. The Mission Support Centre (MSC) served as the secretariat for PMG and was responsible for receiving project proposals, maintaining minutes of IPT meetings, and updating the list of priority projects. OIOS noted the following weaknesses:

- No criteria were established for objectively and consistently evaluating and prioritizing project proposals. As a result, requisitioning offices were not always aware of the types of projects that qualified to be submitted for consideration by the Steering Committee.

- A spreadsheet used by MSC to record project proposals was incomplete for 49 of 75 proposals submitted from seven requisitioning offices for the 2020/21 fiscal year. In addition, the Mission did not maintain adequate records to support decisions on project proposals (i.e., approved, rejected, or deferred). Inadequate records compromised the transparency of the decision-making process.

- Requisitioning offices did not consistently provide cost estimates, project completion timelines, project justification and expected benefits for their submissions to the IPT. For example, of the 75 project proposals submitted in 2020/21, 60 did not include budgeted costs, while 41 did not mention project completion timelines. In addition, justifications of how the projects would support the Mission's mandate could have been more specific. Twenty-four of the 75 project proposals (i.e., 32 per cent) were submitted by one component after the project proposals deadline without relevant costing information.

- There was no mechanism to provide formal feedback by the IPT or the Steering Group to the mission components about the status of their submissions. As a result, requisitioning offices were only sometimes made aware of the reasons for the non-selection of their proposed projects.

(c) Inadequate project status reporting and monitoring by the Integrated Project Team

16. Progress status reports of individual projects form part of the documents prepared for the periodic IPT meetings. However, they did not contain essential elements to facilitate effective monitoring of project status and identify risks and challenges about their implementation.

17. Progress reports were not designed to provide essential information to evaluate project performance against estimated cost and completion schedules, including explanations for significant deviations. There was no indication in the reports of any cost and time overruns. An analysis of 17 projects (10 completed and 7 ongoing) indicated:

(i) an average delay of 121 days between the planned and actual start dates, including an average of 240 days delay for 10 completed projects with a total NTE amount of $7.6 million; and

(ii) costs overrun in two projects amounting to $1.09 million resulting from the omission of key components in the statement of works for the construction of a conventional water treatment plant ($890,000), and inadequate structural specifications for a helicopter loading and staging apron ($200,000).

18. Contract amendments were not reported to IPT to ensure the monitoring of anomalies and identifying potential root causes for appropriate action. OIOS noted a high incidence of contract amendments because of time overruns without prior review and approval by the IPT. Analysis of the 17 selected projects showed that 11 contracts had 50 amendments, including 29 to extend the planned completion date by an accumulated total of 144 months, 8 for changes in technical specifications, 11 for adjustments to contract NTE values and the remaining 2 for sundry issues. These amendments and related information such as reasons and possible impact were not captured or analyzed in reports provided to IPT.

19. The above occurred due to ineffective project governance and oversight mechanisms. As a result, there were gaps in the timely identification and mitigation of recurrent issues, including contract amendments and time overruns.

(1) UNMISS should enhance the governance and oversight of engineering projects by: (a) improving the visibility of the Steering Group through the adoption of formalized and documented methods of providing guidance and taking key decisions on resource allocation; (b) strengthening the project identification and selection process through the formal articulation of evaluation criteria; and (c) enhancing project status reporting to capture potential risks and challenges with ongoing projects.

UNMISS accepted recommendation 1 and stated that the recommendation would be implemented upon reviewing and revising the Terms of Reference for the Project Management Group to cover the gaps identified in the governance and oversight of engineering projects, particularly the provision of guidance to the Steering Group, the adoption of project identification and selection criteria, and project reporting.

There was a need to enhance the project planning process

20. To ensure that engineering projects are effectively, efficiently, and economically implemented, they should be adequately planned and coordinated.

