NATURAL RESOURCES, ENVIRONMENT, CLIMATE CHANGE, LAND AND WATER RESOURCES MANAGEMENT PROGRAMME

Annual Budget Monitoring Report

Financial Year 2022/23

October 2023

Budget Monitoring and Accountability Unit
Ministry of Finance, Planning and Economic Development
P.O. Box 8147, Kampala
https://www.finance.go.ug/

NATURAL RESOURCES, ENVIRONMENT, CLIMATE CHANGE, LAND AND WATER RESOURCES MANAGEMENT PROGRAMME

Annual Budget Monitoring Report

Financial Year 2022/23

October 2023

MOFPED#DoingMore

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS

AGEMP	Albertine Graben Environmental Monitoring Plan
AfDB	African Development Bank
BMAU	Budget Monitoring and Accountability Unit
CBD	Convention on Biological Diversity
CCD	Climate Change Department
CCO	Certificates of Customary Ownership
CDM	Clean Development Mechanism
CEPCOM	Centre for Peace and Conflict Mitigation
CFR	Central Forest Reserve
CMP	Catchment Management Plans
CNOOC	China National Offshore Oil Corporation
CORs	Continuous Operating Reference stations
DDMC	District Disaster Management Committees
DECOC	District Emergency Coordination and Operations Centre
DLB	District Land Boards
DRC	Democratic Republic of Congo
DRMS	Domestic Revenue Mobilization Strategy
DRR	Disaster Risk Reduction
EGP	Electronic Government Procurement
ESD	Education for Sustainable Development
ENR	Environment and Natural Resources
EPF	Environmental Police Force
ESIA	Environment and Social Impact Assessment
FMP	Forest Management Plan
FSSD	Forestry Support Services Department
FY	Financial Year
GCF	Green Climate Fund
GDP	Gross Domestic Product
GHS	Green House Gas
GoU	Government of Uganda
Ha	Hectares
IEC	Information, Education and Communication
IFMS	Integrated Financial Management System
IGG	Inspector General of Government
ISO	International Standards Organization
IWRM	Integrated Water Resources Management
Km	Kilometer
KWMZ	Kyoga Water Management Zone
LRRP	Land Acquisition Resettlement and Rehabilitation Policy
LVMIS	Land Valuation Management Information System
LGs	Local Governments
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MDAs	Ministries, Departments and Agencies

MFPED	Ministry of Finance, Planning and Economic Development
MoU	Memorandum of Understanding
MLHUD	Ministry of Lands, Housing and Urban Development
MRV	Monitoring, Reporting and Verification
MTIC	Ministry of Trade, Industry and Cooperatives
MWE	Ministry of Water and Environment
MZO	Ministry Zonal Offices
NMTA	National Mitigation Action
NEMA	National Environment Management Authority
NDC	Nationally Determined Contribution
NDP	National Development Plan
NFA	National Forestry Authority
NGO	Non-Government Organization
NECOC	National Emergency Coordination and Operations Centre
NLIC	National Land Information Centre
NRECCLWM	Natural Resources, Environment, Climate Change, Land and Water Resources Management
NSDI	National Spatial Data Infrastructure
NSOER	National State of the Environment Report
NTSC	National Tree Seed Centre
NTR	Non-Tax Revenue
OBT	Output Budgeting Tool
OPM	Office of the Prime Minister
PBS	Programme Budgeting System
PIAP	Programme Implementation Action Plans
RIA	Regulatory Impact Assessment
SACCO	Saving and Credit Co-operative Organization
SDG	Sustainable Development Goal
SLAC	Systematic Land Adjudication and Certification
SPRC	Strategic Programme on Climate Resilience
TEPU	Total E and P Uganda
TC	Town Council
TRWC	Total Renewable Water Resources
UBOS	Uganda Bureau of Statistics
Ug Shs	Uganda Shillings
ULC	Uganda Land Commission
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNMA	Uganda National Meteorological Authority
VEC	Valued Ecosystem Components
WECs	Water and Environment Cooperatives
WIS	Water Information System
WMP	Wetland Management Plan
WMZ	Water Management Zone
WRM	Water Resources Management

FOREWORD

With a strategic focus on the theme for Financial Year 2022/23, "Full Monetization of the Ugandan Economy through Commercial Agriculture, Industrialization, Expanding and Broadening Services, Digital Transformation and Market Access," the Government of Uganda has focused on the allocation of resources to strategic interventions which reflect a strong drive and dedication towards sustainable economic growth for the people of Uganda.

The findings from this year's annual monitoring exercise reveal commendable strides in the programme operations, however, the challenges we face in the pursuit of economic transformation are evident. Limited resources demand service delivery efficiency, thus the urgent need for strategic reforms if we are to reap the development dividends of our investments.

A recent project review in some programmes revealed ineffective usage of loans and counterpart funding. This raises concerns about potential funding losses and increased costs. I urge all the implementing agencies to ensure that adjustments in planning, financial monitoring and analysis, coupled with prudent management are undertaken immediately. Let us seize this moment to build a more prosperous and sustainable Uganda for generations to come.

Ramathan Ggoobi

Permanent Secretary/Secretary to the Treasury

EXECUTIVE SUMMARY

Introduction

The Natural Resources, Environment, Climate Change, Land and Water Management (NRECCLWM) Programme contributes to the third National Development Plan (NDPIII) objective of "*enhancing value addition in key growth opportunities".* It focuses on reversing environmental and natural resource degradation, ensuring the availability of adequate water resources for national development, containing the effects of climate change and fostering effective land management. The programme objective is achieved through three sub-programmes: Water Resources Management, Environment and Natural Resources Management, and Land Management.

This annual monitoring report presents findings from monitoring the NRECCLWM Programme budget execution period from 1st July 2022 to 30th June 2023. The performance measurement is based on the budget commitments and the NDPIII targets for the same Financial Year (FY) 2022/23.

Overall Programme Performance

Financial Performance

The total approved budget for the Natural Resources Environment Climate Change, Land and Water Management Programme for FY2022/23 was Ug shs 457.89 billion (bn), of which Ug shs 360.75bn (78%) was released and Ug shs 206.7bn (57%) spent by 30th June 2023. This was a good release and fair expenditure performance. The release for the Water Resources Management (WRM) Sub-programme increased by 158% with expenditure at 50%, while the Environment and Natural Resources (ENR) Sub-programme only got 22% of its budget released. The Lands Management Sub-programme was the worst spender at 41%, attributed to delayed procurement and finalizing the Environment and Social Impact Assessments (ESIAs), seeking no objection from the World Bank-funded project, and delays in submission of invoices by contractors.

Performance highlights

The overall programme performance was good at 72.2%, an indicator the programme was on track to achieve some of its NDPIII targets and objectives. Water Resources Management had a good performance at 74%, followed by Environment and Natural Resources Management and Lands Management sub-programmes at 73% and 71% respectively.

The programme had committed to mitigate environmental degradation by increasing the national forest cover from 12.4% to 15% which is higher than the NDP III target of 13.1%. The wetlands and forests commitment was 850 square kilometers to be restored and 6,200 kilometers of boundary of Central Forest Reserves (CFRs) protected from encroachment by re-surveying and demarcating.

On the other hand, the NDP III targets for the same FY were 13% for forest cover and wetlands 9% and the progress was 13.3% and 8.9% respectively. Under Lands Management, the target was titled land increased to 26% but achieved was 22% which was an 86.2% performance rate. The turnaround time was 15 days making it a 66.7% performance yet the target was 10 days. The programme achievements are illustrated under the different sub-programmes.

To improve coordination, planning, regulation and monitoring of water resources at the catchment level, the developed Water Information System (WIS II) Phase II was rolled out in Victoria, Upper Nile, Kyoga and Albert Water Management Zones (WMZs). The National Water Quality

Management Database was upgraded to a web-based system and 957 data sets were entered into excel based database, four Quarterly National Water Quality Status Reports were prepared, the four regional laboratories were operated and maintained, water quality and quantity data assessed, and three Catchment Management Plans (CMPs) of Kabuyanda, Nsooba Walumwanyi and Rwizi developed.

Water quality monitoring for the four regional laboratories in Mbarara, Mbale, Lira and Fort Portal was undertaken. The laboratories were operated and maintained with several infrastructures upgraded. Consequently, Ug shs 310 million non-tax revenue (NTR) was generated. However, not all parameters were tested. For example, heavy metal analysis (iron, lead, cadnum, arsenic, and mercury), total iron in water, and oil and grease in water could not be tested in the regions for lack of equipment. Thus the samples were sent to the National Water Quality Reference Laboratory (NWQRL) in Entebbe. The water quality vessel final inspection was done and shipment was ongoing. On-land transportation of the vessel was pending based on height restrictions that required clearance from both Kenya and Uganda. Construction of the NWQRL was at 19% completion level against the targeted 25% by 30th June 2023 at a time-lapse of 80%. Outstanding payments to raised certificates were critical given the contractor's threats on interest demand.

To strengthen enforcement capacity for improved compliance levels, the new equipment supplied to different laboratories included mercury analyzers, autoclaves and incubators, iron chromatography, and refrigerators. As a result, the time taken to test water samples was shortened and fewer chemicals/reagents were used to improve portable water. A total of 3,885 water samples were collected and analyzed for compliance with drinking water standards at the point of water collection. Compliance for piped water systems in urban was 72.4% while for rural areas it was 54.4%. The borehole compliance level was 88.3%, for shallow wells 55% and 40% for springs. The results indicated a bigger rural-based population exposed to unsafe water supplies, especially during the rainy season when the water quality deteriorates.

In the 156 wastewater samples collected and analysed from municipal and industrial effluent discharge facilities compliance levels to wastewater discharge standards were: 74.2% compliance level to Total Nitrogen (TN), 44.4% compliance level to Chemical Oxygen Demand (COD), 62.9% compliance level to Total Suspended Solids (TS), 82.9% compliance level to Total Phosphorus. The lower the compliance levels, the higher the threat to water resources and aquatic life. For example, the low COD results in the death of fish.

Field equipment supplied and installed included electronic conductivity, hydro meta, and telemetry recording day and night without the presence of observers. This resulted in real-time data collection for rainfall and water levels at shorter time intervals for fast decision-making. The equipment in Katonga was dismantled due to flooding and will be reinstalled.

To ensure water quality management, seven environmental audits were carried out, 352 permit holders were monitored for compliance with permit conditions and 314 water abstraction permits (189 new and 125 renewals) were issued. The 69 surface water manual stations and 30 groundwater manual stations were operated and maintained, plus 10 surface water telemetry stations and 10 groundwater telemetry stations were operated. Data was collected from different stations and transmitted for planning purposes.

For improved coordination, regulation and monitoring; the National Climate Change Act was disseminated to over 150 districts. The popular version of the Nationally Determined Contributions (NDC) with simplified adaptation actions was disseminated in the districts of Kasese, Kagadi,

Kibale, Mitooma and Kisoro. The consultancy service to expand the Greenhouse Gas (GHG) inventory baseline and emissions projections for the Waste and Transport Sub-sectors was ongoing. However, the Average Annual Change in Green House Gas (GHG) emissions (MtCO2e) was 1.27% with a target of 1.15%. The Ministry of Water and Environment (MWE) also participated in the United Nations Framework Convention on Climate Change and Conference of the Parties 27. Revision of the National Water Policy was ongoing although overly delayed.

To strengthen the legal framework for environment management, the National Environment Management Authority (NEMA) finalized three Regulations that provide the legal framework for a sound environment which are: Regulations on the management of chemicals, the Environment Protection Force and the Administrative Penalty Scheme. These were reviewed and provided to the Minister of Water and Environment for assent. Development of regulations on noise and vibrations, conduct and certification of environmental practitioners, and economic instruments for charge systems were ongoing.

For improved weather and climate services, two seasonal climate outlooks (March-May and June-August) were issued for central, eastern, northern and western regions with advisories to particular climatological zones. One automatic weather station (AWS) was each installed in Bundibugyo, and Buvuma Island (Buvuma District), and a hydromet station at Butiaba was upgraded from a manual to an automatic weather station. A total of 546 terminal aerodrome forecasts, 27 SIGMETs and 3,861 flight folders were issued for Entebbe and Soroti; 13,104 METARs were issued from the 11 synoptic stations. Daily forecasts were disseminated through four media houses of Uganda Broadcasting Corporation (UBC TV), Star TV, and Bukedde TV 1. A total of 84 Lake Victoria marine forecasts were provided for the four regions of Lake Victoria, and the functionality of 54 rainfall stations, 60 ADCON automatic weather stations and 38 manual weather stations across the country was maintained.

