OFFICE OF
THE AUDITOR GENERAL
OF THE FEDERAL REPUBLIC OF SOMALIA

PERFORMANCE AUDIT REPORT ON THE WATER FOR AGRO-PASTORAL PRODUCTIVITY AND RESILIENCE, THE BIYOOLE PROJECT

August 2024

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Ref.: OAG/AG-539/2024 *Date: 30/08/2024*

The Speaker of the House of the People, FRS

The Speaker of the Upper House, FRS

Mogadishu

PERFORMANCE AUDIT OF THE WATER FOR AGRO-PASTORAL PRODUCTIVITY AND RESILIENCE (BIYOOLE) PROJECT.

In accordance with Chapter 3, Article 5(17) of the Law of the Office of the Auditor General of the Federal Republic of Somalia (Law No. 14, 10th September 2023), I have conducted a performance audit of the Water for Agro-Pastoral Productivity and Resilience (BIYOOLE) Project and hereby submit this report.

This audit was conducted in accordance with the International Standards of Supreme Audit Institutions (ISSAI 3000) for Performance Auditing. These standards require the audit to be planned and executed to obtain sufficient and appropriate evidence, providing a reasonable basis for our findings and conclusions based on the audit objectives. I believe that the evidence obtained meets these requirements and supports our findings and conclusions.

I would like to express my gratitude to my team for their efforts in conducting this audit. I also extend my appreciation to the staff of the BIYOOLE Project Coordination Unit at the Ministry of Planning, Investment & Economic Development for their cooperation and assistance during the audit period.

H.E. Ahmed Isse Gutale
Auditor General

30th August 2024

Acronyms

MoPIED	Ministry of Planning Investment and Economic Development
PDO	Project Development Objective
OPM	Office of the Prime Minister
VDC	Village Development Community
BOQ	Bill of Quantity
PAD	Project Appraisal Document
POM	Project Operation Manual
PIU	Project Implementing Unit
PCU	Project Coordination Unit
PV	Photovoltaic
WASH	Water, Sanitation, and Hygiene

Executive Summary

In response to escalating drought conditions and widespread agricultural and livestock crises in Somalia, the Government initiated the Water for Agro-pastoral Productivity and Resilience (BIYOOLE) Project in June 2019, with USD 42 million grant received from the World Bank. The project aimed to improve water access, support sustainable agriculture, and enhance livestock productivity in the country's dry regions. However, ongoing drought conditions through 2022, which displaced 759,000 people and impacted 6.1 million, indicated that the project's outcomes may not have sufficiently addressed the crisis. This prompted the Auditor General to launch a performance audit to assess whether the BIYOOLE Project achieved its goals and to identify potential areas for improvement where possible.

The Ministry of Planning, Investment and Economic Development was the key player responsible for the national coordination and supervision of the BIYOOLE project implementation.

The main objective of the audit was to evaluate whether the national Project Coordination Unit (PCU) had ensured successful implementation of the development of multiple water sources and agriculture and livestock support activities in a manner that contributed to the project's overall objective.

The key Observations included:

- Two out of seven water points visited demonstrated good and solid construction practices, where other three dams showed deficiencies in construction quality, raising concerns about their long-term performance.
- Two dams out of the seven water points inspected were not operational anymore.
- There were some missing vital construction components at sites, such as UV water treatment systems and power generators, and water tanks.
- Damaged infrastructure, and inadequate installation of essential equipment; and
- The community gardens established yielded a varied mix of operational and non-operational outcomes.

These findings led the audit to conclude that there were significant performance issues in relation to 66% of the sites visited, impacting the overall effectiveness and sustainability of the activities implemented in those sites and benefits of the Project to the communities in those areas it aimed to serve.

The audit recommends that the PIU should address the infrastructure and agricultural deficiencies identified and ensure proper planning and implementation of similar projects in the future.

CHAPTER ONE: INTRODUCTION

1.1.Background

In 2019, Somalia was entering into another crisis, with spring "gu" rains failing following abnormally low autumn "deyr" rains, causing widespread crop failure and accelerated decline in livestock productivity. This was likely to result in the numbers of people in crisis and emergency to climb back up to 2016/7 levels of around 2.2 million – and humanitarian financing was proving harder to mobilize. The consecutive failures of the 2018 autumn season, the 2019 spring rains, and the 2019 winter season had a significant combined impact. These events resulted in widespread crop failure and a decline in livestock productivity, leading to a rapid deterioration of food security in the affected areas. The signs of this crisis included irregular pastoral migration, deteriorating livestock conditions, reduced milk production, increased displacement due to drought, and a rise in drought-related diseases. These negative effects were already widely observed. (1)

To improve water and agricultural services for agro-pastoralist communities in Somalia's dry-land areas, the Government of Somalia approved the Water for Agro-pastoral Productivity and Resilience (BIYOOLE) Project on 25th June, 2019, and this project ended on 28th February, 2023. The initiation of BIYOOLE project intended to respond to the existing drought crisis by developing multiple water sources and providing agriculture and livestock support. The BIYOOLE Project primarily focused on improving access to multiple-use water resources (for human consumption, livestock, small-scale irrigation, and environmental services) in dry lands of Somalia. In doing so it was expected to, increase the land area under sustainable landscape management practices, and reaching targeted beneficiaries with agricultural services as well as promoting the uptake of productivity by enhancing innovations among target rural communities.

The project was funded by World Bank as a grant at the cost of $42 million. The Ministry of Planning, Investment, and Economic Development was the key player responsible for the national coordination and supervision of the project implementation. Other key ministries which were part of the project steering committee included, Ministry of Agriculture and Irrigation; Ministry of Energy and Water Resources; Ministry of Livestock, Forestry and Rangeland; and Environment at the office of the Prime Minister.

The BIYOOLE Project aimed to mitigate drought's impact by establishing multiple water sources to support agriculture and livestock development. The specific project development objective according to the Project Appraisal Document (PAD) was to develop water and agricultural services among agro-pastoralist communities in dry-land areas of Somalia.

1.2.Motivation for the Audit

The motivation for conducting the audit on the implementation of the BIYOOLE Project stemmed from reports of water scarcity highlighted on websites. The web pages indicated that in 2022, Somalia was still facing drought crises in many areas, including those where this project was implemented.