21. The 17 sampled projects showed inadequacies in project planning, resulting in cost overruns, delays in project implementation and scope changes. For instance, the contract for a project to construct a loading and staging apron for Mi-26 cargo helicopters costing $1.1 million had to be re-awarded to the same contractor after changes had to be made to the initial design with 26 per cent of the work already done. In addition, the top layer of the apron was found to be unsuitable, which resulted in changes and an estimated cost overrun of $468,521. Subsequently, this necessitated the need to re-award a new contract to the same contractor for an additional $421,981 to complete the project with different materials and a new design for the final layer.

22. Regarding a $2.3 million integrated solar farm project at the United Nations House completed in April 2020, the Engineering Section did not conduct adequate compatibility checks to ensure that the project would seamlessly integrate with another project to construct an 11-kilo-volt medium voltage distribution network. As a result, soon after commissioning the medium distribution network project, it was found that the project was interfering with the operations of the medium voltage distribution network and had to be disabled from providing power to UNMISS facilities at the end of January 2022. The problem was only resolved after four months in May 2022. Since the solar farm project was expected to provide monthly savings of about $107,000 from 37,000 litres of fuel used in generators and considering the attendant environmental damage, this non-operational period was a missed opportunity for the Mission.

23. In addition, project files did not always contain key planning documents such as project schedules with details of activities and their sequence, bills of quantities and cost estimation.

24. The above was due to inadequate project design and feasibility assessments at the project planning phase leading to sudden and unplanned design changes midway into the contract's execution and setting unrealistic completion and cost targets. This resulted in projects experiencing slow progress from avoidable delays, work stoppages, poor quality or incomplete work.

(2) UNMISS should strengthen: (a) the project planning and design process to minimize unplanned changes in technical specifications and engineering project schedules and avoid delays in project execution; and (b) the preparation, collation and filing of project planning documents, including cost estimation schedules.

UNMISS accepted recommendation 2 and stated that the Mission would update its existing Project Management Standard Operating Procedures to include provisions for strengthening project identification and scoping processes, minimizing the risk of scope changes and delays in project implementation, and reinforcing project management principles. In addition, the Engineering Section would ensure that initiation and scoping documents indicate the project deliverables and all other project files and planning documents, including cost estimates are placed in the Section's SharePoint folder.

B. Procurement process

Procurement actions for the selection of vendors did not consistently achieve the outcomes anticipated upon engineering project implementation

25. A review of procurement files for the 17 sampled projects showed that the solicitations were conducted openly and transparently, assessment criteria were defined properly, and the evaluations of bids were documented adequately. However, the procurement actions did not consistently achieve the desired outcomes upon project implementation as the selected contractors did not always comply with the

contractual terms and requirements such as timely mobilization, provision of sufficient workforce possessing required skills and experience and delivering on prices quoted in bid documents. The following were noted:

a. Frequent delays, averaging about five months, were experienced in the mobilization of contractors. This occurred in 13 of the 17 sampled projects.

b. A contract for the construction of a conventional water treatment plant with an NTE value of $876,000 had to be terminated 16 months after the contract start date because of the contractor's unwillingness to carry out the work at the initially contracted rates.

c. A $2.3 million multi-year contract for constructing TCC ablutions in nine locations was in the process of cancellation because of the contractors' inability to mobilize and commence the contracted work and the contractor's failure to improve its performance despite several interventions by the Mission.

d. The performance reports for a contractor executing the installation of accommodation units costing $209,000 indicated that the contractor's personnel were not adequately qualified as required in the terms of the contract, resulting in considerable delays in contract execution. OIOS also noted the lack of personnel with requisite skills in the hard-walled ablutions project performance reports. As a result, the contractor did not comply with the agreed-upon scope of work and project specifications and did not deliver the materials needed to complete the work on time.