By 30th June 2023, the area covered by wetlands was 8.9% against the planned 9%. To restore critical wetlands, a total of 32 district wetland maps were ground-truthed and produced. Nearly 18.43km of wetlands were demarcated with pillars and live markers. These included: Katereke-Mayanja-Kyengera Town Council, Wakiso District (11km), Hondwa-Muziizi-Kagadi District (10km), Enyau-Arua City (45km); 15km banks of River Rushango. However, some of the pillars planted in Katereke-Mayanja were either uprooted or destroyed by scrap dealers and people degrading the wetlands. About 12,347ha of wetland were restored countrywide. These included: 2,521ha in the Rulindo Wetland System-Rukungiri District, 1,223ha in Kamenyamugongo wetland-Butebo District, 1,205ha in Kagorogoro, 14ha in the Tochi-Oyam District and Nyamabaare in Rubirizi District.

Degraded water catchments were protected and restored through the implementation of various catchment management measures. The Catchment Management Plans (CMPs) for Nyamugasani and Kafu were developed to 55%, while the development of the CMPs for Sezibwa and Okweng was at 15% and behind schedule due to delays in payments. The soil and water in degraded lands, wetlands and river banks were restored and alternative income-generating activities (IGAs) were created for Sipi (Bukwo), Namalu (Nakapiripirit) and Unyama (Amuru), Nyamwamba and Sebwe (Kasese), Tokwe (Bundibugyo) and Semliki (Ntoroko) among others. Emergency works for flood mitigation along River Nyamwamba in Kasese District were not completed. Progress was at 95% before the area received threefold the expected rainfall which caused a setback. The contractor was on the ground rectifying damages at no cost variation.

To strengthen the conservation and restoration of forests, 13,659ha of the annual targeted 10,000ha were freed from encroachment and restored with high-value indigenous tree species and bamboo in Central Forest Reserves (CFRs) countrywide. Two (2) illegal land titles in Lufumira and Lukalu were verified and cancelled while 135 illegal land titles in CFRs were verified and awaited cancellation. These were in the Achwa River Range, Budongo System Range, Lakeshore, Kyoga and West Nile Range.

A total of 998.3km of forest boundary was resurveyed and demarcated with pillars in CFRs across nine Management Ranges. This constituted 45% (4,379.3km) of the total 9,755km of 506 CFRs boundaries under the National Forestry Authority (NFA). Commercial tree plantations established and maintained totalled 14,093.4ha. Those under NFA were 513.4ha (150ha-Mafuga, 163ha-South Busoga, 150ha-Mbarara, 50ha-Mwenge) and the rest (13,580ha) by private tree planters. Assorted seedlings supplied including bamboo raised and were 17,239,045. The NFA procured modern forest management infrastructure and equipment inclusive of 57 GPSs, 140 assorted ICT equipment and 10 - modern equipment and databases for forest inventory.

A total of 514 establishments were inspected in line with conformity to environmental laws and standards. The key areas of non-compliance noted were emissions and effluent discharges, noise pollution, waste management, and workplace safety and health. Compliance monitoring and enforcement operations carried out by both the Environmental Police Force and technical staff were 2,057. A total of 2,029 ESIA certificates were issued in FY2022/23. Four new prosecution cases were filed in court and 30 existing cases were prosecuted in the period. Twenty-nine Improvement Notices, two Restoration Orders, three Stop Orders and two Compliance Agreements were issued in the period. Twenty-six civil matters and 21 criminal cases were handled in FY2022/23.

For improved land management, 3,280 valuation assessments and inspections were carried out in the 22 Ministry Zonal Offices (MZOs); 142,787 land conveyances i.e mortgages, caveats, transfers etc carried out; 47,349 titles processed and issued to both men and women where Ug shs 56.9bn revenue was generated and 22 sensitization campaigns undertaken.

For Land Information System (LIS) automation and integration with other systems, 204 National Lands Information Center staff and LIS Users on LIS were trained; 22 MZOs monitored and supervised; assorted ICT equipment for 22 MZOs procured; LIS maintained in the 22 MZOs and other LIS sites and 100,000 pieces of title paper and title covers procured.

In promoting land consolidation, titling and banking; 19 land titles issued in wetlands and forest reserves were cancelled; 1,188 affidavits were commissioned; 1,596 court cases facilitated; 47,349 titles were issued to men and women and 26 blue pages validated. Over 10,861 Certificates of Title were offered to lawful and bonafide occupants in Bunyangabu, Kibaale, Kagadi Kakumiro and Rwampara districts. These were disaggregated as follows: institutions 196 (2.1%), female lawful occupants 2,103 (22.4%), male occupants 6,629 (70.6%) and 1,933 (5%) jointly owned.

Overall 9,120.2385 acres of land were compensated and acquired from absentee landlords (55% male 35% female and 15% companies) from Bunyoro, Buganda, Ankole and Toro regions. A total of 798 lease transactions were processed across the country, of which 52% (415) were for males, 16% (128) female and 32% (255) from company leaseholders. Freehold certificates of title of different Ministries, Departments and Agencies (MDAs) totaled 58.

To complete the rollout and integration of the Land Management Information System with other systems, the Ministry of Lands, Housing and Urban Development (MLHUD) collected data for

revision of the atlas including that for revision of the West Nile Tourist Map and revised maps for Arua and Mbale City. A total of 45 topographic maps were updated and disseminated. Government Cadastre Data Inventory and Consolidation were undertaken for two MZOs - Wakiso and Luwero; 40km national boundaries were affirmed to reduce border disputes and 3+4,400 deed plans were approved.

A consultant to design and develop a Land Valuation Management Information System (LAVMIS) was procured. The inception report was prepared and a beta version was submitted for the development of land values collection software. Approximately 68,875 property valuations were carried out - national valuation standards and guidelines developed; 262 land acquisitions for government development projects supervised and compensation rates for eight districts i.e Kikuube, Mitooma, Mbarara, Kyenjojo, Hoima, Mukono, Mityana and Mbale reviewed and approved.

Programme Challenges

1. Low uptake of the programme approach, by various actors for lack of sufficient knowledge or preference for project mode budgeting and implementation with minimum contribution to the programme outcomes.
2. Continuous encroachment/re-encroachment of the fragile ecosystems by the neighbouring communities aggravated by unclear boundaries/unmarked and political influence.
3. Illegal titled forest reserves and wetlands in some cases aggravated by politicking which encourages more encroachment together with endless unresolved court cases.
4. Delayed procurements by the different agencies affect work progress thus plunging projects to overrun risks.
5. Inadequate enforcement team/resources at the lower local governments (LLGs) to monitor demarcations and restorations leaving them vulnerable to re-encroachment and vandalism of installed pillars.
6. Climate change with resultant long droughts and flush floods affects the quantity of and quality water supply.

Conclusion

The overall NRECCLWM Programme performance was rated good at 72%, with a 78% release performance, although only 57% of the release was spent. Efforts towards achieving natural resource protection, restoration and management by both government and other agencies in the NDP III period were undertaken. This is evidenced by increased forest cover of 13.3% against the NDP III target of 13% and wetland stagnated at 8.9% of the targeted 9%. However, the country continued to lose the forest and wetland cover to encroachers on CFRs and private forests to the mushrooming factories, agriculture and charcoal burning due to population pressure. Water quantity and quality assessments were undertaken with some degree of compliance to permit conditions for portable and ambient water save for wastewater discharge that poses a threat to the environmental resource. The average annual change in Green House Gas (GHG) emissions (MtCO2e) was 1.27% while the Air Quality Index PM2.5 of 150% was said to be unhealthy for vulnerable categories. Land titling was at 22.4% although the target was 26% and it took an average of 15 days to get a land title. Generally, the programme is on track to meet its objectives and some NDPIII targets within the remaining one year of operation.

Recommendations

1. The Ministry of Finance, Planning and Economic Development (MFPED) should ensure the Programme Working Groups are functional and all work plans/budgets are properly aligned to the programmes.
2. The MWE should continue to advocate for political support at all levels in mobilisation and sensitisation of communities to take up alternative livelihoods other than forestland and wetlands.
3. The MLHUD should speed up the process of cancellation of illegal titles in both wetlands and forest reserves.
4. The World Bank and implementing agencies should negotiate workable solutions to the no-objection conditions and fast track progress of works.
5. The Programme Working Group should prioritize support to ENR in planning for the local and LLGs in the form of staffing (Environment Protection Police, Environment and Forestry Officers) and enforcement of environmental laws.
6. The MWE/Programme Working Group should prioritise climate change mitigation and adaptation measures to conserve and manage water resources better.

INTRODUCTION

1.1 Background

The mission of the Ministry of Finance, Planning and Economic Development (MFPED) is, "*To formulate sound economic policies, maximise revenue mobilisation, and ensure efficient allocation and accountability for public resources so as to achieve the most rapid and sustainable economic growth and development.*"

The MFPED through its Budget Monitoring and Accountability Unit (BMAU) tracks the implementation of programmes/projects by observing how values of different financial and physical indicators change over time against stated goals and indicators. The BMAU work is aligned with budget execution, accountability, and service delivery.

Commencing FY 2021/22, the BMAU began undertaking programme-based monitoring to assess performance against targets and outcomes in the Programme Implementation Action Plans (PIAPs)/ Ministerial Policy Statements (MPSs). Semi-annual and annual field monitoring of Government programmes and projects was undertaken to verify receipt and expenditure of funds by the user entities and beneficiaries, the outputs and intermediate outcomes achieved, and the level of gender and equity compliance in the budget execution processes. The monitoring also reviewed the level of cohesion between sub-programmes and noted implementation challenges.

The monitoring covered the following Programmes: Agro-Industrialization; Community Mobilisation and Mindset Change; Digital Transformation; Human Capital Development; Innovation, Technology Development and Transfer; Integrated Transport Infrastructure and Services; Manufacturing; Mineral Development; Natural Resources, Environment, Climate Change, Land and Water Management; Public Sector Transformation; Private Sector Development; Sustainable Development of Petroleum Resources; and Sustainable Energy Development.

This report presents findings from the annual monitoring of the Natural Resource, Environment, Climate Change, Land and Water Management (NRECCLWM) Programme for FY 2022/23.

1.2 Natural Resources, Environment, Climate Change, Land and Water Management Programme

The Natural Resources, Environment, Climate Change, Land and Water Management (NRECCLWM) Programme contributes to the NDPIII objective of "*enhancing value addition in key growth opportunities*". The programme focuses on reversing environmental and natural resource degradation, ensuring the availability of adequate water resources for national development, containing the effects of climate change and fostering effective land management. The programme was delivered through three sub-programmes namely: (i) Water Resources Management (WRM), (ii) Environment and Natural Resources Management (ENR), and (iii) Land Management.

The lead agency for this programme is the Ministry of Water and Environment (MWE), while the other partner MDAs are National Environment Management Authority (NEMA), Uganda National Meteorological Authority (UNMA), National Forestry Authority (NFA), Local Governments (LGs), Ministry of Lands, Housing and Urban Development (MLHUD), Office of the Prime Minister (OPM), and Uganda Land Commission (ULC).

1.3 Programme Goal

The programme's goal is to reduce environmental degradation and the adverse effects of climate change as well as improve the utilisation of natural resources for sustainable economic growth and livelihood security.

1.4 Programme Objectives

The programme objectives are to: (i) Ensure availability of adequate and reliable quality freshwater resources for all uses; (ii) Increase forest, tree and wetland coverage and restore and protect hilly and mountainous areas and rangelands; (iii) Strengthen land use and management; (iv) Maintain and/or restore a clean, healthy, and productive environment; (v) Promote inclusive climate resilient and low emissions development at all levels; (vi) Reduce human and economic loss from natural hazards and disasters; and (vii) Increase incomes and employment through sustainable use and value addition to water, forests and other natural resources.

1.5 Programme Outcomes

The programme outcomes over the NDPIII period are - Increased compliance to all water permit conditions; Enhanced water resources management; Increased land area covered by forests and wetlands; High compliance to Environmental and Social Impact Assessment (ESIA) conditions by developers, and improved air quality in cities.

Others are: Climate change responsive development pathway established, Reliable and accurate meteorological information provided, Reduced human and economic loss from natural hazards and disaster, increased titled land, and reduction in land conflicts.

CHAPTER 2: METHODOLOGY

2.1 Scope

This report is based on selected interventions in the Natural Resources, Environment, Climate Change, Land and Water Management (NRECCLWM) Programme by 30th June 2023, based on three sub-programmes: i) Water Resources Management, ii) Environment and Natural Resources Management, and iii) Land Management.

The monitoring covered interventions implemented during FY 2022/23 (1st July 2022-30th June 2023). The interventions and respective outputs reviewed under each sub-program; Ministry, Department and Agency (MDAs)/Vote/local governments are listed in Annex 1.