In 2022, relief website posted information sourced from WASH cluster report, it highlighted that the drought conditions affected about 6.1 million people and displaced 759,000 people from their homes in search of water, food, and pasture. Women and girls continued to bear the brunt of the crisis. The impact of the drought and its resulting crisis overwhelmed the national response capacities of Somalia. It was estimated at the time, that up to 80 per cent of the water sources across the country are drying up, and as of 23 April 2022, an estimated 4.2 million people were facing acute water shortages with over 159 strategic communal boreholes needed urgent upgrading to restore their functionality. (2)

The foregoing indicated that the implementation of the BIYOOLE project may not have achieved its set objectives, despite the fact that material resources were committed to the project. Therefore, this has motivated the Auditor General to carry-out a performance audit on the BIYOOLE project. The audit was further motivated by performance issues identified during the preliminary study of the project.

References:

1. https://reliefweb.int/report /Somalia/
2. https://reliefweb.int/report/somalia/somalia-water-shortage-update-23-april-2022

CHAPTER TWO: AUDIT DESIGN AND METHODOLOGY

This chapter outlines the audit objective, scope and methodology, focusing on assessing the implementation of water points, agriculture, and livestock support activities under the BIYOOLE project. It details the audit questions, criteria, sources of the criteria and data collection methods, including document reviews, interviews, and site visits. Challenges encountered during the audit process, such as limited site access, is also discussed.

2.1.Audit Objective

The main audit objective was to analyse whether the PIU had successfully implemented the development of multiple water sources and agriculture and livestock support activities in a way that contributed to the overall project objectives, which were to develop water and agricultural services among agro-pastoralist communities in dry-land areas of Somalia.

The sub-objectives of the audit were to assess whether the:

a. The project activities of multiple water sources and agriculture and livestock support were implemented as per planned; and
b. The PCU at the Federal level effectively managed the development of multiple water points and agriculture and livestock activities.

2.2.Audit Questions, Assessment Criteria and Sources

The table below outlines the audit questions, criteria, and sources of the criteria used for the audit. The audit team analysed how the PIU implemented the development of multiple water points, as well as agriculture and livestock activities, to determine whether the audit objectives were achieved.

Audit questions	Assessment criteria	Sources
Audit Question1- To what extent were project activities (i.e. multiple water sources, agriculture and livestock support) implemented as per planned?		
Sub-question 1.1- Were the specific objectives of	According to the Project Appraisal Document (PAD) the	Project Appraisal Document

the development of multiple water sources achieved?	specific objective of this component was to deliver both improved human health outcomes and water for productive uses (mainly agricultural production and agroforestry services for landscape restoration), thereby making the targeted communities more resilient to droughts and floods, as restored landscapes suffer less from erosion and are thus more resilient to flooding.	
Sub-question1.2- Were the objectives relating to agriculture and livestock activities achieved?	According to PAD, this component will stimulate the growth and development of productive and sustainable income-generating activities through facilitating communities' access to productive assets and extension services needed for agriculture and livestock production.	Project Appraisal Document
Sub-question1.3- Did the PIU ensure that all water points constructed or rehabilitated were of good quality?	BOQ specifications	The contracted BOQ
Audit question2- Did the PCU at the Federal Ministry level, effectively manage the development of multiple water sources and agriculture and livestock support?		
Sub-question2.1- How did the PCU ensure the selection of the relevant sites at the planning stage for the water points constructed and rehabilitated?	According to Project Operation Manual (POM), the implementation of the key activities in the development of multiple water sources include hiring engineering consulting firm supporting the site selection	Project Operation Manual (POM)

	and water source construction monitoring by each participating government to take on individual site feasibility studies as well as investment plans.	
Sub-question2.2- Did the PIU ensure the completion of all water points planned to be constructed and rehabilitated and are they currently functional?	According to the list provided by the Project Implementing Unit, 45 water points were planned for construction and 15 for rehabilitation.	Work plan provided by the PIU
Sub-question2.3- Did the PIU ensure that relevant activities relating to agriculture and livestock were implemented accordingly to plan?	According to the PAD, the activities under agriculture and livestock support included the establishment of community gardens and fruit tree groves (as demonstration plots); procurement and distribution of improved seeds and other inputs; and introduction of high-efficiency micro-irrigation systems, soil micronutrient assessments, and needed training focusing on promoting farmer adoption of climate-smart farming).	Project Appraisal Document (PAD)

2.3.Audit Scope and Limitations

The focus of the audit was to evaluate the functionality and effectiveness of the constructed and rehabilitated water points, as well as agriculture and livestock support activities implemented under BIYOOLE project by the Project Unit coordinated by the Ministry of Planning Investment and Economic Development. The audit specifically focused on the regions of Puntland, Galmudug, and the Southwest States, where these activities were carried out. The audit period covered the years 2020 to 2023, which is the timeframe for the implementation of the project.

A total of 26 out of 46 water points constructed or rehabilitated were selected for audit field verification visits. Specifically, 4 out of 11 sites were in Galmudug State, 13 out of 23 sites were in Puntland State, and 9 out of 12 sites were in Southwest State. During the main study phase of the audit, the team successfully inspected 7 sites, with 3 located in Galmudug State and 4 in Southwest State. However, the team was unable to access all 13 selected sample sites in Puntland State, due to political issues between the Federal Member State and the Federal Government of Somalia. Additionally, security concerns prevented access to the remaining selected sample sites in Galmudug and Southwest State.

2.4.Methods for Data Collection

The Audit Team used three main methods for data collection namely, documents review, interviews, and site inspections. These methods are as described in detail below.

2.4.1. Documentary reviews

The audit team reviewed various documents to gain an understanding of the project and establish the audit criteria and other information which will guide the audit execution. At PIU level, documents such as finance agreements, project appraisal document, project operations manual, narrative/ M&E reports, progress reports, and work plans were reviewed. *Table 2.4.1 in appendix I shows the list of documents assessed with the specific purpose.*

2.4.2. Interview

Interview sessions were conducted with key stakeholders from the project management team and some of the beneficiaries, to gather detailed information on the project's implementation. These interviews aimed to assess project performance, clarify findings, and corroborate data from the project reports. Interviewees included the Federal project coordinator, finance specialist, procurement specialist, monitoring and evaluation specialist, project engineer, and the last chairperson of the project steering committee. During the site visits, the audit team also engaged in focused discussions with beneficiaries to evaluate improvements since the project implementation. *Table 2.4.2 in the Appendix II the stakeholders interviewed.*

2.4.3. Site inspections

The performance audit team undertook site inspections as part of their evaluation process, specifically focused on sites located in Galmudug and Southwest States. The selection of the sites visited was based on criteria such as ease of accessibility and the absence of security risks. This methodological approach was employed to validate the existence, functionality of water and agriculture related activities constructed at these

specific locations. By physically visiting these sites, the audit team aimed to gather first-hand evidence ensuring the accuracy of their findings regarding the development of multiple water points, agricultural, and livestock-related components of the project. The team was unable to access all the sampled sites in Puntland State, due to political issues between the Federal Member State and the Federal Government of Somalia. Additionally, security concerns prevented access to some sites in Galmudug and Southwest State. *Table 2.4.3 in Appendix III indicates the sites visited.*

2.5.Audit Standards

We carried out the audit in accordance with the International Standards of Supreme Audit Institutions (ISSAIs), relevant to performance auditing.