26. The above occurred because the procedures for evaluating vendor bids were not robust enough to detect when vendors underbid or submit unrealistic proposals. For example, the vendors should have reasonably considered the landed costs of goods and supplies, the scarcity of an appropriately skilled workforce, and the capacity of contractors to carry out multiple projects simultaneously. The failure to detect overly ambitious bids prior to the award of contracts had, in some cases, resulted in incorrect vendor selection decisions that ultimately led to terminations of contracts, renegotiations of contract terms, higher project costs and delays in the completion of projects. After the completion of the audit, OIOS noted that mechanisms for increased collaboration between the Procurement and the Engineering Sections were established through fortnightly meetings and joint review of vendors' suitability for contract award.

(3) UNMISS should strengthen vendor selection procedures to ensure they are robust enough to detect potential underbidding and unrealistic bid submissions by vendors.

UNMISS accepted recommendation 3 and implemented it as of 30 September 2022 with the Engineering and Procurement Sections now holding fortnightly meetings to discuss progress on procurement action. In addition, the Engineering Section is reviewing the vendors' suitability for contract awards in partnership with the Procurement Section.

C. Project execution, monitoring and controlling

Project costs were incorrectly captured

27. UNMISS did not accurately capture and record costs relating to engineering projects. Although the Umoja system had the capabilities to set up cost collectors for each asset under construction to

facilitate effective monitoring of projects, the system was either not used or ineffectively utilized to capture and track project costs.

28. There were no cost collectors or budgets for any of the 8 in-house projects implemented during the audit period, and 2 of the 26 outsourced projects with a total NTE value of $305,000 did not have cost collectors set up in Umoja. Also, of the 26 outsourced projects: (a) for 10 projects with a total cost of $16.1 million, the cost captured in Umoja was $11.9 million indicating a shortfall of $4.2 million, (b) for 5 projects with a total cost of $377,000, only $286,000 was captured, however, this amount was erroneously charged to other projects; (c) in one other project which had not yet commenced a project cost of $17,000 was mistakenly charged to the project; and (d) two projects below the capitalization threshold of $100,000 were incorrectly capitalized due to erroneous allocation of costs. As a result, the project costing reports in Umoja were inaccurate and could not be relied upon by project managers to monitor project costs and asset capitalization effectively.

29. The above occurred because the project managers needed to be proficient with using Umoja to capture and review project cost information. However, after the audit fieldwork in May 2022, UNMISS trained its field engineers on Umoja assets under construction user role; and further, in September 2022 appointed a United Nations Volunteer to monitor and follow-up on cost allocation for ongoing and new projects.

(4) UNMISS should review costs allocated to all past and ongoing projects and take corrective action where project costs were incorrectly captured.

UNMISS accepted recommendation 4 and implemented it as of 30 September 2022 with the appointment of a United Nations volunteer in the Finance and Budget cell to monitor and follow up on cost allocation for ongoing and new projects. Corrective actions have also been undertaken where project costs were incorrectly captured.

Need to strengthen project supervision during the implementation stage

30. Regular monitoring and supervision of projects are vital to ensuring that they are implemented per agreed-upon specifications, design and quality and that problems encountered are addressed promptly.

31. UNMISS had standard key performance indicators (KPIs)[5] included in all engineering contracts to monitor the performance of contractors. However, the Engineering Section did not collate and summarize relevant data to facilitate reporting on the indicators. Additionally, regarding the periodic contractor performance reports (CPRs) prepared for vendors, there was no consistency with the ratings as they sometimes contradicted each other or did not always align with actual performance, as noted in the following instances:

a. Despite delays of up to eight months in executing a reinforced cement concrete wall project with an NTE of $777,681, the CPR indicated that the contract was completed on schedule.

b. In another contract for the construction of hard-wall ablutions with a total cost of $2.3 million, an initial CPR dated 21 December 2020 indicated that the contractor kept to schedule, had sufficiently skilled workers, and that materials arrived on time. Second and subsequent CPRs, including one

[5] The standard KPIs used by UNMISS for engineering contracts are: (i) mobilization; (ii) project schedule; (iii) environmental conservation; and (iv) safety.

dated 22 April 2021, provided negative responses to the same questions, and at the time of the audit, the contract was recommended for termination due to the contractor's non-performance.