Monitoring involved analysis and tracking of inputs, activities, processes, outputs and in some instances intermediate outcomes as identified in the Programme Implementation Action Plans (PIAPs), Ministerial Policy Statements (MPSs) and annual and quarterly work plans, progress and performance reports of MDAs and LGs.

A total of 20 (90%) of 22 interventions planned under the NRECCLWM Programme were reviewed. The 20 reviewed interventions translated into 59.69% coverage of the approved budget for the FY 2022/23 excluding administrative and support services.

The selection of interventions to monitor was based on the following criteria:

1. Significant contribution to the programme objectives and national priorities.
2. Level of investment, interventions that had a large volume of funds allocated were prioritized.
3. Planned outputs whose implementation commenced in the year of review, whether directly financed or not. In some instances, multiyear investments or rolled-over projects were prioritized.
4. Completed projects to assess beneficiary satisfaction, value for money and intermediate outcomes.

2.2 Approach and Sampling Methods

Both qualitative and quantitative methods were used in the monitoring exercise. The physical performance of interventions, planned outputs and intermediate outcomes were assessed through monitoring a range of indicators. The progress reported was linked to the reported expenditure and physical performance.

A combination of random and purposive sampling was used in selecting sub-interventions and outputs from the PIAPs, MPSs and progress reports of the respective MDALGs for monitoring. To aid mapping of PIAP interventions against annual planned targets stated in the Vote MPS and quarterly work plans, a multi-stage sampling was undertaken at three levels: i) Sub-programmes ii) Local governments, and iii) Project beneficiaries. The selection of districts and facilities considered regional representativeness.

2.3 Data Collection and Analysis

Data Collection

The monitoring team employed both primary and secondary data collection methods. Secondary data collection methods included:

i) Literature review from key policy documents including, the MPS FY 2022/23; National and Programme Budget Framework Papers; A handbook for Implementation of NDPIII Gender and Equity Commitments, PIAPs, NDP III, quarterly progress reports and work plans for the respective implementing agencies, quarterly performance reports, Budget Speech, Public Investment Plans, Approved Estimates of Revenue and Expenditure, project reports, strategic plans, policy documents, Aide Memoires and evaluation reports for selected programmes/ projects.

ii) Review and analysis of data from the Integrated Financial Management System (IFMS); Programme Budgeting System (PBS); Budget portal; and quarterly performance reports.

Primary data collection methods on the other hand included:

iii) Consultations and key informant interviews with Institutional heads, project/intervention managers, service providers (National Water and Sewerage Corporation; Umbrella Organisations), and service beneficiaries at various implementation levels. Focused Group Discussions (FGDs) were also held in instances of group beneficiaries.

iv) Field visits to various districts, for primary data collection, observation and photography.

v) Callbacks in some cases were made to triangulate information.

Data Analysis

The data was analyzed using both qualitative and quantitative approaches. Qualitative data was examined and classified in terms of constructs, themes or patterns to explain events among the beneficiaries (interpretation analysis) and reflective analysis where the monitoring teams provided an objective interpretation of the field events. Quantitative data on the other hand was analyzed using advanced Excel tools that aided interpretation.

Comparative analyses were done using percentages, averages, and cross-tabulations of the outputs/ interventions; intermediate outcome indicators and the overall scores. Performance of outputs/ interventions and intermediate outcome indicators was rated in percentages according to the level of achievement against the annual targets. The sub-programme score was determined as the weighted aggregate of the average percentage ratings for the output/intermediate outcomes in the ratio of 65%:35% respectively.

The overall programme performance is an average of individual sub-programme scores assessed. The performance of the programme and sub-programme was rated based on the criterion in Table 2.1. Based on the rating assigned, a BMAU colour-coded system was used to alert the policymakers and implementers on whether the interventions were achieved or had very good performance (green), good performance (yellow), fair performance (light gold) and poor performance (red).

Table 2.1: Assessment Guide to Measure Performance in FY 2022/23

Score	Performance Rating	Comment
90% and above		Very Good (Achieved at least 90% of outputs and outcomes)
70%-89%		Good (Achieved at least 70% of outputs and outcomes)
50%- 69%		Fair (Achieved at least 50% of outputs and outcomes)
49% and below		Poor (Achieved below 50% of outputs and outcomes)

Source: Author's Compilation

Ethical considerations

Entry meetings were undertaken with the Permanent Secretaries/and Accounting Officers or delegated officers upon commencement of the monitoring exercises. Consent was sought from all respondents including programme or project beneficiaries. All information obtained during the budget monitoring exercise was treated with a high degree of confidentiality and only used in policy making and improving service delivery.

2. 4 Limitations

1. Limited credible outcome performance data in the programme institutions; no clear way of how this data is delivered.
2. The FY 2022/23 budget was prepared in sector mode with the old Chart of Accounts and output codes yet this is a programme monitoring report. The mapping of sub-programmes, interventions, actions, and budgets formerly in the sector votes to the PIAPs.
3. Lack of reliable and real-time financial data on donor financing which was not accessible on the IFMS.
4. Lack of disaggregated financial information for specific outputs.

2.5 Structure of the Report

The report is structured into four chapters namely: 1) Introduction, 2) Methodology, 3) Programme Performance, and 4) Conclusion and Recommendations.

CHAPTER 3: PROGRAMME PERFORMANCE

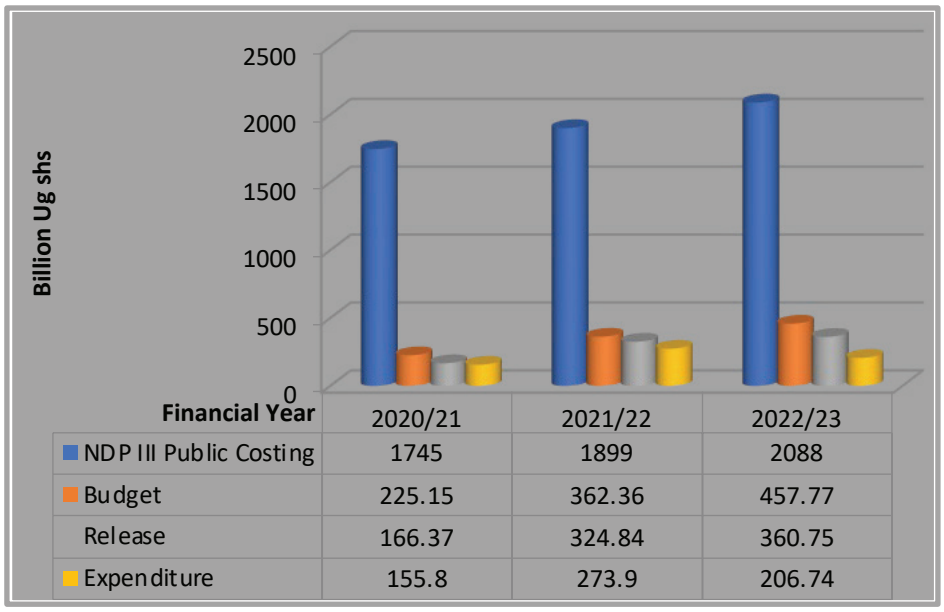
3.1 Overall Programme Performance

Financial performance

A total of Ug shs 1,045 billion (bn) (18% of the NDP III NRECCLWM Programme budget was budgeted and released, and 60% of it was spent in the last three Financial Years (FYs). This was a poor budget performance in the period.

Whereas the total approved budget for FY 2022/23 was Ug shs 457.89bn, Ug shs 360.75bn (78%) was released and Ug shs 206.7bn (57%) spent by 30th June 2023. This was a good release and fair expenditure performance. There was a shortfall of 22% under the Environment and Natural Resources (ENR) Management Sub-programme, while Water Resources Management (WRM) got 158% of the budget. Less expenditure was noted under the Lands Management Sub-programme at 41%, followed by the WRM at 50%. The sub-programmes underspent on the external finances as had previously been the case. The worst spender in that category was Lands Management at 8.6% followed, by WRM at 40%. The general reasons for under expenditures included delayed procurement of service providers, finalization of ESIAs, seeking no objection from the World Bank-funded projects, and delays in submission of invoices by contractors.

Figure 1: Financial Performance for the NRECCLWM Programme for FYs 2020/21- 22/23 in Billion Ug shs



Financial Year	2020/21	2021/22	2022/23
NDP III Public Costing	1745	1899	2088
Budget	225.15	362.36	457.77
Release	166.37	324.84	360.75
Expenditure	155.8	273.9	206.74

Source: Approved Budget Estimates, IFMS, Vote Work Plans, and Q4 Performance Reports

Physical performance

The overall physical programme performance was good at 72%. The Water Resources Management Sub-programme performed better than others at 74%, followed by the Environment and Natural Resources Sub-programme at 73% and Lands Management at 71%. The general performance of the different sub-programmes is reflected in Table 3.1. The key output achievements included: three catchment management plans developed and water management structures implemented in Kabuyanda, Nsooba Walumwannyi and Rwizi catchments; 3,966 water, wastewater and

environmental samples were analysed; 13 Environmental Impact Assessment (EIA) reports were assessed and reviewed; 354 water abstraction permit applications (193 new and 161 renewals) were assessed and as a result, 314 permits (189 new and 125 renewals) were issued to control pollution and over-exploitation of water resources.

Overall, only seven environmental audits out of the targeted 20 were assessed and reviewed: Two Forestry Management plans were developed, 13,659 hectares (ha) of degraded Central Forest Reserves freed from encroachment, 5,981ha were restored and 960km of forest boundary surveyed and marked with pillars. 513ha of plantations were established by NFA with a survival rate of 70% and 13,570 by licensed tree planters at a survival rate of 65%; 467.75km of wetlands were demarcated with pillars and 12,347km restored countrywide. 88,450 land titles were processed and issued to both men and women. The NRECCLWM Sub-programme performance is given in Table 3.1.

Table 3.1: Performance of the Natural Resource, Environment, Climate Change, Land and Water Resources Management Programme by 30th June 2023

Sub-programme	Performance Rating	Remark
Water Resources Management	On track	Data quantity and quality assessed, Reference Laboratories operated and maintained; water quality testing undertaken.
Environment and Natural Resources Management	On track	Forest cover and wetland cover increasing and illegal land title cancellation ongoing.
Land Management	On track	Land titling was ongoing. The Data Processing Center operationalization process was ongoing with equipment procurement and systems upgrade.
Overall programme performance	**On track**	**Most interventions were on track.**

Source: Authors' Compilation

Performance of outcome indicators

The overall programme performance in terms of intermediate outcome achievement ranged from fair to good with 30% of them achieving their targets. The two indicators (groundwater and surface water compliance to permit conditions) assessed under WRM achieved their targets, while the wastewater discharge conditions was on track. Under ENR, land covered by forests increased to the target, while wetland coverage was on track. All the indicators under Lands Management (days taken to title land and % land titled) were not achieved, partly attributed to the failure to fully operationalize the Data Processing Centre (DPC), by procuring equipment and ensuring the Systematic Land Adjudication and Certification (SLAAC) data capturing and processing software upgrade. General performance was affected by delayed procurements and seeking no objection for World Bank projects. However, still, the outcome indicator credibility of the secondary data presented under the sub-programme is questionable. The outcome indicator performance is highlighted in Table 3.2.

Table 3.2: Performance of Annual Planned Outcome Indicators by 30th June 2023

Outcomes	Indicators	Target FY 2022/23	Achieved FY 2022/23	Remarks
Water Resources Management Sub-programme				
Increased Compliance with all water permit conditions.	Compliance with abstraction permit conditions (%) - groundwater	77	78.7	Achieved
	Compliance to abstraction permit conditions (%) - surface water	79	80.2	Achieved
	Compliance with wastewater discharge permit conditions (%)	64	63	Not achieved
Enhanced water resources management	Percentage change in water samples complying with national standards for water collection points.	71	73	Achieved
Environment and Natural Resources Sub-programme				
Increased land area covered by forests and Wetlands	Percentage of Land Area covered by forests	13	13.3	Achieved
	Percentage of Land Area covered by wetlands	9	8.9	Narrowly missed
High Compliance to Environmental and Social Impact Assessment (ESIA) Condition by Developers.	Percentage change in permit holders complying with ESIA conditions at the time of spot check.	85	70	Not achieved
Climate Change Responsive Development Pathway.	Air Quality Index PM2.5	90	150	Not achieved
	Average Annual Change in Green House Gas (GHG) Emissions (MtCO2e).	1.15	1.27	Not achieved
Reliable and Accurate Meteorological Information	Percentage Change in the Accuracy of Meteorological Information.	84	77	Not achieved
	Percentage automation of weather and climate networks.	70	65	Not achieved
Land Management Sub-programme				
Increased titled land.	Titled land as a percentage of total land owned	26	22.4	Not achieved
	Turnaround time for titling of land (days)	10	15	Not achieved

Source: PBS Quarter Four Reports for FY2022/23 and Programme Documents

3.2 Water Resources Management Sub-programme

Introduction

The Directorate of Water Resources Management (DWRM) under MWE is responsible for managing and developing the water resources of Uganda in an integrated and sustainable manner. The overall objective of the sub-programme is *to assure the availability of adequate and reliable quality freshwater resources for all uses.* The sub-programme has two interventions that were monitored. These are: (i) improve coordination, planning, regulation and monitoring of water resources at the catchment level, and (ii) strengthen enforcement capacity for improved compliance.