These standards require that the audit is planned and performed to obtain sufficient appropriate evidence to provide a reasonable basis for the audit findings and conclusions based on the audit objectives.

CHAPTER THREE: DESCRIPTION OF THE AUDIT AREA

This chapter provides general description of the audit area, its legislations, objectives, organizational structure, roles and responsibilities of the key actors involved in the project implementation, systems and processes and the fund structure of audited area.

3.1.General Description

The Water for Agro-pastoral Productivity and Resilience (BIYOOLE) Project was designed to improve water and agricultural services in agro-pastoralist communities in Somalia's dry-land areas. The project was approved on 25th June, 2019, and it was concluded on 28th February, 2023. The World Bank funded the project with $42 million. The Project Implementation Unit under the Ministry of Planning Investment and Economic Development was the key player responsible the national coordination and supervision of the project implementation. The key ministries that were part of the project steering committee include, the Ministry of Agriculture and Irrigation, the Ministry of Energy and Water Resources, Ministry of Livestock, Forestry and Rangeland, and the Environment at the office of the Prime Minister.

The key project deliverables included:

- **Development of Multiple Use Water Sources.**

This involved key water management infrastructure for harvesting, storing, and delivering water to people, livestock, and for agricultural purposes. The infrastructure was supposed to be designed to deliver both improved human health outcomes and water for productive uses (mainly agricultural production and agroforestry services for landscape restoration), thereby making the targeted communities more resilient to droughts and floods as restored landscapes suffer less from erosion and are thus more resilient to flooding.

- **Agriculture and Livestock Support**

The activities under this were supporting the development and diversification of livelihoods among target communities. It was supposed to facilitate a demand-driven approach to the delivery of agricultural assets and extension services based on community-specific priorities and context-specific conditions, including estimates of water availability and usage. Activities envisioned under this subcomponent included the establishment of community gardens and fruit tree groves (as demonstration plots); procurement and distribution of improved seeds and other inputs; and introduction of high-efficiency micro-irrigation systems, soil micronutrient assessments, and needed training. These investments were intended to help communities increase their production of more nutritious food for household consumption and, where possible, marketable surpluses. Training was meant to focus on promoting farmer adoption of climate-smart farming.

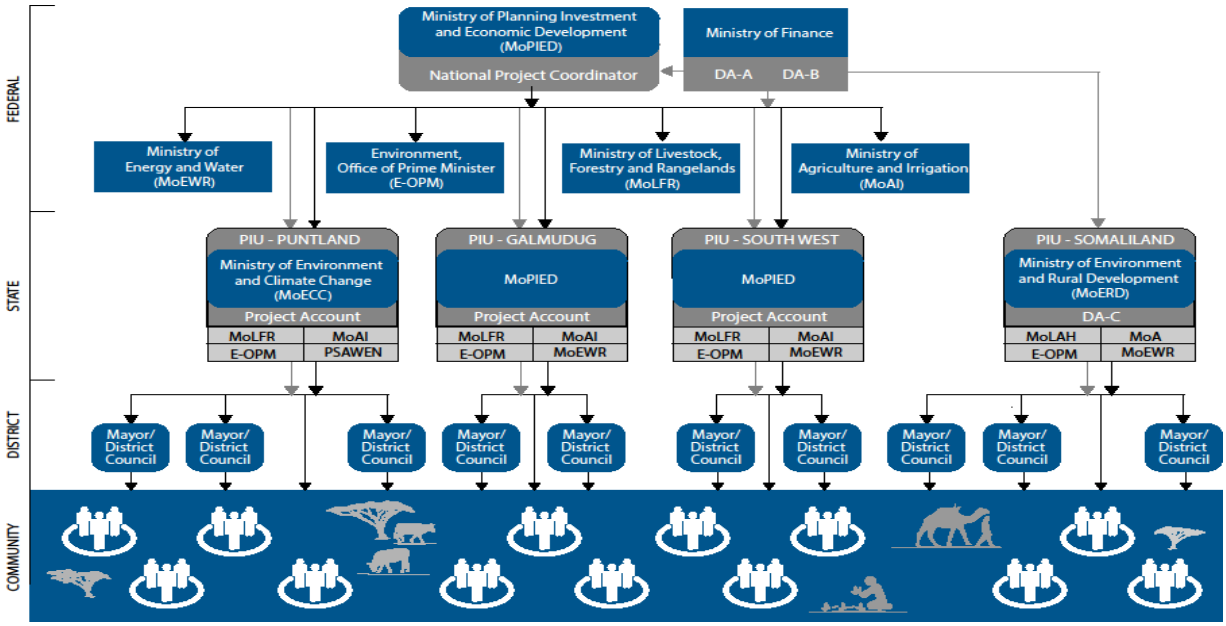
3.2.Legislation

The legislations and mandates are derived from the finance agreement between World Bank and the Government of Somalia (this includes the subsidy finance agreements for the states). Project appraisal document and project operation manual.

3.3.Objectives

According to the Project Appraisal Document, Project Operation Manual, and the Project Development Objective (PDO) was "to develop water and agricultural services among agro-pastoralist communities in dryland areas of Somalia".