32. Further, there was no documented evidence that project managers or field engineers conducted regular inspections to monitor ongoing projects and they did not periodically conduct performance review meetings with contractors. Also, there were no checklists showing the details of inspections carried out. For example, there was no documentation of inspection visits for a project to construct a solar panel costing $2 million over 17 months of project implementation. Regarding another project for replacing contingents' ablutions with a budgeted cost of $2.3 million, no performance review meetings were conducted over eight months. Performance review meetings with contractors were not held in 121 of 215 cases. In addition, monthly progress reports expected from contractors were not submitted in 173 of 255 cases.

33. OIOS field visits to projects in Bor, Juba and Wau showed low-quality work and materials used by contractors and non-compliance with project designs, particularly in the construction of ablution units. For example:

a. Recently renovated buildings in Juba had tiles peeling off and broken ablution fittings, such as shower heads and tap handles. Also, three hard-wall ablutions in Wau completed in February 2021 had leakages that prevented their usage for almost one year.

b. In Bor, three ablutions were fitted with only three of the four required urinals, and the installed urinals were smaller than required. Fittings such as shower rails, toilet paper rails and flexible water pipes were also missing in some ablutions. Lights for the ablutions were not installed over the sink area and some toilets were not fitted at the centre of the room as per the design. However, all the ablutions were certified as completed by the Engineering Office in Bor, and these deficiencies were not reflected in the inspection reports.

34. Although remedies such as invoking liquidated damages, drawing on performance securities, or terminating contracts existed with the individual contracts, the Mission had not always been effective in applying these remedies when non-performance issues arose. For instance, despite the poor performance of the contractor responsible for the construction of ablutions, the option to extend the contract for an additional year was granted in November 2020. It was only until August 2021 (i.e., 22 months into the contract) that the Chief Engineering Section recommended terminating the contract. The process for termination was not yet concluded as of August 2022, a year after the recommendation.

35. The above resulted from ineffective monitoring of contractors' work and performance. The Engineering Section had not implemented an effective system to monitor the progress of engineering projects. This impeded timely intervention to correct defects and poor-quality work. Further, it did not also allow the Organization to take advantage of performance credits[6] provided in individual contracts to mitigate against defaults by contractors.

(5) UNMISS should enhance its supervision of engineering projects by ensuring that: (a) physical inspections of engineering projects and performance evaluations of contractors are conducted at regular intervals during construction, and the results are properly documented for necessary action; and (b) key performance indicators specified in individual contracts are monitored, and where applicable, the performance credits are

[6] Performance credits are the liquidated damages payable by the contractor for a failure to meet service levels specified in a contract

recovered from contractors.

UNMISS accepted recommendation 5 and stated that the Mission would update the guidance on project management and reporting as part of the revised UNMISS project management Standard Operating Procedures to ensure that the necessary requirements, including performance indicators are indicated. Field Administrative Officers would be vested with the responsibility as project managers to report any updates or issues on project progress to the Contract Management Unit that would enforce contract provisions and escalate cases to the Procurement Section as required.

There were delayed payments to contractors and cost recoveries needed to be made from some contractors

36. OIOS review of 93 of 418 payments to contractors (equal to $17.2 million of the total amount of $24.9 million) showed that project managers certified project completions before payment and, where applicable, performance retention of 10 per cent was retained during the warranty/defect liability period.

37. However, OIOS noted that payments to contractors were delayed and at times such delays impeded the timely completion of projects. A review of payment timelines indicated that the delayed payments were particularly acute prior to October 2021 because the Engineering Section had not established an adequate tracking system to ensure that certified invoices were timely processed in Umoja. In 35 of the 93 cases, payments were processed on an average of 64 days exceeding the required 30 days.