The sub-programme NDP III targeted to increase water permit holders complying with permit conditions at the time of spot check for groundwater to 79%, surface water to 80% and wastewater discharge permit conditions to 63%. It also targeted to Increase water samples complying with national standards at the supplies/collection point to 71% in the FY 2022/23.

Sub-programme Performance

By 30th June 2023, the sub-programme performance was good at 74%. The sub-programme's average indicator performance was rated very good at 99% (data from MWE) with permit holders having achieved the target of complying with permit conditions of both surface water and groundwater. Three catchment management plans were finalised and catchment management measures were implemented. The completion of emergency works for Nyamwamba was affected by unexpected floods. The National Water Quality Reference Laboratory upgrade to ISO certification was ongoing. Regional laboratories were operated and maintained, and water quality and quantity assessed. Portable water too achieved the target of compliance at the point of collection. Wastewater permit holders were on track to achieve the target. A summarised performance of the two interventions is given in Table 3.3 and detailed performance is in Annex 2.

Table 3.3: Overview of the WRM Interventions Performance by 30th June 2023

S/No	Intervention	Performance Rating	Remarks
1	Improve coordination, planning, regulation and monitoring of water resources at the catchment level	On track	The national and regional laboratories were operated and maintained; water quality and quantity data collected and assessed; but an upgrade of equipment and database was still ongoing.
2	Strengthen enforcement capacity for improved compliance levels	Achieved	Permit assessments and issuance were done making compliance levels high for both drinking and wastewater.
Source: IFMS, Vote Progress Reports and Authors Analysis			

3.2.1 Improve coordination, planning, regulation and monitoring of water resources at the catchment level

This intervention aims at ensuring regulated and coordinated use of the water resource sustainably. The key implementer of this intervention is the Ministry of Water and Environment (MWE).

The planned outputs under this intervention were: i) Functional gender-sensitive water catchment management committees established; ii) Joint Transboundary catchment investment projects prepared; iii) Improved water use efficiency for increased productivity in water consumptive programmes (agro-industrialization, manufacturing, mineral development); iv) Nile water allocation tool developed and deployed; v) Water resources data (Quantity and Quality) collected and assessed; vi) Wastewater samples collected and analysed for national standards; vii) National Water Quality Monitoring infrastructure and networks upgraded and functional: viii) The National Water Quality Reference Laboratory's analytical capacity upgraded and regional Laboratories established to address issues related to drinking water, pollution and sustainable development goals (SDGs).

Other planned outs are: ix) Robust E-based Water Resources Information System set up; x) Operational Water information systems at the central level and in the 4 Water Management Zones (WMZs); xi) Catchment Management Plans in the Water Management Zones developed;

xii) Demonstration centres for demonstration of innovative catchment management measures established; xiii) Degraded water catchments protected and restored through the implementation of catchment management measures; xiii) Increased water storage capacity to meet water resources use requirements; xiv) Operational optimal surface water and groundwater monitoring network established.

The overall intervention performance was fair at 59% achievement of the set output targets. The major achievements were: water quality and quantity assessments done, water quantity and quality data collected, national and regional laboratories operated and maintained, and the WIS II was rolled out in all the WMZs. Other outputs were in the process of implementation since they were either multiyear or resource-constrained. The status of implementation by the end of the FY is illustrated hereafter:

i) Functional gender-sensitive water catchment management committees established

The Catchment Management Committee (CMC) guidelines require that women be elected in at least two key management positions. During the FY, the plan was communication and coordination effected; three CMC structures operationalized; six quarterly meetings for CMC and Sub-Catchment Management Committee (SCMC) held in Maziba, Awoja and Aswa; 2,000 stakeholders identified and supported to benefit from Income Generating and Livelihood opportunities. The output achievement was at 27% as the three CMCs were formed but general functionality was lacking.

Communication through social media, updates on Twitter, Facebook and WhatsApp, and the development of Information, Education and Communication (IEC) materials on programme activities was undertaken. Coordination and management of the centre and four (4) WMZs were effected. The staff salaries were paid, and offices and vehicles maintained. At the project closure five (5) documentaries, newspaper supplements, four (4) brochures, Enhancing Resilience of Communities to Climate Change project policy brief and a book on lessons learnt and best practices on interventions was produced and disseminated.

Three (3) Catchment Management Committees (CMCs) were formed i.e. Nsooba Walumwanyi CMC, Kabuyanda CMC and Rwizi CMC, however, they were not operationalized due to financing shortfalls. The gender composition of the three CMCs was as follows: Rwizi CMC had 11 females and 22 males out of 33 members, and Kabuyanda CMC had four (4) females out of 23 members. The CMCs incorporated various categories of members. For example, Kabuyanda membership details are presented in Table 3.4. The committee lacked a female in a key management position as per the guidelines.

Table 3.4: Kabuyanda Sub-Catchment Management Committee Membership Composition

No.	Name	Position	Sex	Category	District /Area
1.	Namanya Yusuf	Chairperson	M	C/Man LC 3	Kabuyanda
2.	Sande Godfrey	Secretary	M	C/Man LC 3	Mwizi Rwampara
3.	Karambuzi Bylon	Member	M	C/Man LC 3	S/C-Kikagati Isingiro
4.	Evedence Ninsiima	Member	M	Agric Officer	Kabuyanda T/C
5.	Atukunda Betty	Member	F	Woman Rep.	Kabuyanda S/C
6.	Kyoshabire Florence	Member	F	Woman Rep.	
7.	Tiayobwa Rogers	Member	M	Agricultural Officer	Ntugamo

8.	Mwebembezi Pebison	Member	M	Agricultural Officer	Rwampara
9.	Atuhere Doreen	Member	F	CDO	Ntungamo
10.	Mpire Orden	Member	M	CDO	Rwampara
11.	Tusingwire Robert	Member	M	CDO	Kikagatit S/C, Isingiro
12.	Rev. Philemon Muhweezi	Member	M	Religious Rep.	Isingiro
13.	Rev. Fr. Ludoviko Ahmbisibwe	Member	M	Religious Rep.	Kabuyanda
14.	Amumpe Nestus	Member	M	Youth Rep.	Rwampara
15.	Erasmus Turihohabwa	Member	M	Youth Rep.	
16.	Chris Mukiiza	Member	M	Youth Rep	Rwoho T.C
17.	Nuwamanya Ruth	Member	F	Media Rep	
18.	Katungwensi David	Member	M	Elder Rep.	Isingiro
19.	Mujuni Stephen	Member	M	Elder Rep.	Isingiro

Source: Victoria Management Documentation

2,000 stakeholders identified and supported to benefit from income-generating and livelihood opportunities: In total 250 stakeholders were identified and supported with 50 beehives depending on their requests as an alternative source of income in Kabambiro and Kabuga in Kamwenge district; four income-generating activities (IGA) groups were formed in Lower Rwizi catchment-Kyotera District to benefit from income generating activities. The different catchments formed committees to hold meetings to evaluate progress and derive action plans. An assessment of the performance of the different groups formed under livelihood support by Wetland International in Kyotera and Rakai districts was undertaken. These included the Bugombe Group which reported a raised capital base of Ug shs 3m and Nkumbi Terimba Group with a capital base of Ug shs 2m.

ii) Joint Transboundary catchment investment projects prepared

This output focuses on sustainable management and use of catchments and water resources shared between the countries of Uganda, Kenya, the Democratic Republic of Congo (DRC) and Tanzania. The initiatives are in most cases jointly implemented by the countries sharing a given water body.

Under the output, the plans included the following: i) 75% of designs/investment plans for fragile sections of transboundary rivers Semiliki, Kagera and Sio systems undertaken; five transboundary stations/ infrastructure rehabilitated; ii) One joint activity at common borders with neighbouring countries conducted; iii) Feasibility studies and detailed designs for two transboundary projects at 70% progress; iv) Bathymetry surveys on the Nile and related systems conducted to 60% progress.

Other planned outputs were: vi) Statutory governance meetings or fora for the management of transboundary river basins and transboundary water systems effectively participated in and well-coordinated; vii) Annual subscription to international organizations (Nile Basin Initiative, African Ministers Council on Water) effected/paid. The output was 59% achieved as no transboundary project was prepared.

The designs for fragile sections of transboundary rivers Semiliki, Kagera and Sio systems were not done. Only preparation works for formulation of the Multinational Lakes Edward and Albert Integrated Basin Management and Investment Project were concluded where the prefeasibility was approved by MFPED's Development Committee. More so, a technical validation of the geotechnical data for the Angololo Multipurpose Project dam site on the Sio-Malaba Malakisi River basin in Namisidwa District was undertaken. The Groundwater for Deep Resilience in Africa Project (G4DR) document was reviewed and a final submission made to the Food and Agricultural Organization (FAO) for further action.

Under transboundary monitoring stations or infrastructure constructed and maintained; the Nile Basin Initiative hydromet stations were under construction. The joint meetings coordinated and attended include the two (2) country-level meetings for Kagera and Mt. Elgon aquifers where a draft Memorandum of Understanding (MoU) for the management and development of the Angololo Multipurpose Project was shared between Uganda and Kenya; supervision of the Nile Basin Initiative was coordinated for the Groundwater project consultants. As a result, the consultant was developing the Action Plans and Technical manuals.

iii) Improved water use efficiency for increased productivity in water consumptive programmes (agro-industrialization, manufacturing, mineral development)

The planned outputs included: i) One newspaper advert on Water Resources Regulation issued; ii) Water permit registry and database operated and maintained; iii) Hydromet equipment (5 groundwater, 5 surface water, 2 automatic weather stations) installed; iv) One research vessel completed and commissioned. The output achieved 56% of the planned activities. Most activities herein planned contribute less to the output.

One newspaper advert on Water Resources Regulation was published and the water permit registry and database were operated and maintained through permit application assessments and entry into the Water and Environment Information System (WEIS). The flooding of R. Katonga Catchment was investigated and a report produced. The hydromet equipment (5 surface water, 5 groundwater, and 2 climate stations) was procured and delivered in the country. However, the supplier in conjunction with MWE was processing a Pre-Export Verification of Conformity (PVoC) exemption from the Uganda National Bureau of Standards (UNBS) on the equipment before delivery to the Water Resources Management offices in Entebbe after which installations would be undertaken.

Construction works were ongoing on four sites for hydromet equipment (Buliisa, Mityana Nyamwamba in Kasese and Nowera in Mitooma districts. The equipment captures real-time data related to water and weather conditions which helps in making quick decisions. The information is recorded at specific time intervals according to the way it was set and relays it on the computer when downloaded. An automated water monitoring station was set up at R, Rushango on Mpanga River that looks at the flows that build up so fast/suddenly. The data collected can be modelled to plan for the community in the area.

Hydromet equipment at River Kagera in Isingiro District and River Mpanga in Kamwenge District

The construction of a research vessel was completed but commissioning was not yet made. By 30th June 2023, the research vessel was docked at Port Bell as delivery to Lake Albert was delayed by the availability of the specialized low bed, road surveys and additional roads and docking point works.

iv) Nile water allocation tool developed and deployed

The Nile water allocation tool developed was not completed as planned. The tool, developed in collaboration with the Uganda Electricity Generation Company Limited (UETCL) is for optimization of water use on the Nile cascade dams. Progress was at 60%. A total of 20 reviews of feasibilities, hydrological, and hydraulic (including environmental flow) study reports related to hydraulic works were conducted. These include: Kiira, Nalubaale, Kakaka, Nyamugasani, and Kyambura. Other activities like conducting bathymetry surveys on the Nile and related systems were not carried out owing to resource constraints.

v) Water resources data (quantity and quality) collected and assessed

In the FY, the plan was 30% groundwater and 40% surface water data submitted from the zonal offices entered into the databases; National Water Quality Reference Laboratory operated and maintained; 2,000 samples collected and analysed for compliance to ambient water quality; water resources data collected, analysed and archived from 183 monitoring stations (42 GW and 142 SW); water quality department and laboratories operated and maintained. The output performance was 100% achieved with the planned water quality and quantity checks made.