3.4.Organizational Structure



3.4.1. Roles and responsibilities of the key actors involved in the implementation of the project.

1. Federal level

a. Inter-Ministerial Steering Committee

The duties and responsibilities included to:

- Chair on a rotational basis by the Ministries of Water and Energy Resources, Ministry of Agriculture and Irrigation, Ministry of Livestock, Forestry and Range and the Environment Directorate in the OPM and meeting quarterly;
- Review and endorse the annual Work Plan and consolidated Annual Budgets;
- Review project quarterly reports and provide strategic guidance;
- Facilitate Inter-Ministerial and Federal Member States dialogue and provide guidance on emerging implementation issues;

- Oversee the proper M&E functioning;
- Ensure the establishment and functioning of project structures at all levels; and
- Ensure the project implementation framework is updated periodically.

b. Ministry of Finance

The duties and responsibilities included to:

- Manage project fund and oversee all project disbursements; and
- Coordinates and consolidates project financial reports.

c. Ministry of Planning, Investment and Economic Development

The duties and responsibilities included to:

- To coordinate project implementation at all levels;
- To house the project coordination
- To oversee monitoring and evaluation aspects of the project;
- Development of Project Communication Strategy;
- Maintaining of robust communication with federal implementing agencies and states to collect project related information;
- To regularly update the project's results framework; and
- Produce quarterly, half a year and annual project status reports (narrative and financial).

d. Federal Implementing Agencies

Ministry of Agriculture and Irrigation, Ministry of Energy and Water Resources, Ministry of Livestock, Forestry and Rangeland, and Environment at the Office of the Prime Minister, had duties and responsibilities including:

- To Provide technical back stopping in their respective areas to the implementing agencies at State level;
- To Provide training coaching and mentoring for State level implementing agencies; and
- To Update relevant policies, strategies, guidelines and working manuals for their respective specialized areas.

2. State Level

a. **State Project Implementation Units (PIU) (Galmudug, Puntland and Southwest States)**

The duties and responsibilities included:

- Planning, budgeting, executing, supervising monitoring, and evaluating all project related activities in their States;
- To procure all service contracts (community mobilization agencies, hydrological assessments, engineering surveys and others);
- To procure all goods (office equipment, furniture, vehicles, improved seeds);
- To procure all works contracts (technical service agencies water infrastructures, demonstrational community garden and fruit groves, Animal health treatment services and others);
- To work closely with the community and village leaders;
- To prepare and submit a periodical budget request to the Ministry of Finance;
- To effect payments to service providers, consultants, contractors and others;
- To liaise with line ministries at the federal level for technical support and guidance; and
- To collect project related information, compiles and reports periodically on project implementation status.

b. Village development committee (VDC)

Overview

- Membership of the VDC comprised all permanent residents of the community.
- If there are internally displaced people in the community, it was recommended that they be included in the planning process so that conflict over resources can be mitigated.
- Led by the committee chair and consisting of at least 7 members with a minimum of 30% of its membership being women).

The duties and responsibilities included:

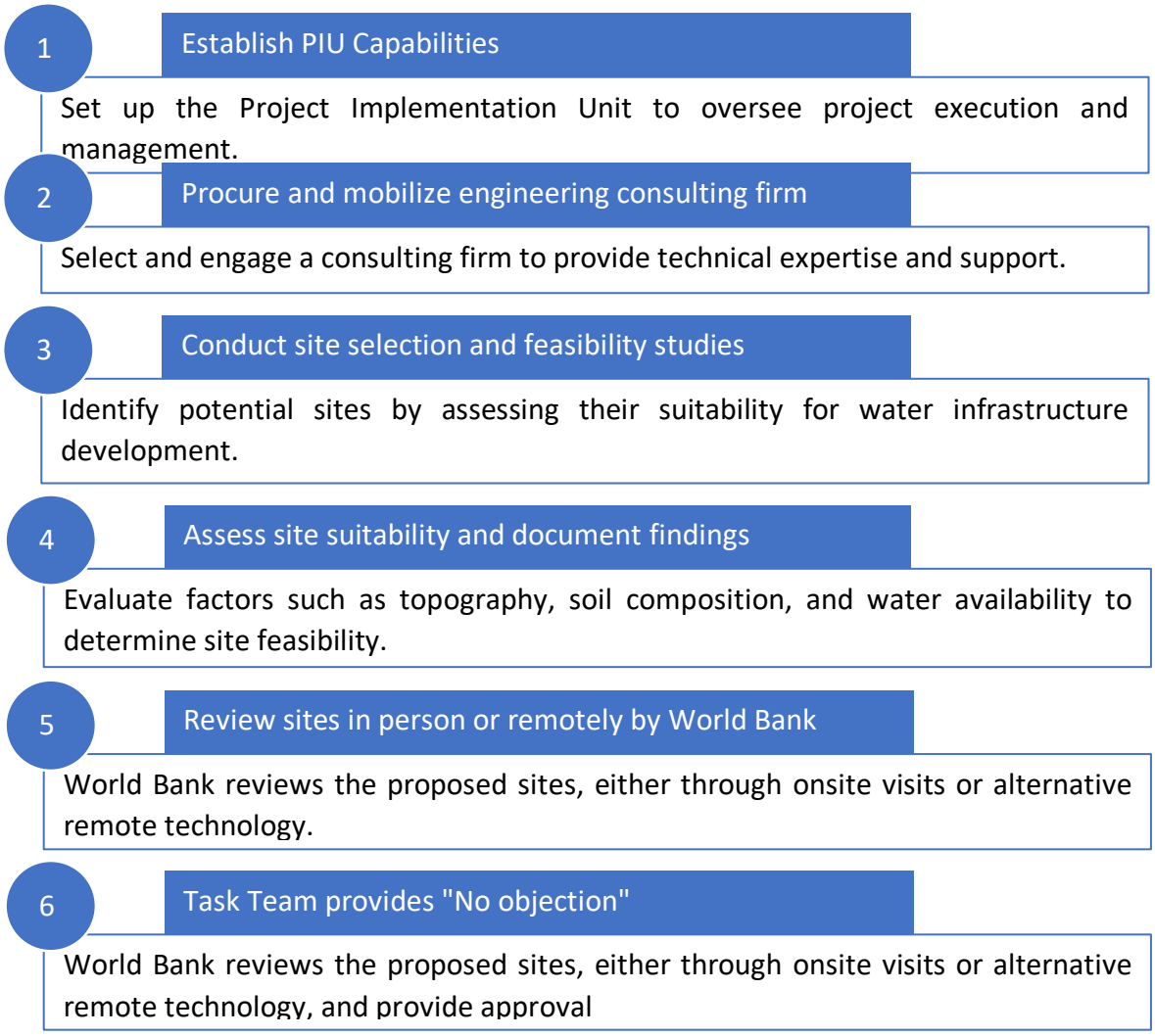
- To organize the community to participate fully in all aspects of the sub project at the community level;
- To facilitate community level discussion, rapid rural appraisals, transect walks, and others;
- To oversee the development of community development plans;
- To facilitate community participation and contribution (labour, material, and others);
- To facilitate and organize community level trainings (on community management, operation maintenance, gender, natural resource management, conflict resolution and others);
- To receive, own, manage and operate community infrastructures;

- To liaise with the state level PIU and line ministries to get technical back stopping and relevant other supports; and
- To collect project related information and reports to the state PIU.