38. The Engineering Section introduced new measures in October 2021 such as invoice tracking to mitigate payment delays. These measures did not, however, significantly address the problem as an analysis of 25 additional invoices received after implementation of the new measures indicated that it took an average of 40 days to process invoices, with one extreme case of 153 days. Delays in processing payments could negatively impact the reputation of the Mission, and it also affects the timely completion of ongoing or future projects. This was noted in correspondences from four contractors who attributed delays in contract completion to delayed payments of their outstanding invoices.

39. Additionally, controls were inadequate to ensure that the contractor bore costs for repairs during the warranty/defects liability period. For example, a review of the logs of 3,695 facilities maintenance work orders in Juba from December 2021 to February 2022 showed that UNMISS had performed some repairs and maintenance for projects which were still within the defects liability period for 16 work orders due to the unavailability of the contractors. However, there was no mechanism to compute related costs for such work and initiate recovery from the contractors.

40. Further, UNMISS had not recovered costs of approximately $3,000 for air transportation of building materials provided to two contractors on a cost-recovery basis from January to March 2021. Although the amounts were not significant, there was a need to establish procedures to track and recover the costs of services provided to engineering contractors to mitigate the risk of financial losses. After the audit, the Engineering Section implemented an invoice tracking system processing workflow that reflected the invoice processing timelines.

(6) UNMISS should improve payments to contractors by establishing and monitoring appropriate processing timelines and benchmarks.

UNMISS accepted recommendation 6 and already implemented an invoice tracking system processing workflow reflecting timelines that need to be adhered to by all stakeholders to comply with the United Nation's 30 days of invoice processing timeline. Details of all invoices are entered in a SharePoint folder developed by the Business Analytics and Compliance Section, and the

Finance and Budget cell of the Engineering Section monitors compliance with timelines specified in the invoice processing workflow and takes action as required.

There was no mechanism to monitor the efficiency of Horizontal Military Engineering Companies for engineering support

41. HMECs, in their role as engineering enablers for the Mission, were utilized to carry out various routine in-house tasks and projects related to main supply routes. UNMISS needed to ensure that engineering enablers were optimally utilized in carrying out tasks and therefore required to submit relevant details of personnel hours and machine hours for each task assigned.

42. During the audit period, UNMISS issued 341 orders to the five HMECs for routine in-house tasks and projects. However, the Engineering Section did not follow up or collect the required details on personnel and machine hours needed to provide a basis for assessing their utilization and efficiency.

(7) UNMISS should ensure that relevant performance data on tasks assigned to military engineering units are collated, analyzed and reported on by the Engineering Section to have a basis for assessing their utilization and efficiency in carrying out assigned tasks.

UNMISS accepted recommendation 7 and stated that the Mission would reinforce the existing mechanism for monitoring the performance of military engineering units by updating the project management Standard Operating Procedures that would require the engineering units to submit the weekly reports to the Senior Staff Officer, Engineering Section who will be responsible for monitoring and escalating matters relating to the military engineering performance.

D. Project close-out process

The project close-out process needed to be improved

43. UNMISS close-out procedures comprised preparation of certification of completion, final contractor performance evaluation and project completion report, including documentation of lessons learned.

44. A review of the close-out process for 9 of the 13 completed projects with a total NTE value of $9.9 million indicated that while certificates of completion and performance evaluations were duly prepared, only 2 of the 9 projects had project completion reports prepared by the project engineer. There was also no formal process for collating, documenting and analyzing lessons learned, including issues that led to repeated contract amendments. For instance, there were an average of six amendments per project for the 13 completed projects for various reasons, including changes in specifications, technical review of requirements, delays in contract mobilization and payments to the contractor.