The data from the zonal offices was not updated on the national water databases as system migration was underway at 70% development. Mobile laboratory vans were operated and maintained; Specialized Laboratory Quality Monitoring System (LQM) stationery was procured and the National Water Quality Reference Laboratory operated and maintained.

A total of 3,966 water, wastewater and environmental samples were analysed in the National Water Quality Reference Laboratory (NWQRL) and 4 regional laboratories, while 425 samples were collected from lake monitoring stations on lakes (364 water samples and 61 sediment samples). The stations include 32 stations on Lake Victoria closed bays (Inner Murchison Bay and Entebbe) i.e. 19 stations on Lake Victoria open (9 littorals and 10 pelagic stations, 8 stations on Lake George, 10 stations on Lake Edward, stations on the Kazinga channel and 7 stations on Lake Albert.

A total of 136 water samples were collected and analysed from 76 stations on the ambient water quality monitoring network for rivers; results showed heavy sediment deposition in the lakes and rivers as a result of heavy rainfall experienced in the monitoring period. The NWQRL was in operation, thus resulting in Ug shs 215, 873,200 in NTR from client samples analysis generated.

vi) Wastewater samples collected and analysed for national standards

During the FY, the MWE planned 60 EIA reports assessed and reviewed; two water policy technical sub-committee working meetings held; 100 industries assessed for compliance with wastewater standards. However, 13 EIA reports were assessed and reviewed and comments were sent to NEMA and six stakeholder consultation meetings were held. The target was not achieved because the number of EIAs assessed depends on submissions from NEMA. Three Water Policy Sub-committee working meetings were held to revise the National Water Policy instead of the planned two sub-committee working meetings. In total 53 industries were assessed and supported to adopt Resource Efficient and Cleaner Production practices.

vii) National water quality monitoring infrastructure and networks upgraded and functional

Some planned outputs included: i) 92 surface water manual stations and 53 groundwater telemetry stations operated and data archived; ii) 20 surface water telemetry stations and 20 groundwater telemetry stations operated and real-time data transmitted; iii) One water quality vessel operated and maintained; iv) Water vessel Jetty operated and maintained; v) Evaluation of Polymerase Chain Reaction (PCR) equipment undertaken; and Delivery and training on use of the PCR equipment for analysis of COVID-19 in wastewater conducted; vi) Aquifer tests for the different aquifer systems localized.

Other planned outputs were: vii) The National Water Quality Management (NWQM) database upgraded to a web-based system and operated; 15,000 data records processed Water Quality processed; viii) 1,885 water supplies monitored for compliance to standards and 109 industrial wastewater samples collected and analysed; ix) The National Water Quality Reference Laboratory (NWQRL) accredited to ISO/IEC 17025 2017 undertaken, Laboratory quality system documentation finalized and implemented. Progress on the planned outputs was poor at 26% as the planned upgrades were not achieved.

Overall, 69 surface water manual stations and 30 groundwater manual stations were operated and data transmitted. The 10 surface water telemetry stations and 10 groundwater telemetry stations were operated and data was transmitted. However, real-time data transmission from all the telemetry stations was affected by the deactivation of cellular sim cards due to a lack of enough funds to pay the service providers. For example, 5 groundwater telemetry stations (Laropi, Otuke, Bugolobi NWSC, WRI-Entebbe and Alebtong) operated but no real-time data transmission was made.

Shipment of the water quality vessel was delayed due to height restrictions on land transportation in Kenya and Uganda, while the construction for the jetty was at the design stage. The procurement of the PCR equipment for analysis of COVID-19 in the wastewater was not undertaken considering limited finances. Aquifer tests for the different localised discrete aquifer systems in Rwizi and Ora Catchment in Victoria and Upper Nile Water Management Zone respectively were conducted. As a result, discrete aquifer hydraulic properties were ascertained.

viii) National Water Quality Reference Laboratory's analytical capacity upgraded and regional laboratories established to address issues related to drinking water, pollution and SDGs

The NWQRL is meant for assessment of pollution in drinking water, wastewater and the environment. The annual plan was: i) Construction of the National Water Quality Reference Laboratory to 25%; ii) Mbarara and Arua regional laboratories construction initiated; iii) Mbale, Lira and Fort-Portal regional laboratories operated and maintained; and NTR generated; iv) 4,000 water samples of supplied water to industries collected and analysed for compliance to standards; v) 30 potable water testing kits procured for districts.

The construction works for the NWQRL had progressed to only 19% by the end of the FY 2022/23 mainly due to a change of site location with associated complications. Two site inspections and two site meetings were held. Three monthly construction supervision reports were received and submitted. The progress of works was affected by delayed payment of the contractor where even advance payment was not completed. The contractor threatened to request interest because of the breach of contract. On the other hand, the NWQRL was fully operated and maintained

with upgraded infrastructure to improve its analytical capacity. However, there was not enough equipment for proficiency testing as standard operating procedures.

The construction of Mbarara and Arua regional laboratories was initiated, Lira and Mbale regional laboratories were furnished and operated. Non-tax revenue in the four (4) regions was collected and laboratories were operated and maintained. A total of 3,086 water samples supplied to industries were collected and analysed for compliance with drinking water standards at the point of collection in comparison to the 4,000 planned. The Laboratory Quality Management System requirements were implemented in Mbarara, Mbale, Lira and Fort-Portal regional laboratories based on ISO/IEC 17025. The planned 30 water testing kits too were not procured.

The National Water Quality Laboratory under construction at Entebbe

ix) Robust E-based Water Resources Information System

The aim is to have a Robust E-based Water Resources Monitoring System. The planned outputs under this were: i) 200 applications for new and renewal of drilling, construction, abstraction and wastewater discharge permits assessed for issuance; ii) 200 permits (groundwater, surface water abstraction, drilling, hydraulic construction, dredging and wastewater) issued; iii) 20 environmental audits for water resources related projects carried out; iv) 400 permit holders monitored for compliance to permit conditions; v) 60% of the Water Information System Phase II (WIS II) developed and rolled out in Victoria, Upper Nile and Albert WMZs. The Robust E-based Water Resources Monitoring System was at 47%.

A total of 200 applications for new and renewal of drilling, construction, abstraction and wastewater discharge permits were assessed for issuance. The MWE received and assessed 354 water abstraction permit applications (193 new and 161 renewals). As a result, 314 permits (189 new and 125 renewals) were issued. Overall, only seven environmental audits out of the targeted 20 were assessed and comments were sent to NEMA. Generally, 352 permit holders were monitored for compliance with permit conditions and recommendations were given for improvement where gaps existed. The target for the review of environmental Audits was not achieved because it depends on the number of submissions made by NEMA to the Directorate of Water Resources Management (DWRM).

x) Operational water information systems at the central level and in the four Water Management Zones

The plan was Water Information System Phase II (WIS II) developed and rolled out. The WIS II is meant to provide centralised and systematic access to water and environment data, information and knowledge products in the MWE. The WIS II performed at 100%.

There was substantial progress by the end of the FY as 70% of Water Information System Phase II (WIS II) was implemented. Implementation of WII comprised of repairs, expansion and upgrade of the computer network accomplished for Mbale, Mbarara, Fort-Portal, Lira regional offices and Entebbe; the server hardware was installed; beta testing for assets management system, permits management portal, dam safety system and business intelligence Dashboards 9DB) was ongoing. Database modules for Wetlands Management DB, Forestry Sector Support Department DB, Borehole DB, spatial data DB system, and document management system were handed over. Data cleanup and harmonization were partly undertaken. Phase I of Integration of the WIS to other water-related DBS of MWE and NITA-U was done too.

In the Victoria Water Management Zone (VWMZ), the staff received training on the use of WIS and a database was set up. The Zone was piloting its usage in permit processing. This created uniformity in data and fastened permit processing. Moreover, the permit status can be checked online. The NITA-U had not extended internet to AWMZ which posed connectivity challenges.

Left: Document processor; Right: Clever touch screen in the Mbale Regional Office

xi) Catchment Management Plans in the Water Management Zones implemented

A Catchment Management Plan provides a long-term strategy for sustainable development and utilization of water and related resources. The annual plan was to have the following Priority catchments management measures in place; i) Albert Water Management Strategy and Action Plan prepared to 85%; ii) 4 Catchment Management Plans in the WMZs prepared; iii) 10 Catchment Management Committee Structures Operationalized. Iv) Restoration of 2 Micro catchments; v) 30 hectares of degraded landscapes restored. v) Priority catchment management measures implemented in upstream, midstream and downstream River Nyamwamba catchment to protect and restore degraded sections of the river to 100%; iv) A groundwater study of 60% completed. The CMPs in WMZs implementation were at 38%.

Albert Water Management Strategy and Action Plan preparation: The progress of the action plan preparation was at 30%. The final inception report was submitted. The draft Diagnostic/ Situational Assessment Report was submitted and reviewed by MWE/DWRM staff who generated comments and sent them to the consultant for review. The Water Resources Assessment (WRA), Strategic Social and Environment Assessment (SSEA) and Stakeholder Engagement Reports were finalized and validated by stakeholders. By the end of the FY, the consultant was evaluating scenarios and options for water resources management and development within the catchments.

Catchment Management Plans preparation: Catchment Management Plans for Kabuyanda and Matanda Irrigation schemes in Isingiro and Kanungu districts respectively prepared for completion and approved. The preparation of the Catchment Management Plans (CMPs) of Nyamugasani and Kafu in Albert WMZ progressed to 55% against an annual target of 60% which was good; Inception was completed and an acceptable report was submitted; the Water Resources Assessment (WRA), Strategic Social and Environment Assessment (SSEA) and Stakeholder Engagement Reports were finalized and validated by stakeholders. The consultant was evaluating scenarios and options for water resources management and development within the catchments.

On the other hand, Sezibwa and Okweng in Kyoga Water Management Zone (KWMZ) had progressed to 20% against the target of 50%. The completed activities included an inception phase and the revised water resources assessment reports. The inception report for the Waaki Micro-catchment management plan was submitted by the consultant. This was reviewed by the Ministry and comments were provided for the consultant to improve the report. The situational analysis was conducted, and a report was prepared and submitted for review and approval.

The plan for the preparation of CMP for Victoria shores to 70% was not undertaken due to reprioritization to operationalization of existing CMCs like Kabuyanda, and Kiiha for lack of adequate funds.

Six Micro-Catchment Management plans prepared: By the end of June 2023, the six Micro-CMPs of Ora, Anyau, Nyimur, Mutunda, Laropi and Ayugi were prepared to 100% as planned. Priority investment measures were implemented in 6 Micro-Catchment Management of Ora and Anyau, Nyimur and Mutunda; Laropi and Ayugi in the Refugee Settlements to 100%.

Catchment Management Committees operationalization: The CMC is a representation of all key stakeholder groups in the catchment who play a key role in the planning and implementation of the catchment plan. The plan was to operationalize 10 Catchment Management Committees (CMCs). However, only the CMCs of the catchment of (Kabuyanda, and Walumwanyi-Nsooba Micro catchments and Rwizi catchment) were operationalized. A training was organized and conducted for the members of the Katonga Catchment Management Committe (CMC) while the quarterly meetings for CMCs and SCMCs in Maziba, Awoja and Aswa were undertaken. The CMCs are supposed to be meeting quarterly, however, this was not possible due to limited financing.

Training of the Committees (Catchment and Sub Catchment) and Communities: Ten trainings of the Committees (Catchment and sub-catchment) and communities trained on best practices in Ecosystem Conservation, Income Generating Activities (IGAs) and Water Harvesting and flood Structures were planned. Cumulatively, 10,756 affected community members were trained on best practices in Ecosystem Conservation, IGAs, Water Harvesting and flood control in Aswa, Awoja and Maziba catchments. Only five trainings were conducted on the construction of soil and water conservation structures and the establishment of nurseries in the Lumbuye and Katonga catchments.

xii) Degraded water catchments protected and restored through implementation of catchment management measures

Catchment management measures provide a broad framework for water resources, land use practices and management decision-making by stakeholders who are dependent on those catchments. The annual planned outputs included: i) Protection and restoration of degraded section of river Nyamwamba catchment 100%; ii) 10kms of river bank areas within the river catchments of rivers Sebwe, Tokwe and Semliki protected and restored; iii) 1,000 improved energy saving cook stoves produced in Maziba, Aswa and Awoja Catchments; iv) Complete construction 851ha of water harvesting and flood control Structures; v) Complete construction of 346.75km of biophysical structures; vii) Water and Environment Cooperatives established; viii) Revolving funds disbursed to Water and Environment Cooperatives; ix) Degraded River bank restorations undertaken; x) Assessment of surface water and groundwater carried out. The performance of degraded catchment protection and restoration was rated at 55%. The rating was based on the performance illustrated hereafter.