3.5 Systems and Processes

The charts below outline the processes involved in developing multiple water sources, as well as agriculture and livestock activities.

i. Development of multiple use water sources:



7 **Engage with community representatives on project activities**

Collaborate with community leaders or groups to ensure their involvement and address their concerns.

8 **Estimate water availability and inform community mobilization**

Assess the projected water availability based on planned water technologies and involve the community in planning water resource use.

9 **Conduct individual site feasibility studies and investment plans**

Carry out detailed studies and develop investment plans for each selected site.

10 **Process specifications, tenders, and contract awards**

Manage the procurement process for construction works at the selected sites in accordance with project plans.

11 **Construct dams and associated infrastructure**

Undertake construction activities at the selected sites, including the building of dams and related civil works.

12 **Develop and implement contract management plan**

Establish procedures for managing contracts and ensure compliance with World Bank procurement guidelines.

13 **Supervise construction activities**

Monitor and oversee the construction process to ensure quality and adherence to specifications.

14 **Monitor performance post- construction**

Continuously assess the performance and functionality of the water infrastructure after construction.

ii. Agriculture and Livestock Support:

1. Contract NGOs or a UN Agency, supervised by State and local staff from the Ministry of Agriculture, to establish demonstration plots and other farmer training infrastructure.
2. Procure and distribute, via contract with NGO or UN agency, to communities seeds tools, irrigation equipment, soil testing kits, and other inputs, giving priority to certified or quality declared seeds and tools from local suppliers, where possible.
3. Provide extension and other training services to farmer groups for specific crops and CSA technologies and practices. This is to be, led by state and local staff from the Ministry of Agriculture, with support from UN Agency or NGO.
4. Provide farmer training via equipment/service provider contracts, with oversight by the Ministry of Agriculture, on use and management of micro-irrigation systems.
5. Provide training of farmer groups on fodder production systems and storage via contract with Ngo or UN Agency, with oversight by the Ministries of Agriculture and Livestock.
6. Provide farmer training on improved storage techniques for grain and planting seed and constructing household and community storage.
7. Training of Community Animal Health Workers (CAHWs) and procurement of needed supplies/equipment.
8. Monitor activities for quality control and evaluate and document impacts.

3.6 Funding Structure of the Audited Area

Activity Description	Budgeted Amount	Actual Amount
Development of multiple water sources	$15 million	$8.5 million
Agriculture and livestock support	$6 million	$6 million
Total		**$14.5 million**

CHAPTER FOUR: FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the audit findings obtained throughout the performance audit, carried out by analysing whether the national PIU had successfully implemented the development of multiple water sources and agriculture and livestock support activities in a way that contributed to the overall project objectives, which was to develop water and agricultural services among agro-pastoralist communities in dry-land areas of Somalia. The conclusions of the findings are provided in this chapter and recommendations are given to the auditee for improvement.

4.1 Well-functioning Rehabilitated Borehole

According to BOQ specifications contracted with the vendor, the general items to be considered for the rehabilitations of the borehole included new elevated water tank, borehole supplies, solar installation, generator room & caretakers' room, construction of water kiosk and animal troughs.

During the inspection, the audit team discovered that a borehole that was initially constructed in 1991 had been rehabilitated to restore its functionality at Afuugdi site in Southwest State. It was observed that the borehole was functioning effectively, providing high-quality water suitable for domestic and other purposes. An efficient water pumping system was in place, ensuring the smooth operation of the borehole. A kiosk with 6 taps had been constructed for the community and was actively being used. Animal water troughs, designed according to the Bill of Quantities (BOQ), were built for camels, cattle, goats, and sheep. These troughs were being utilized as intended. The condition of the watchman's house was verified to be good. A power generator, including a photovoltaic (PV) system, was present and actively in use to support water flow effectively.

Clean water in the animal Trough at Afuugdi site in Southwest State

Source: OAGS Site Visit Photo taken on 17th March 2024

Conclusion

In conclusion, the rehabilitated borehole was found to be a sustainable water source effectively serving both human and livestock needs in the community.

Recommendations

Following the successful rehabilitation of the borehole observed in Afuugdi village,Baidoa district at Southwest State of Somalia, it is advised that the project implementing unit consistently meets its responsibilities with the same diligence for similar activities in the future, thereby serving the interests and the wellbeing of the vulnerable citizens effectively.

4.2 Non-functional water catchments, Non-compliance with BOQ Specifications and Missing Components

*According to the Bill of Quantity (BOQ) contracted with the vendors for the constructions of the dams in **Southwest State and Galmudug State**, the components of the water catchments constructed include restoration of Balley or construction of Haffir dam by excavation, water pumping and UV treatment, one Water Tank (32 Cubic Meters), construction of one Kiosk with 6 tabs, construction animal water troughs for Camels/Cattle's, Goats and Sheep, construction of one watchman house, and provision of power Generators (including PV System). The specifications as per the BOQ for the restoration of one Balley by excavation had the following:*

- *Excavate two water channels and compact by Machinery at 50x3mx50cm and 55x3m50cm;*
- *Approved hardcore filling spread well rammed and compacted for embankment all around the Haffir Dam;*
- *Installation of a permanent Trash Screen at the beginning of the Settlement chamber with heavy gauge mesh able to stop the biggest materials; and*

- *Supply and installation of a fence with a minimum height of 2.00m.*

4.2.1 Despite a substantial investment of **$140,500.53** in the construction of a water catchment at **Warmakiinaay site in Southwest State**, severe shortcomings in the activities implemented were identified during the audit. The site inspection uncovered that the constructed dam was entirely non-functional and dry, failing to meet the essential requirements outlined in the Bill of Quantities (BOQ). The audit team found only one water channel built instead of the two required, and the dam's embankment lacked the necessary hardcore filling. Additionally, the construction did not include the permanent trash screen and fence specified in the BOQ, and critical components such as the power generator (including PV system), water pumping equipment, and UV treatment were absent from the site even though the contractor was paid for these items. These deficiencies highlight a significant deviation from the approved plans and a significant waste of resources.