45. Other issues not captured as lessons learned and analyzed to inform future project planning included: (a) root causes for the delays in the completion of the nine projects by an average of six months compared to the planned completion date, (b) poor planning and delays that resulted in the construction of a hard-wall kitchen for a formed police unit that was repatriated prior to its completion; (c) refusal by contractors for two projects to return to the site and do remediation work on defects identified during the warranty period; and (d) in the case of the solar farms project, procurement of batteries which turned out to be unusable and had not been appropriately disposed of, thereby constituting environmental and health hazard.

46. The above resulted because of inadequate supervisory controls over the close-out procedures. As a result, the Mission may miss valuable benefits from previous experiences.

(8) UNMISS should strengthen the supervisory controls over close-out procedures for completed projects and incorporate lessons learned.

UNMISS accepted recommendation 8 and stated that the updated project management Standard Operating Procedures would define supervisory controls and reinforce the role of project managers and project engineers regarding project close-out procedures. It would also include enhanced guidance on close-out procedures and reporting requirements that will be required to provide quality assurance and feed into future planning.

IV. ACKNOWLEDGEMENT

47. OIOS wishes to express its appreciation to the management and staff of UNMISS 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 engineering projects in the United Nations Mission in the Republic of South Sudan

Rec. no.	Recommendation	Critical[7]/ Important[8]	C/ O[9]	Actions needed to close recommendation	Implementation date[10]
1	UNMISS should enhance the governance and oversight of engineering projects by: (a) improving the visibility of the Steering Group through the adoption of formalized and documented methods of providing guidance and taking key decisions on resource allocation; (b) strengthening the project identification and selection process through the formal articulation of evaluation criteria; and (c) enhancing project status reporting to capture potential risks and challenges with ongoing projects.	Important	O	Receipt of evidence that the Mission had formalized and documented the modus operandi of the Steering Group, formally outlined evaluation criteria for project selection, and enhanced project status reporting by including risks and challenges with ongoing projects.	30 December 2023
2	UNMISS should strengthen: (a) the project planning and design process to minimize unplanned changes in technical specifications and engineering project schedules and avoid delays in project execution; and (b) the preparation, collation and filing of project planning documents, including cost estimation schedules.	Important	O	Receipt of evidence that: (a) the project planning and design process is adequate and effectively minimizing (i) unplanned changes in technical specifications and engineering project schedules and (ii) delays in project execution; and (b) the procedures for the preparation, collation and filing of project documents, including cost estimation schedules, are effective.	1 July 2023
3	UNMISS should strengthen vendor selection procedures to ensure they are robust enough to detect potential underbidding and unrealistic bid submissions by vendors.	Important	C		Implemented
4	UNMISS should review costs allocated to all past and ongoing projects and take corrective action where project costs were incorrectly captured.	Important	C		Implemented

[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 UNMISS in response to recommendations.

ANNEX I

STATUS OF AUDIT RECOMMENDATIONS

Audit of engineering projects in the United Nations Mission in the Republic of South Sudan

Rec. no.	Recommendation	Critical[7]/ Important[8]	C/ O[9]	Actions needed to close recommendation	Implementation date[10]
5	UNMISS should enhance its supervision of engineering projects by ensuring that: (a) physical inspections of engineering projects and performance evaluations of contractors are conducted at regular intervals during construction, and the results are properly documented for necessary action; and (b) key performance indicators specified in individual contracts are monitored, and where applicable, the performance credits are recovered from contractors.	Important	O	Receipt of evidence that the Mission had enhanced project supervision by implementing physical inspections of engineering projects and performance evaluations of contractors are regularly performed and documented, and key performance indicators specified in contracts are monitored and performance credits are recovered from contractors.	1 July 2023
6	UNMISS should improve payments to contractors by establishing and monitoring appropriate processing timelines and benchmarks.	Important	C		Implemented
7	UNMISS should ensure that relevant performance data on tasks assigned to military engineering units are collated, analyzed, and reported on by the Engineering Section to have a basis for assessing their utilization and efficiency in carrying out assigned tasks.	Important	O	Receipt of evidence that relevant performance data on tasks assigned to military engineering units are collated, analyzed and reported on by the Engineering Section to have a basis for assessing their utilization and efficiency in carrying out assigned tasks.	1 July 2023
8	UNMISS should strengthen the supervisory controls over close-out procedures for completed projects and incorporate lessons learned.	Important	O	Receipt of evidence that the Mission has put in place adequate supervisory controls over close-out procedures for completed projects, which incorporate lessons learned.	1 July 2023