Protection and restoration of a degraded section of River Nyamwamba catchment 100%: Construction of river bank restoration works were at 95% physical progress before the flood event of 22 June 2023 which followed the highest ever recorded rainfall of 156.2mm within 8 hours. Earthworks (River Maintenance/Desilting) and reinstatement/reinforcement of riverbanks (Hauling and filling embankments with excavated rock) was at 97%. Protection of vulnerable/ weak river sections (Cyclopean Concrete, Gabions and Mattresses Ancillaries-geotextile, and Gabions and Mattresses) had reached 98% completion. The floods destroyed some works resulting in construction work stagnation. At the time of monitoring in August 2023, the contractor was busy repairing the damage at the cyclopean concrete section. The progress of works was at a 95% level of completion.

The construction of 10km conservation structures: By the end of June 2023, only 7.4kms of riverbank areas within the river catchments of Sebwe in Kasese District, Tokwe in Bundibugyo District and Semliki in Ntoroko District were protected and restored. The low achievement was attributed to the low release of funds. The construction of 1 micro solar powered water supply system along river Semiliki in Ntoroko District as an incentive for catchment protection was completed, commissioned and handed over to the community for O&M. Three (3)Km of soil and water management measures were undertaken within the river catchments of Sebwe in Kasese District, Tokwe in Bundibugyo District and Semliki in Ntoroko District.

1,000 improved energy-saving cook stoves produced: Cumulatively 13,719 improved energy-saving cook stoves were produced by 18 women groups in Maziba, Aswa and Awoja Catchments by 30th June 2023. Two women groups in the Maziba catchment produced 46 energy-saving improved cook stoves. These were the Mukirwa Women's Group in Hamuhambo Town Council, Rubanda District and the Kigezi Women's Development Group in Kyanamira Sub-county, Kabale District. The stoves were sold and some members were pleased to earn income from the manufactured energy cook stoves. Other women groups completed the production of improved cook stoves in the earlier years of the project.

Completed construction of water harvesting and flood control structures: The plan was to construct 851ha of water harvesting and flood control structures e.g. check dams, percolation pits, and gully plugs. By 30th June 2023, a total of 974ha of water harvesting and flood control structures such as check dams, retention ponds and diversion canals were completed. In the Awoja sub-catchment in Kyoga Water Management Zone alone 284ha were constructed. So this was achieved as planned.

20 Percolation pits were constructed in Ruhenzyamyenda, Mpanga, and Aswa catchments in Agago while two out of the planned four private tree nurseries received support to produce seedlings. The nurseries were established in Rutooma United Farmers in Kamwenge District, Bihanga sub-county in Buteraniro village along river River Rushango. The community therein was very receptive and appreciated the project. The process for procuring a new contractor to implement measures in Rwizi and Katonga was initiated. An assessment of the level of degradation of the Kenkombe waste dumping site and Rwemigina wetland was undertaken to assess the extent of environmental degradation.

Left: Percolation pit in Koboko District; Right: Flood control trench covering three villages of Ajara, Ogwo and Pece in Patongo Town Council Agago District

Complete construction of 346.75km of biophysical structures: By 30th June 2023, 584.89km of biophysical structures in the form of hillside terracing, contour bunds and grasses on farmlands were constructed. A total of 6,891 community members were trained during the construction of biophysical structures and Water harvesting and flood control structures. About 80km of biophysical structures were constructed in the Kween and Serere districts under the Kyoga Water Management Zone. In addition, 126 households (77 males and 49 females) were trained in the construction of water harvesting and flood control structures in Omagoro Village, Kyere sub-county in Serere District.

2,100 vulnerable households provided with livelihood options through the revolving fund
In Nyamwamba catchment Income Generating Activities (IGAs) were not completed**.** Under the implementation of priority catchment management measures in upstream, midstream and downstream River Nyamwamba catchment, all the planned measures to protect and restore degraded sections of the river were 100% implemented. These included: the restoration of degraded hotspot riverbanks, deforested and degraded land through community tree growing on individual farmers' land, public land and riverbanks; and implementation of soil and water conservation measures on priority hotspots in the sub-catchment. However, late release of funds led to re-encroachment by some community members in some cases.

Ongoing were the Income Generating Activities. These included: apiary, aquaculture, horticulture, and fruit growing and making of energy-saving stoves. For example, in Midstream Nyamwamba a total of 250 stakeholders out of the planned 2,000 were supported with 50 beehives as an alternative source of livelihood.

Priority catchments management measures implemented in Lwakhakha, Aswa II, Kochi and Middle Awoja sub-catchments to 60%: Under these sub-catchments, 40% of the works were completed against a target of 60%. The Sub catchment management structures/committees were

established in each of the sub-catchments. Completed activities included the inception phase in all four sub-catchments. Actual works started in the Lwakhakha sub-catchment with soil and water conservation structures (hedge rows, stone bunds, soil bunds, percolation trenches, percolation pits, grass strips and diversion drains) established covering 163 of land out of the planned 150ha.

A total of 203,196 assorted seedlings were raised from three nurseries (Namisindwa 10,000 seedlings, Manafwa 43,000 seedlings and Tororo 28,465 seedlings). Of the raised seedlings, 10,859 tree seedlings (only indigenous trees and Grevillea Robusta) were planted in Namisindwa and Manafwa districts to restore deforested and degraded communal and individual land. The survival rate averaged at 72%. Some of the trees, especially fodder trees, were planted along the percolation trenches for stabilization and reinforced soil erosion control.

In Lwakhakha, 163ha of soil and water conservation, 03 tree nurseries each with a minimum capacity of 90,000 seedlings were established. Tree growing was at 72 % for 144ha/200ha. In Aswa II alone 40ha of soil and water conservation structures, 3 tree nurseries each with a minimum capacity of 90,000 seedlings were established; 203,196 tree seedlings were distributed to the beneficiary communities for growing; 641 cook stoves were constructed and 250 beehives were provided. In Kochi, 41.5ha of soil and water conservation structures, 3 tree nurseries each with a minimum capacity of 90,000 seedlings were established. In Awoja, 6 tree nurseries were established. The seedlings were given to people in the catchment and sub-catchments and planted for soil stabilization in the degraded areas.

The plan was to protect 10km of river bank areas within the river catchments of Sebwe in Kasese District, Tokwe in Bundibugyo District and Semliki in Ntoroko District. By 30th June 2023, only 7.4kms of riverbank areas were protected and restored. A micro solar-powered water supply system along river Semiliki in Ntoroko District as an incentive for catchment protection was constructed commissioned and handed over to the community for operation and maintenance (O&M).

A total of 18.5ha of the targeted 40ha of degraded land were restored by planting fruit trees and other species in Kiiha catchment-Kabango and Bulima Town Council and Kihumuro Sub-county in Mbarara District. The plan included 200 stakeholders in water and natural resources management with 40% women trained, but 220 stakeholders with 37% women were trained. The 3km of soil and water management measures were undertaken within the river catchments of Sebwe in Kasese District, Tokwe in Bundibugyo District and Semuliki in Ntoroko District.

Left: Tree nursery for Kochi and Lwakhakha sub-catchment in Koboko and Namisindwa districts respectively

xiii) Demonstration centres for demonstration of innovative catchment management measures established

The demonstration centres in Kachwekano, Ngetta ZARDI and Serere sites were established in the earlier years of the project with the necessary facilities to support the training of the farmers. The demonstration plots had an apiary, mushroom growing, shea nut value addition system, fish farming, briquette production, micro irrigation, tree nursery, and establishment of a woodlot. The performance of the intervention was at 57%.

During the period under review, three trainings and learning visits were conducted at the Ngetta ZARDI demonstration site with 219 participants. Participants were introduced to alternative IGAs that generate high incomes while conserving water and environmental resources. They were equipped with practical knowledge and skills in the establishment and quality management of alternative IGAs.

Left: Participants trained in mushroom production; Right: A bamboo plot at Ngetta ZARDI all in Lira District

In other areas, a total of 552 stakeholders in other areas were identified and supported to benefit from income-generating and livelihood opportunities. The beneficiaries were given 50 beehives as an alternative source of income in Kabambiro and Kabuga in Kamwenge District; four IGA groups were formed in the Lower Rwizi catchment-Kyotera District to benefit from income-generating activities. The Bugombe Group had a capital base of Ug shs 3m, while the Nkumbi Terimba Group had a capital base of Ug shs 2m in Kyotera and Rakai districts respectively.

The Kabuga Beekeeper's Association was formed after vacating the wetland buffer zone. The group had a membership of 26 people who were trained in value addition and were given four pairs of gowns, two buckets, two hoes, two pangas, and two smokers. They got 55 beehives which were already colonized at the time of monitoring in July.

Some members of Kabuga Beekeepers Association, the beehives in a fenced off and demarcated buffer zone

The different catchments monitored had some good experiences from demonstration plots in terms of controlled floods, alternative livelihood skills gained by members in the catchment basins and improved crop yields. Some of them had started practising these measures in their gardens.

Seventeen Water and Environment Cooperatives established: As part of the alternative livelihood to the persons who were previously relying on the wetlands and riverbanks, the MWE organised the Project Affected Persons (PAPs) into groups and supported them to form and register Water and Environment Cooperatives (WECs). As a result, 17 WECs were formed in the three water management zones of Awoja, Aswa and Victoria to manage the revolving fund. A total of 13 WECs were formed and legally registered with the Ministry of Trade, Industry and Cooperatives (MoTIC) to manage the revolving fund. The other four were still in the process of registration. The WECs were active and continuously recruited members in the cooperatives.

1,836,000,000 revolving funds disbursed to Water and Environment Cooperatives: Revolving funds worth Ug shs, 1,314,528,595 were disbursed to 11 WECs for communities that were previously encroaching on the ecosystem to access, borrow and engage in environmentally friendly activities. By August 2023, the WECs had received over 50% of the funds which was disbursed in two tranches which they used to implement the selected livelihoods. The WECs received and assessed applications from potential beneficiaries and the selection committee chose the members to benefit depending on fulfillment of the necessary conditions for example non-re-encroachment of the wetland.

The WECs formed smaller member groups of between 15-25 members according to their enterprises. Each WEC had three sub-committees - supervisory, vetting and credit/loans committee. Each member paid a subscription fee of between Ug shs 20,000 and Ug shs 40,000, and a share capital of between Ug shs 10,000 and Ug shs 20,000. The loans were given at an interest of between 1% and 2% reducing the balance with a three-month grace period and a repayment period of 12 months. The WECs have the challenge of transport to follow up members for verification before the revolving fund is given and general monitoring. By July 2023, the performance of Maziba WECs was as depicted in Table 3.5.

Table 3.5: The Performance of WECs in Maziba by 30th June 2023

S/N	Name of WEC	District	Budget Allocation	Amount Received	No. of IGAs
1.	Rufuha Farmers WEC	Ntungamo	158,060,008	99,116,380	17
2.	Kabasheshe WEC	Ntungamo	130,000,000	40,970916	4
3.	Upper Maziba Farmers	Kabale	206,022,836	129,937,680	14

Source: Field Findings

In Agago, communities engaged in the apiary (02 groups), sunflower growing (19 groups), fish farming (09 groups), shea butter processing (01 group), and onion farming (01 group) total groups registered were 92. For example, for the sunflower group, each member planted 1ha, while each one was given 2kgs of seeds and a total of 422 hectares were planted. In Atula Village, Opari Parish, Agago District a group named ATULA C Fish Farming Group comprising 25 members (11 males and 14 females) stocked 1,000 tilapia, nilotica and fingerings species of fish and they got 100kgs each at Ug shs 5,000 which was done to other fish farming groups, while for the beekeepers each group got 6 beehives for the first disbursement and were already colonized by June 2023.

Left: An acre of sunflower; Right: Colonized bee hives for members of Olupe Opong River Bank WEC in Agago District

Left: A member of Abuket Aminanoros Piggery Group in Abukete Parish; Right: A section of a fish pond for Odoo Fish Farmers Group, all of Kyere WEC in Serere District

Degraded river bank restorations: Other 5.7ha of degraded river banks in Lapyem Parish, Adilang Sub-county and Ladere Parish, Ajali Sub-county, all in Agago District were restored. The community delays to vacate the areas caused the dragging of the activity. Approximately 15km of degraded river banks along River Rushango were demarcated and planted with pillars. The area covered included; the Mpanga area - Kamwenge District, Kabambiro, Kahunge and Kabuga sub-counties in the villages of Kakindo, Kijuma, Rwebikwato and Kaganda.