Non-functional water catchment lacking surrounding fence and proper embankment	*only one water channel without a permanent trash screen*
	
Source: OAGS site visit photo taken on 17th March 2024	*Source: OAGS site visit photo taken on 17th March 2024*

4.2.2 Even though material amount of **$162,959.92** was spent in constructing the water point system at **Awdiinle1 site in Southwest State,** the audit revealed critical failures in project execution. The dam built was of substandard quality, failing to meet the specifications outlined in the Bill of Quantities (BOQ) for the restoration of Balley through excavation. The inspection found that the embankment was inadequately constructed with weak and improperly filled hardcore. Additionally, a significant portion of the fence was broken due to the use of poor-quality metallic materials, as physically observed and noted from the community members. The inflow water channel was ineffective, damaged, and lacked a proper foundation, while the overflow channel was never constructed. The power generator (including PV system) and solar panels delivered to the site were not installed, and the water pump was non-operational, this has compromised the flow of water into the tank and the overall effectiveness of the water system. Even though the payment to the contractor included

the cost for a water purification system, no UV treatment system was provided and installed to ensure water cleanliness and safety. Consequently, the water kiosks and animal troughs have remained unused, forcing both the community and livestock to use and drink unclean and unfiltered water directly from the dam.

The constructed dam at Awdiinle I in South West State	Broken fence at the Dam at Awdiinle 1 in South West State
	
Source: OAGS site visit photo taken on 18th March 2024	Source: OAGS site visit photo taken on 18th March 2024

Ineffective water channel with poor foundation built at Awdiinle 1 Dam	Uninstalled solar panel found in store at the Awdiinle 1 Dam
	
Source: OAGS site visit photo taken on 18th March 2024	Source: OAGS site visit photo taken on 18th March 2024

4.2.3 The constructed dam at **Awdiinle 2 site in Southwest State** with material costing **$157,101.72**. However, during the audit the engagement team identified that numerous specific requirements outlined in the Bill of Quantities (BOQ) for the restoration of Balley by excavation were not fulfilled. Specifically, the fence surrounding the dam was incomplete and of poor quality and the embankment was also of poor quality as its foundation lacked the proper hardcore filling. The water channel foundation appeared weak and showed extreme damage, including severe cracks and this has resulted in blocking the intended water flow path way with debris such as soil, sand and stones. Another notable issue was the absence of UV treatment for water purification which led to the lack of clean and safe drinking water even

though the contractor was paid for the purification system. An issue with the water pump was discovered, the pipes used to transport and pump water were too short to reach the middle of the Dam, which slowed down the effectiveness of water flow into the tank.

Damaged and blocked water channel with poor foundation at Awdiinle 2	Awdiinle 2 dam with incomplete fence and improper embankment
	
Source: OAGS site visit photo taken on 18th March 2024	Source: OAGS site visit photo taken on 18th March 2024

Water pump with short pipes at Awdiinle 2	Unclean and unsafe water in the animal trough at Awdiinle 2
	
Source: OAGS site visit photo taken on 18th March 2024	Source: OAGS site visit photo taken on 18th March 2024

4.2.4 Haffir dam with material costing a total of **$145,571.384** was constructed at **Dibiyalaay site in Galmudug State**. During the site inspection the audit team discovered that the water catchment constructed was non-functional. The dam failed

to retain water due to a significant planning error of the construction. The water channel was improperly placed, and this has impacted the flow of water to the dam. Debris such as sand and rocks were incorrectly positioned along the water's intended path, further impeding the flow of water. In addition to that as reported by the focal person and other community members, it was determined that the initiated dam liner had a breakage, causing water collected during rainfall to leak and seep into the ground. This issue has prevented the dam from storing water for later use. Moreover, essential components necessary for water purification and distribution, including UV treatment, a water pump, and a power generator, were never installed despite being delivered to the site. Consequently, the community has not benefited from the dam constructed to alleviate drought conditions, as physically verified and confirmed by community members during interviews. They expressed disappointment that after the initial construction, there was no follow-up by the project implementing unit to ensure the functionality of the water point for the community's benefit. Thus, despite the infrastructure being in place, the intended relief from water scarcity has not been realized.

Non-functional Dibiyalaay *Dam*	*Uninstalled water purification system found in the watchman house at* Dibiyalaay Dam
	
Source: OAGS site visit photo taken on 12 June 2024	*Source: OAGS site visit photo taken on 12 June 2024*

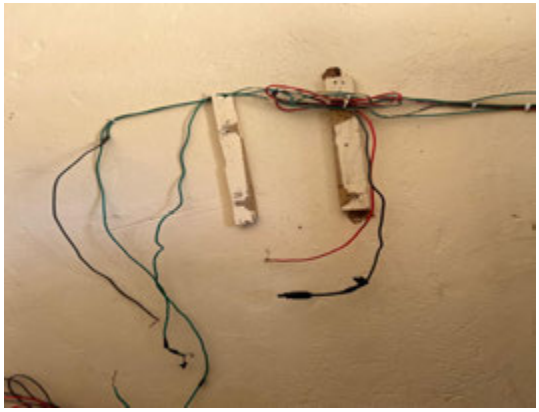
Uninstalled power genarator at Dibiyalaay Dam	*Uninstalled water pumping system at* Dibiyalaay
	
Source: OAGS site visit photo taken on 12th June 2024	*Source: OAGS site visit photo taken on 12th June 2024*

4.2.5 Haffir dam was constructed in Biyocade site in Galmudug State at a material cost of **$144,820**. Although the constructed dam in **Biyocade village of Galmudug State** was operational, several issues regarding its effectiveness and long-term sustainability were identified. One significant issue was the incorrect placement of water channels, causing water to flow in from various directions. This misalignment resulted in uneven pressure on the embankment, leading to damage and erosion in certain areas. Furthermore, the water outlet channel, designed to drain excess water when the dam reaches capacity, was also damaged due to these flow inconsistencies. Additionally, the solar power system installed at the site was found to be insufficient to support the flow of the water effectively.

As reported by a community head and member, the power generator was not delivered to the site even though it was included in the contracted BOQ and paid for to the contractor. And without a backup power generator has resulted in reduced efficiency in transporting water from the dam to the tank and distributing it to the community through the installed taps.

uneven pressure on the embankment resulted damage and erosion in certain areas	*Damaged water outflow due to the pressure of water flowing in from the incorrect direction*
	
Source: OAGS site visit photo on 13 June 2024	*Source: OAGS site visit photo on 13 June 2024*

4.2.6 A water catchment costing **$128,868.93**, was established at **Wadgelinsoor site in Galmudug State.** However, the site inspection conducted during the audit revealed the issues with the condition of the constructed water point. It was noted that the water flow to the tank was disrupted because the solar pump controller, essential for pumping and transmitting water, was not working as it was damaged. As a result of this damaged controller, the community has been without water for few months, but prior to this issue, the community had been utilizing the water facility. Additionally, although an UV treatment equipment was purchased and delivered to the site to purify the water, it was never installed, hence the community has not benefited from its relevance. This recent situation with the controller has deprived the community of access to clean and safe drinking water and other domestic purposes.