APPENDIX I

Management Response

UNITED NATIONS
United Nations Mission
in South Sudan

UNMISS

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en Soudan du Sud

Date: 14 November 2022

To: Mr. Kemal Karaseki
Acting Chief, Peacekeeping Audit Service
Internal Audit Division, OIOS

From: Nicholas Haysom
Special Representative of the Secretary-General
United Nations Mission in the Republic of South Sudan

Subject: **Management Response to the draft report of the Audit of Engineering Projects in the United Nations Mission in the Republic of South Sudan (Assignment No. AP2020-633-11)**

1. UNMISS acknowledges receipt of the draft report from OIOS on the Audit of Engineering Projects dated 31 October 2022.

2. Please find attached the Management Response to the recommendations as indicated in Appendix I.

3. Thank you for your consideration and support.

cc: Ms. Victoria Browning, UNMISS
Mr. Qazi Ullah, UNMISS
Mr. Timothy Crowley, UNMISS
Mr. Yonas Araia, UNMISS
Mr. Rahul Batra, UNMISS
Ms. Elizabeth Gregory, UNMISS
Mr. Jeffrey Lin, OIOS

APPENDIX I

Management Response

Audit of engineering projects in the United Nations Mission in the Republic of South Sudan

Rec. no.	Recommendation	Critical[1]/ Important[2]	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
1	UNMISS should enhance the governance and oversight of engineering projects by: (a) improving the visibility of the Steering Group through the adoption of formalized and documented methods of providing guidance and taking key decisions on resource allocation; (b) strengthening the project identification and selection process through the formal articulation of evaluation criteria; and (c) enhancing project status reporting to capture potential risks and challenges with ongoing projects.	Important	Yes	Chief, MSC	30 December 2023	The Mission has determined that the implementation of this recommendation will require a review and revision of the Terms of Reference (TOR) for the Project Management Group. The said TOR was adopted in 2020 and is due for review in the current year. The review will cover the gaps identified by the audit on the governance and oversight of engineering projects, particularly the provision of guidance to the Steering Group, the adoption of project identification and selection criteria, and project reporting. Through the review, the roles and responsibilities of the different levels involved in the TOR will be clarified. The review will also consider relevant provisions from the 2018 DPKO Guidance Document entitled "Governance of Major Projects in Field Missions". The Mission has estimated the review, re-drafting and implementation process to be completed by 30 December 2023.
2	UNMISS should strengthen: (a) the project planning and design process to minimize unplanned changes in technical specifications and engineering project schedules and avoid delays in project	Important	Yes	Chief, Engineering Section	1 July 2023	(a) The Mission is already working on an update to its existing Project Management SOP that will address the first part of the recommendation. The SOP will include provisions to:

[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.

APPENDIX I

Management Response

Audit of engineering projects in the United Nations Mission in the Republic of South Sudan