In Kabarole District, livelihood training was carried out in apiary and beehives supplied, cookstove manufacturing and marketing, fruit growing; training and supply of seedlings. Tree planting took place in three degraded areas of Kibwa, Nyakitokoli and Kamabate for soil and water conservation.

xiv) Increased water storage capacity to meet water resource use requirements

Assessment of surface water and groundwater carried out: The preparation of the groundwater study to assess available resources and demand had progressed to 40% against the targeted 60% by the end of June 2023. Key completed activities included an inception phase, data gap and baseline assessments and groundwater resources availability and demand assessments. The purpose of the study is to give guidance in sustainable water resource management. A draft groundwater resources availability and demand assessment report was reviewed by MWE and the World Bank. The comments raised were sent to the consultant for revision and improvement of the report.

xv) Operational optimal surface water and groundwater monitoring network established

20% of the monitoring stations constructed: 20% of the monitoring stations were constructed. Hydrogeological surveys/investigations for two groundwater sites of Arua and Lira were completed. The sinking of the arua borehole was completed while construction of 2 surface water sites on Pager and Aswa 1 was ongoing.

3.1.2: Strengthen enforcement capacity for improved compliance levels

This intervention aims at providing enforcement mechanisms by the responsible authorities to administer the law on the environment and water use. The planned output under the intervention was Water resources compliance monitoring equipment procured and installed. The intervention performance was rated very good at 90% performance as detailed hereafter:

Water resources compliance monitoring equipment procured and installed

Under this output, the MWE planned 42 groundwater and 142 surface water monitoring stations operated and maintained (KWMZ, GW-16, SW-41, VWMZ, GW-10, SW-16, UNWMZ, SW-10 and AWMZ, GW-16, SW-45). Rehabilitation and minor repairs on 11 surface water monitoring stations undertaken. Four river water level lidar monitoring censors installed - two on River Nyamwamba and two on River Mubuku. A river monitoring camera installed on river Nyamwamba; four regional water quality laboratories operated and maintained; ambient water was analysed; piped water and borehole water samples were analysed; 535 water abstraction and wastewater discharge permit holders were monitored and 2,000 samples from 55 stations on Lake Victoria, eight on L. Kyoga, seven on L. Albert, seven on L. Edward and 10 on L. George analysed.

During the FY 2022/23, MWE continued to operate and maintain existing equipment. Thus, 42 groundwater and 117 surface water monitoring stations were operated and maintained. Additionally, the quality data was collected and archived. Various stakeholders use data for the design of water infrastructure like bridges, water resources assessment and research in academia; and this data in other cases facilitates government planning.

Rehabilitation and minor repair works were undertaken on 11 surface water monitoring stations. Floods assessments were conducted and documented on Katonga catchment, L. Nakivale and Kyenshama while bathymetry surveys at Isimba and Kagera were carried out. More so, a geophysical survey at Isimba Hydro Power Plant; demolition of the Katonga monitoring station and transfer of water levels for reference when restoring the gauges were undertaken. The four river water level lidar monitoring censors were installed on River Nyamwamba and 2 on River Mubuku. In addition, a river monitoring camera was set up on River Nyamwamba.

Piped water and borehole water samples analysed: The annual planned piped water and boreholes samples water were 745 but 3,011 samples were collected and analysed. Compliance levels for different parameters were as below; 74% E-coli, 83% turbidity, and 100% electrical conductivity. As a result, Ug shs 93,078,300 NTR was generated from the analysis of 552 client samples.

In total, 971 water samples were collected and analysed for compliance with drinking water standards at the point of collection. The overall compliance level for urban water (piped water) was 72.4% (84% for conventional treated water supplies and 58% for other piped water supplies including GFSs). Whereas the compliance level for rural point sources was 54.5%. Based on water supply technologies the compliance was 88.3% for deep wells; 55% for shallow wells and 40 for springs). The low compliance levels for both rural and urban water were attributed to the rainy assessment period when the water quality deteriorates whereas the small sample was attached to the budget limitation which as a result affects the potable water supply.

In regional laboratories, tests are usually biological (physical-chemical parameters). The other emerging concepts like medicines, pesticides etc, are not yet there. The operation of Mbarara and Mbale Regional Water Quality Laboratory were monitored, and their statuses are elaborated below:

The Mbarara Regional Water Quality Laboratory: The laboratory operates in two rooms - one for drinking water analysis and the second one for wastewater analysis. Modification of the drinking water analysis room was renovated last financial year to install a water system and electrical connection.

All the equipment including the Ion Chromatography Unit (ICU), pH, Turbidity probes and filtration unit were installed in FY2022/23. This improved the performance of the laboratory as equipment like the IC machine uses minimum chemicals and runs 10-15 parameters yet before each parameter would be run independently. All the two improvised Laboratory rooms were functioning well however some parameters could not be done due to lack of suitable analysis equipment.

Exterior part of the wastewater laboratory in VWMZ, Mbarara District

The parameters which could not be tested due to lack of equipment included: Heavy Metal analysis (iron, lead, cadnum, arsenic, mercury), total iron in water and oil and grease in water. The samples were sent to the central laboratory in Entebbe for further analysis. Table 3.6 details the functional status of the Mbarara Regional Reference Laboratory.

Table 3.6: Functionality Status of Mbarara Regional Laboratory as at 30th June 2023

No.	Equipment	Quantity	Status	Parameters Tested
1.	Auto Clave	1	Functions well	Sterilization
2.	EC meter(bench)	1	Functions well	EC(Laboratory)
3.	EC meter (field)	1	Functions well	EC(field)
4.	EC probe	1	Functions well	EC
5.	Electronic stirring block	1	Functions well	Stirring samples and standards
6.	Digital Burette	3	Function well	Total Hardness, Total alkalinity
7.	pH meter(bench)	1	Functions well	pH
8.	pH meter(field)	1	Functions well	pH
9.	pH probe	2	Function well	pH
10.	Filtration unit	1	Functions well	Microbiology and chlorophyll
11.	Cool box	1	Functions well	Transportation and preservation
12.	Incubator	3	Function well	Microbiology
13.	Sampler	1	Functions well	Sampling
14.	Secchi depth disc	1	Functions well	Light penetration
15.	Trollies	2	Function well	Sample transfer in the lab
16.	COD reactror	1	Functions well	COD
17.	Fridge	2	Functions well	Preservation
18.	IC unit	1	Functions well	Cations(K, Na,NH4,) and anions (NO2, NO3, SO4, Cl, F,)
19.	CPU	1	Functions well	Power storage
20.	Weighing balance	1	Functions well	Weight
21.	DR 900	1	Functions well	Colour
22.	Turbidmeter	1	Functions well	Turbidity
23.	Printer	1	Functions well	
24.	Desktop computer	1	Functions well	

Source: Field Findings and VWMZ Documents

To improve water quality testing, laboratory chemicals and reagents were procured for use and two water quality data requests from external clients were received and processed. The accreditation exercise for the NWQRL was ongoing. Laboratory quality system documentation was not finalised. The Quality Management System (QMS) training covered two areas - South African Development Community Cooperation in Accreditation Service (SADCAS) accreditation documents and basic laboratory operations and techniques. Auditing of the microbiology laboratory was conducted too.

The Mbale Regional Water Quality Laboratory: The laboratory was well-operated and functional by July 2023. A total of 1,550 samples of the targeted 1,000 were collected and tested. The target was overshot due to support from the World Health Organisation and the Uganda Bureau of Statistics while undertaking the Uganda Demographic Health Survey. Approximately Ug shs 25 million NTR was collected against the targeted Ug shs 50 million. The laboratory had 31 assorted equipment for measuring various parameters including total turbidity, alkalinity, hardness, and pH among others. However, only 22 of the equipment were functional, two were non-functional, five were yet to be installed and installation for two was in progress. The lab was constrained with staffing given that there were only four staff as opposed to the required seven in the structure.

An autoclave; incubator; and Multi-Branch Manifold and Filtration Unit in the Mbale Regional Laboratory

The 60 wastewater samples collected and assessed: The 55 wastewater samples collected and analysed for compliance with wastewater discharge permit conditions reflected an 11% compliance level to COD, 94% to BOD, 37% to TP and 40% to TN. The low levels of compliance of the different parameters indicate contaminated water resources which in turn affect the health of the population and other living organisms like fish. For example, the low COD compliance limits the oxidization of chemical organic materials like petroleum.

All together 220 industries (wastewater discharge facilities) were monitored for compliance to wastewater discharge standards; 319 wastewater samples were collected and analysed from municipal and industrial effluent discharge facilities with compliance levels to wastewater discharge standards as follows: 73.6% compliance level to Total Nitrogen (TN), 51.75% compliance level to Chemical Oxygen Demand (COD), 58.95% compliance level to Total Suspended Solids (TSS), 79.45% compliance level to Total Phosphorus (TP). Generally, 8,159 water, wastewater and environmental samples were analysed at the NWQRL and four regional laboratories.

Ambient water samples analysed: The plan was 22 ambient water (ground and surface) samples collected and assessed for compliance with national standards for water bodies in KWMZ. By the end of FY 2022/23, 228 ambient water samples were collected and analysed for compliance with national standards for water bodies. The compliance level to COD, BOD and Total Nitrogen was 84% which was good. The assessed samples were more than what was planned because of the priority it is given since the public over-rely on the water bodies for water for domestic and industrial use.

535 water abstraction permit holders monitored: A total of 339 water abstraction permit holders were monitored for compliance with permit conditions in different districts. A workshop on water use permitting, catchment water resource management, water quality lab services and water source protection planning was conducted to ensure sustainable water resources management. Overall 140 new water abstraction permit applications were assessed and recommended for issuance. As a result, 122 unregulated water abstractors were identified and given all information on application procedures. The total number of EIAs reports reviewed was 24.

Collection of 2,000 samples from 55 stations on Lake Victoria, 8 on L. Kyoga, 7 on L. Albert, 7 on L. Edward and 10 on L. George and analysed for compliance to ambient water quality: Cumulatively 1,057 water samples were collected from sites on the national ambient water quality monitoring network on 111 rivers/streams and 12 lakes. The samples were collected from 32 stations on Lake Victoria's closed bays Inner Murchison Bay and Entebbe i.e. 19 stations on Lake Victoria

open 9 littoral and 10 pelagic stations, 8 stations on Lake George, 10 stations on Lake Edward, stations on the Kazinga channel and 7 stations on Lake Albert; 136 water samples collected and analysed from 76 stations on the ambient water quality monitoring network for rivers; Results showed heavy sediment deposition in the lakes and rivers as a result of heavy rainfall experienced in the monitoring period.

Key sub-programme challenges

1. The WRM Department was operating at a 40% staffing level. The limited staffing constrained the few existing staff yet promotion is difficult because of the limited wage bill.
2. The existing laws/guidelines were exploited by private laboratory operators to offer water quality testing services thus compromising with the standards in some cases.
3. There was inadequate equipment and personnel to do water quality testing for all piped systems in the country especially the GFSs which in some cases compromises with the quality standards.
4. The water quality issues are not tangible by nature and thus do not attract many funding opportunities.
5. Erratic weather patterns caused by climate change come with associated damages like the Nyamwamba case.

Conclusion

The sub-programme performance was good (on track) at 74% and most outputs and the outcome targets were achieved. The two interventions achieved 61% of the planned outputs. The outcome compliance levels with permit conditions for both groundwater and surface achieved their NDP III targets for FY 2022/23. On the other hand, wastewater was on track to achieve the target. A lot more would have been achieved under the sub-programme but there were delays in procurement, completion of ESIAs, World Bank "no objections", and contractors in some cases delayed to put in invoices. However, there was a mix-up of intervention activities in various outputs a reflection of poor planning. In other cases, the outputs planned uncoordinated activities which were not contributing to intervention outcomes.

Recommendations

1. The MWE should prioritise filling up positions of staff in the approved structure waiting for recruitment after the payroll audit exercise.
2. The MWE should expedite the review of the water policy stipulating the water quality testing laws/guidelines governing private practitioners.
3. The MWE should prioritise procurement of the necessary water quality testing equipment to improve the portable water.
4. The MWE should beef up efforts in sensitising communities to cope with climate change mitigation and adaptation measures.