Uninstalled water purification system in the watchman's house at **Wadgelinsoor site**	*Failed solar pump controller in the watchman's house at the* **Wadgelinsoor site.**
	
Source: OAGS site visit photo taken on 12th June 2024	*Source: OAGS site visit photo taken on 12th June 2024*

Conclusion

The audit findings reveal both positive and negative outcome in relation to the water points constructed and rehabilitated in the sites visited. A total of seven waterpoints were inspected in which two of them were functional, three water points visited had significant performance issues and another two water points were not functional at all. The deficiencies identified may have been caused by improper planning, implementation, and maintenance of water catchment sites and facilities. The consequences of the observed deficiencies have an impact on the sustainability of the water points with performance issues, and consequently this results the communities continue to suffer from water scarcity, and this may lead to related health issues.

Recommendations

We recommend that the project coordination unit to take an action to address and rectify the deficiencies identified in the construction of the water catchments. To prevent future failures, we also recommend stringent quality control, robust project management, and community engagement for similar future activities. And the unit must prioritize the use of high-quality materials, skilled labour, and transparent financial management.

Management Response

The 2023 floods have caused infrastructure damages specifically the foundation, fence and water channels. The flood has also caused loss of lives and displacements. All dams have been impacted by the very high intensity rains during the El Nino last year.

The structural damages are due to the long use of the water points, continuous monitoring and maintenance are required. In some sites, the target community and the contractor contributed to add additional length or depth to the dam instead of the original size in the BoQ to increase the capacity of the dams. The current Barwaaqo project has decided to review the status of the Biyoole sites. PIU assessed the damages in March 2024 and prepare plans to solve them by rehabilitation from the Barwaaqo project. Barwaaqo has also already made decisions to rehabilitate the Biyoole dams, where needed, both in Galmudug and Southwest in order to make sure the sustainability of the water infrastructures.

4.2 Deficiencies in the dams constructed without plastic sheet liners

The bill of quantity (BOQ) designed for the construction of the dams in Galmudug State has specifications which included "Purchase, transport, place in situ of 1.5 mm HDPE sheet and whatever was necessary to complete the work according to the engineer's instructions". Unlike the BOQ designed for the construction of the water points in Southwest State, the technical specifications have a section outlining that "the material to be excavated is clayey and the tests made on samples at the top and at the bottom of the stream banks show that is highly plastic, hence almost impervious. For this reason, the future dam does not need any plastic sheet lining."

Throughout the audit, the team noted that dams constructed with plastic sheet liners in **Galmudug State** had better water storage capacity compared to those in **Southwest State,** which were built without liners. It was observed that one of the dams in Southwest State had failed to collect and store water from the rain. This was physically verified and confirmed by community members, who reported that water seeped through the ground of the dam. Additionally, other dams in Southwest State also showed poor water storage capacity. This issue may have resulted from improper planning, where inaccurate conclusions were made that the dams did not need plastic sheet lining without conducting proper assessments.

Constructed dam with storage capacity issue in Southwest State	*Wet soil collected from the dam's ground, showing evidence of water seepage*
	
OAGS site visit photo taken on 17 March 2024	*OAGS site visit photo taken on 17 March 2024*

Conclusion

The absence of plastic sheet liners in Southwest State's dams has resulted in significant water loss through seepage, compromising the effectiveness of the water points developed. This effective oversight in the construction if these Dams has directly and negatively impacted the ability of these water infrastructure projects to meet their intended purpose of providing a reliable and sustainable water source for the community.

Recommendations

We recommend that the PCU and PIU address the critical issue of water loss through seepage to ensure the long-term sustainability of the constructed dams for community benefit. It is advised to prioritize the use of plastic sheet liners in all future dam constructions to enhance water storage and ensure durability.

Management Response

The Backstopping Engineering Firm of the project confirmed that the use of HDPE (High-Density Polyethylene) liners is not recommended in the Southwest due to the soil composition and structure. The formation in the area is predominantly clay, which exhibits high compaction, low infiltration rates, and high-water retention capacity. Given these soil characteristics, the natural properties of the clay soil are sufficient to prevent significant water seepage, reducing the need for an additional HDPE liner, which is typically used to enhance water retention in soils with higher permeability. The clay soil's impermeability ensures that

water storage structures, such as dams or ponds, can hold water effectively without the need for synthetic liners. The recommendation from the performance audit report has long been adopted by the project in making sure that the water is retained more effectively. In Barwaaqo, all haffir dams will have plastic sheet liners.

4.3 Lack of sufficient appropriate evidence to support Agriculture and Livestock activities implemented in Bonkai Village of Southwest State

According to the PAD, the activities under agriculture and livestock support include the establishment of community gardens and fruit tree groves (as demonstration plots); procurement and distribution of improved seeds and other inputs; and introduction of high-efficiency micro-irrigation systems, soil micronutrient assessments, and needed training focused on promoting farmer adoption of climate-smart farming.

During the audit process a progress report relating to agriculture activities implemented in southwest state was reviewed. It was noted that activities such as the establishment of demonstration plots, distribution of improved seeds, introduction of high-efficiency micro-irrigation systems, soil micronutrient assessments, and training for farmers were executed at Bonkai site in Southwest State. During the site inspection in Southwest State, the request of the audit team to visit the community gardens at **Bonkai** for verification was not fulfilled by the auditee representatives. As a result, the audit team could not physically verify any of the above agriculture activities in the Southwest State.

Conclusion

The inability to access the site due to lack of facilitation casts a doubt on the accuracy of the reported agriculture activities. This lack of transparency hindered the assessment of the effectiveness of agricultural activities in southwest state and achievement of intended outcomes.

Recommendations

It is recommended the PIU to grant unrestricted access to all project activities for independent verification for any future audits.