Rec. no.	Recommendation	Critical[1]/ Important[2]	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
	execution; and (b) the preparation, collation and filing of project planning documents, including cost estimation schedules.					– Strengthen project identification and scoping processes to ensure that all stakeholders are clear on the requirements and deliverables. – minimize the risk of scope changes and delays to the implementation of projects; and – reinforce project management principles to be followed. (b) Engineering Section will ensure that all projects have initiation and scoping documents that clearly state the deliverables; these and all other project files and planning documents, including cost estimations, will be filed in the section's SharePoint folder.
3	UNMISS should strengthen vendor selection procedures to ensure they are robust enough to detect potential underbidding and unrealistic bid submissions by vendors	Important	Yes	Chief, Engineering Section	Implemented	UNMISS considers this recommendation as already implemented as of 30 September 2022. Engineering and Procurement Sections now have fortnightly meetings to discuss progress on procurement action. In addition, Engineering Section is reviewing the vendors' suitability for contract award in partnership with Procurement section. Evidence of implementation has been submitted to OIOS. This recommendation should no longer be included in the final audit report.
4	UNMISS should review costs allocated to all past and ongoing projects and take	Important	Yes	Chief, Engineering Section	Implemented	UNMISS considers this recommendation as already implemented as of 30 September 2022. Engineering Section has appointed a UNV in the

APPENDIX I

Management Response

Audit of engineering projects in the United Nations Mission in the Republic of South Sudan

Rec. no.	Recommendation	Critical[1]/ Important[2]	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
	corrective action where project costs were incorrectly captured.					Finance and Budget Cell to monitor and follow-up cost allocation for ongoing and new projects. Corrective action has been undertaken where project costs were incorrectly captured. Evidence of implementation has been submitted to OIOS. This recommendation should no longer be included in the final audit report.
5	UNMISS should enhance its supervision of engineering projects by ensuring that: (a) physical inspections of engineering projects and performance evaluations of contractors are conducted at regular intervals during construction, and the results are properly documented for necessary action; and (b) key performance indicators specified in individual contracts are monitored, and where applicable, the performance credits are recovered from contractors.	Important	Yes	Chief, Engineering Section	1 July 2023	The Mission will update the guidance on project management and reporting as part of the revised UNMISS Project Management SOP to ensure that the necessary requirements, including key performance indicators are included. The FAOs will be vested with responsibility as project managers and will be required to report to the Contract Management Unit (CMU) in Engineering Section any updates or issues on project progress. CMU will be responsible for taking up reported issues to enforce contract provisions and escalate cases to Procurement Section as required.
6	UNMISS should improve payments to contractors by establishing and monitoring appropriate processing timelines and benchmarks.	Important	Yes	Chief, Engineering Section	Implemented	UNMISS considers this recommendation as already implemented as of 30 July 2022. Engineering Section has fully implemented an Invoice Tracking System Processing Workflow reflecting timelines that need to be adhered by all stakeholders to adhere to the UN's 30 days of invoice processing timeline. Details of all invoices are entered in a SharePoint Folder developed by the Business Analytics and

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Management Response

Audit of engineering projects in the United Nations Mission in the Republic of South Sudan

Rec. no.	Recommendation	Critical[1]/ Important[2]	Accepted? (Yes/No)	Title of responsible individual	Implementation date	Client comments
						Compliance Section (BACS), and Finance and Budget Cell of Engineering Section monitors compliance of timelines specified in the Invoice Processing Workflow and takes action as required. Evidence of implementation has been submitted to OIOS. This recommendation should no longer be included in the final audit report.
7	UNMISS should ensure that relevant performance data on tasks assigned to military engineering units are collated, analyzed, and reported on by the Engineering Section to have a basis for assessing their utilization and efficiency in carrying out assigned tasks.	Important	Yes	Chief, Engineering Section	1 July 2023	The Mission will reinforce this mechanism by codifying it on the planned Project Management SOP, so that the existing weekly reports produced by military engineering units will be consistently reported through the Office of the SSO Engineering. SSO Engineering will be vested with the responsibility to monitor, and escalate as required, matters related to military engineering performance.
8	UNMISS should strengthen the supervisory controls over close-out procedures for completed projects and incorporate lessons learned.	Important	Yes	Chief, Engineering Section	1 July 2023	The updated Project Management SOP will define supervisory controls and reinforce the role of project managers and project engineers in this regard. It will also include enhanced guidance on close out procedures and reporting requirements that will be required to provide quality assurance and feed into the future planning.