Management Response

The pilot performance audit team did not communicate with the Federal Member State audit unit which resulted in miscommunication and halted the pilot performance audit team travel plans. The project tried to support the team despite the constant last-minute planning and miscommunication. The FMS team supported the team to show the requested sites which were accessible during the time and provided the support documents requested via email. The project achieved the intended intermediate indicators and overall project activities under this component. The Pilot Performance Audit team were unable to visit Bonkai as they were

travelling back to Mogadishu on the following day and informed the team to send the documents that were shared. Bonkai demonstration site was developed for integrated activities on agriculture, livestock and environment for reforestation, demonstration farm and fodder production. It was successfully implemented and handed over as functional.

OAGS Response

The Office of the Auditor General Somalia (OAGS) appreciates the cooperation of the auditee during the audit, particularly in facilitating access to various sites visited by our team. However, the audit team encountered challenges regarding the agricultural activities in Bonkai. Before the audit, the team clearly communicated that the assessment would include these agricultural activities in the Southwest State. This was an essential part of our audit plan, and adequate time was allocated for site visits.

4.4 The community gardens established yielded a varied mix of operational and non-operational outcomes.

Agriculture and livestock activities were implemented **in Ballihigis, and Laanle** of Galmudug State.

The specific activities implemented in each site include:

- Establishment of community gardens and fruit trees (as demonstration plots).
- Procurement and distribution of improved seeds
- Introduction of micro irrigation system
- Trainings for the farmers

4.5.1 According to the Bill of Quantities (BOQ) that forms part of the contracted with the suppliers, the demonstration plot's constructions were to include the delivery and installation of four 1,000-liter water tanks along with their stands at each site, these tanks costed $1,200 each. The tanks were intended for the community gardens in Ballihigis and Laanle villages to enhance water restoration and micro irrigation efficiency. However, during the inspection, the audit team discovered that none of the water tanks had been delivered or installed at either site, despite a payment of **$9,600** having been made for them.

4.5.2 At the Ballihigis site in Galmudug State, agricultural activities with a total cost of **$127,000** were carried out. However, the audit revealed significant issues with the sustainability of the community garden. The audit team found that crops such as peppers, tomatoes, watermelon, and beans were heavily damaged by pests and appeared to be neglected. Furthermore, the Bill of Quantities (BOQ) specified the planting of palm, coconut, and mango trees, but none of these fruit trees were present

in the garden during the inspection. According to the community, the seeds planted had been harvested only a few times since the farm's establishment. Additionally, as reported by the community insufficient training was provided and the lack of adequate farming technique training for the farmers contributed to poor maintenance and sustainability of the garden.

The community garden observed in Ballihigis

Source: OAGS site visit photo on 13th June 2024

4.5.3 The sum of USD126,471.32 was spent on the agriculture activities implemented at Laanle site in Galmudug State, and during the visit of the audit team observed opportunities for enhancing the sustainability of the garden farm established for the community. Crops such as pumpkin, tomatoes, spinach, and melon were planted, and they were in good condition. The audit also observed the fruit trees planted such as mango, banana, coconut, guava and lemon. As per reported by some members at the garden the community was given enough training, and this has led to the farmers in the community being adequately trained and awareness was raised among the community about their roles and responsibilities towards the garden.

Coconut tree at Laanle site in Galmudug State

Source: OAGS site visit photo on 14th June 2024

Pumpkin

Source: OAGS site visit photo on 14th June 2024

Conclusions

The audit findings revealed positive outcomes in terms of improved agricultural practices in Laanle site and it also identified significant performance issues that impact the sustainability of the agricultural activities implemented in Ballihigis site

Recommendations

We recommend the PCU and PIU to address the identified shortcomings. It is advised to prioritize strict adherence to project plans, enhance project management and oversight, invest in comprehensive farmer training, and foster strong community engagement for similar future activities.

Management Response

The project successfully delivered the training to the farmers and planted all the fruits specified in the BoQ as reported in the narrative reports, however, maintenance and operation of the infrastructure are with the community as the project is closed and handed over the community garden to the communities after series of community engagement and community ownership awareness development.

APPENDICES

a) Appendix I: Documents reviewed.

Table 2.4.1:

Documents reviewed	Purpose for reviewing
Finance Agreement	To determine if the terms and conditions negotiated were taken into account during the project implementation stage, and specifically, to comprehend the roles and duties of the Ministry of planning (PCU), the Steering Committee, and other co-managing ministries in the management and supervision of the project implementation.
Project Appraisal Document (PAD)	To comprehend the project's background, justification, goals, beneficiaries, components, results chain, justification for the World Bank's involvement, partners' roles, and technical analysis for project planning, execution, and results monitoring.
Project Operations Manual (POM)	To describe the operational principles and procedures that must be followed for putting the project's components into action, including the steps involved in planning, choosing, obtaining, managing, and overseeing the execution of all other relevant project activities.
Annual Project Implementation Plan	To analyze whether performance indicators were followed during the project's implementation and to see if the project's components were implemented as planned.
Monitoring and Evaluation Report/Narrative Report	To determine whether project objectives were met and activities were implemented according to the plan.

b) Appendix II: Stakeholders Interviewed

Table 2.4.2:

Institutions	Individual Interviewed	Purpose of interview
PCU - Ministry of Planning Investment and Economic Development	Project Coordinator	To obtain an understanding of the overall management of the project in terms of implementation and accomplishment of each component.
	Financial Management Specialist	To understand on how the project is financed, allocations, and how disbursements were made during project execution.
	Procurement Specialist	To become familiar with the numerous procedures used in the purchase of goods and services as well as the methods for requesting World Bank no-objections.
	Project Engineer	To obtain an understanding on the various engineering processes in planning, scheduling, and assessment of the sites for the construction and rehabilitation activities with contractors {construction and rehabilitation designs, BOQs, specifications and other technical requirements).
	M&E Specialist	to gather knowledge of M&E processes, including the project's present state, any known issues, and risk-mitigation techniques.
PSC	Director General of Ministry of Energy and Water Resources	to learn more about the longer-term strategic oversight, policy direction, the Committee-validated suggestions for wider resource allocation, and other significant choices that have been directed to it. And to understand the committee cooperation with the PIU and it contributed to effective implementation.

Beneficiaries	10 Individuals	To assess the improvements made since the project's implementation. To examine whether the training provided to farmers regarding appropriate farming techniques and community engagement had been effective.

c) Appendix III: Sites visited.

Table 2.4.3

Sites	Activities
Afuugdi	Development of multiple water sources
Warmakiinaay	Development of multiple water sources
Awdiinle1	
Awdiinle2	
Diyalaay	
Biyocade	
Wadgelinsoor	
Ballihigis	Agricultural Activities
Laanle	

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