3.3 Environment and Natural Resources Management Sub-programme

Introduction

The sub-programme contributes to the NRECCLWM Programme's goal of reducing environmental degradation and adverse effects of climate change and improving the utilisation of natural resources for sustainable economic growth and livelihood security. The sub-programme objectives are: i) maintain and /or restore a clean, healthy, and productive environment; ii) increase forest, tree and wetland coverage and restore and protect hilly and mountainous areas and rangelands; iii) promote inclusive climate resilience and low emissions development at all levels; iv) reduce human and economic loss from natural hazards and disasters; and v) increase incomes and employment through sustainable use and value addition to water resources, forests, rangelands, and other natural resources.

The sub-programme is mainly contributed to by NFA, NEMA, UNMA, OPM, MWE-Natural Resources Department, Wetlands Department, Forestry Support Services Department (FSSD), Environmental Affairs Department and Climate Change Department (CCD).

Planned interventions

Of the planned 12 interventions under the sub-programme, 10 were sampled for monitoring as others had insufficient information to monitor and deliver on the planned outputs. Overall sub-programme performance was good at 73.1%. The good achievements registered included: Strengthen enforcement capacity for improved compliance levels at 100%; Install new and adequately equip and maintain existing automatic weather stations to ensure maximum functionality at 78%; Strengthen conservation, restoration of forests, wetlands and water catchments and hilly and mountainous areas; and Enhance access and uptake of meteorological information at 71% each.

A poor performance of 48% was attained under increase funding for promoting non-consumptive uses of natural resources because the major output - supply of seedlings was not achieved as their demand was low. As a result, 960km of CFRs boundaries were demarcated with pillars and live markers, 5,157ha were demarcated for licensed tree planters and 467.75km of wetland boundaries were demarcated with pillars and live markers. New plantation establishments, were 513.4ha in CFRs and 513.4ha for commercial tree planters. A summarized interventions' performance is shown in Table 3.7 and a detailed performance is attached in Annex 3.

Table 3.7: Performance of the Interventions Monitored under the Environment and Natural Resources Sub-programme by 30th June 2023

No	Interventions	Performance Rating	Remarks
01	Strengthen conservation, restoration of forests, wetlands and water catchments and hilly and mountainous areas	On track	Good performance at 71.7% as 513.4ha commercial tree plantations established by NFA; while 13,580ha by licensed tree planters, boundaries marked and illegal titles identified for cancellation, howwver encroachment on demarcated areas was observed during monitoring.
02	Increase investment in value addition to environment and natural resources products and services	Achieved	100%. A very good performance. Environment Police Protection Unit (EPPU) undertook environment inspection, monitoring and enforcement activities.

No	Interventions	Performance Rating	Remarks
03	Mainstream environment and natural resources management in policies, programmes and budgets with clear budget lines and performance indicators.	On track	At 64.2% score, a draft curriculum for a diploma in Forestry Management was developed for Nyabyeya.
04	Increase funding for promoting non-consumptive uses of natural resources	Off track	At 48% performance was poor since seedlings supply was affected by demand.
05	Strengthen enforcement capacity for improved compliance levels	Achieved	100% - Modern infrastructure procured inclusive of 25 GPSs, 140 assorted ICT equipment.
06	Develop and implement a framework that reduces adverse per capita environmental impact of cities (air quality and waste management practices)	On track	At 59.7%- where 12 CDM sites were visited and capacity was given in e-waste management. Three regulations were developed as a legal framework for a sound environment.
07	Undertake applied research and innovation on sustainable consumption and production to ensure resource use efficiency to reduce domestic material consumption per capita	On track	At 61% - No applied research or innovation was carried out. Produced NSOER only.
08	Enhance access and uptake of meteorological information	On track	At 71%. One customer satisfaction survey on the provision of aeronautical meteorological services was conducted.
09	Formulate and implement vehicle emission standards and sustainable management of chemicals to curtail the high levels of air, land and water pollution particularly in urban areas		At 32%. Four inspection fleet and an Environmental Monitoring and Licensing System were procured.
10	Install new and adequately equip and maintain existing automatic weather stations to ensure maximum functionality	On track	At 78%. Weather forecasts disseminated (daily, L. Victoria marine, Terminal Aerodrome), SIGMETs and Flight folders issued.

Source: IFMS, Vote Progress Reports and Authors Analysis

3.3.1 Strengthen conservation, and restoration of forests, wetlands and water catchments and hilly and mountainous

This intervention aims to restore and conserve the environment and natural resources through demarcation, planting, restoring, and maintaining CFRs, wetlands, water catchments, and hilly and mountainous areas. This intervention is mainly contributed to by NFA, NEMA, Wetlands Department, Forest Support Services Department, and Department of Environmental Affairs.

The intervention planned eight outputs which were assessed:

i. Improve coordination, regulation and monitoring of environment management at both central and local government levels

ii. Undertake an inventory of degraded wetlands; Restoration of critical wetlands; Demarcate, gazette and restore 900kms of wetlands; Gazette 6 critical Wetlands

iii. 12,200km of CFRs boundary resurveyed, marked and maintained

iv. 1.265mha of CFRs protected and freed from illegal activities and encroachment

v. 55 Forest Management Plans prepared and revised

vi. 113,000 ha of forest established (13,000 ha under NFA and 100,000 ha under Licensees on CFRs)

vii. Protection and restoration of strategic fragile ecosystems undertaken

viii. Effective engagement with the United Nations and other partners in environmental issues.

The intervention performance was good at 72%. Progress on different outputs is illustrated hereafter:

Improve coordination, regulation and monitoring of environment management at both central and local government

The output aims at smoothening environment management at all levels. Under the output, the plan was: i) Climate Change Adaptation-Mitigation projects and Clean Development Mechanism (CDM) monitored; ii) Sectors trained on Measurement, Reporting, Verification (MRV); and Capacity building for both CCD and emitting sectors on development and management of Green House Gas (GHG) inventories; iii) First State of National Climate Change report prepared; iv); LG baseline to climate change risk, impact and vulnerability conducted and preparations and attendance of national and international meetings made; v) Local Governments and urban councils inspected, supervised, and coordinated for compliance with approved guidelines; vi) Four regional offices linked to the National Wetlands Information Systems; vii) Ten LGs and MDAs supported in environmental planning; viii) Sensitization and awareness campaigns on environmental laws, regulations, and guidelines and corresponding penalties for non-compliance undertaken in Kyoga WMZ; ix) Procurement of equipment.

The Climate Change Adaptation Mitigation projects and CDM were monitored. The MWE identified and validated adaptation actions under the Local Climate Adaptive Living (LoCAL) Facility pilot districts of Nwoya, Kasese, Zombo and Nebbi. The MRV training for Climate Change Department staff and sector experts from Agriculture and Food and Land Use Coalition (FOLU) sub-sectors was conducted while 55 district officials from Buikwe were trained in Climate Risk and Disaster screening for projects and programmes. Baseline and Needs Assessment activities were carried out and the capacity of over 100 district officials from Nakasongola, Nakaseke, Luweero, Mitooma, Kagadi and Kasese to mainstream climate change in their respective District Development Plans was built.

The State of Climate Change Report was not prepared due to budgetary constraints. No capacity building was undertaken for both CDD and emitting sectors. The consultant was procured to expand on the GHG inventory, baseline and emissions projections for Waste and Transport sub-sectors. Support was given to the districts of Buikwe and Namayingo to conduct climate change risk, impact and vulnerability analysis. The MWE staff participated in various meetings inclusive of: the United Nations Framework Convention on Climate Change (UNFCCC) June sessions proceeding to Conference of Parties (COP) 28; Ramsar Cop 14 and SDG -13 High-level political platforms.

The regional offices were not linked to the National Wetlands Information System due to budgetary constraints as planned. A total of 161 LGs compared to the planned 10 were inspected, supervised and supported in mainstreaming ENR into their district development plans and budgets. Under the One Health approach only the Ministry of Health (MoH), the Ministry of Agriculture Animal Industry and Fisheries (MAAIF), and the Ministry of Gender, Labour and Social Development (MGLSD) got support in environmental planning.

Sensitization campaigns on sustainable natural resource management were undertaken in LGs of Buhweju, Kisoro, Kabale, Kanungu, Rukiga, Rubanda and Rukungiri. In some cases, procurement of office equipment was ongoing due to budget constraints and the Electronic Government Procurement (EGP) system failure as the documents kept disappearing on the network.

Equipment procurement: The planned specialized laptop for information and communication and two tablets for IEC were procured and awaited delivery. Other equipment that included two water testing kits, 40 GPS devices to support LGs in Central and Northern Uganda, and two cameras for the North and Central regional offices were not procured due to budgetary constraints.

The target was 24 LGs and urban councils inspected, supervised, and coordinated for compliance with approved guidelines. By 30th June 2023, only seven LGs and urban councils of Mbarara City, Sheema, Fort Portal, Ibanda, Kagadi, Kikuube and Kiruhura were inspected, supervised, and coordinated for compliance with approved guidelines. Improvement notices (5 in number) were issued and five compliance agreements were signed in Fort Portal and Mbarara City.

Undertake an inventory of degraded wetlands; Restoration of critical wetlands; demarcate, gazette and restore 900 kms of wetlands: Gazette 6 critical wetlands

The annual plan included: a) Two gender-responsive community-based management plans for Mpologoma, and Mulehe implemented; b) 400km of conserved and degraded wetlands demarcated with pillars and live markers; c) 475 wetland systems gazetted; d) Cancellation of titles issued in wetlands conducted; e) 850km of conserved and degraded wetland systems demarcated and gazetted (in Central Uganda-complete demarcation in Mityana, Nakaseke (Mayanja wetland system), Mukono, Buikwe, (Sezibwa wetland System); f) 13,000ha wetland system restored (in Central-Complete demarcation in Mityana, Nakaseke (Mayanja wetland system), Mukono, Buikwe, (25.7), Ssala-Kirika wetland Kibuku District (20.4km), Kakindo Wetland-Bugangari sub-county Rukungiri District (56km), Magongoro Kisiro Wetland-Butaleja District (28km), Mpologima Wetland-Namutumba District (54km), Nandere Wetland-Kibuku District (12km), 34.65km for Rwambu-Mpanga Wetland System in Kitagwenda, 27.90km in Ibanda District and 11.40km in Ibanda Municipality.

The two gender-responsive community-based management plans for Mpologoma and Mulehe were not implemented. In a bid to conserve and demarcate degraded wetlands, achievements registered were as follows: 467.75km of wetland boundaries were demarcated with pillars and live markers in Muziizi Wetland System-Kyegeggwa (8.5km), Oladot Wetland in Kumi (55km), Leresi/ Nakwasi Wetland in Butaleja (49.2km), Posuna Wetland in Tororo (31km), Nyumba – Rwabara Wetland in Kisoro (54km), and Kamenyamugongo Wetland-Butebo. However, indicators for re-encroachment were visualised on the ground in all the areas visited. The community was busy preparing gardens for the next planting season.

The planted tree seedling and cattle going through the destroyed part of the restored wetland

A boundary marker pillar and a new garden prepared for planting in the buffer zone in Kaija Wetland (Muzizi) in Kyegegwa District

475 wetland systems gazetted and cancellation of titles conducted: Preparatory works for the gazettement of 475 wetland systems were concluded, and what remained was printing of the gazette. A community-based wetland management plan covering 331.8 hectares was developed for the Katanyebwa Wetland-Kapeeka Sub-county in Nakaseke District. The planned cancellation of titles in the wetlands was not yet done due to resource constraints. Consultative and sensitization meetings on the cancellation of titles in wetlands were undertaken in Kinawataka, Nakawa Division-Kampala District.

850km of conserved and degraded wetland systems demarcated and gazetted: A total of about 191km of wetlands were demarcated and these included: 100km of Aswa Wetland System in Lira and Sezibwa Wetland in Katereke-Mayanja-Kyengera Town Council, Wakiso District (11km), Aswa Wetland Barr Sub-county-Lira District (25km), Hondwa-Muziizi-Kagadi District (10km), Enyau-Arua City (45km).

Countrywide,12,347ha of degraded wetlands were restored. Among these were - 3,007ha restored in Nyamirembe Wetland in Bushenyi District, 2,521ha in Rulindo Wetland System-Rukungiri District, 1,223ha in Kamenyamugongo Wetland-Butebo District, 4,377ha in Ssala-Kirika Wetland-Kibuku District, 1,205ha in Kagorogoro, 14ha in Tochi-Oyam District and Nyamabaare in Rubirizi District. A total of 20.4m trees were planted across the country's landscape in the restored areas. The wetland system demarcation around L. Wamala remained with about 4km at the Nkonya landing site where the farmers grow tomatoes and the chemicals they use to kill the fish in the lake. The LCI Chairperson refused to mobilise the community for the demarcation exercise. Around L.Wamala (Mityana), R. Mayanja (Wakiso), Kiiha wetland (Rukungiri), and Wambabya (Masindi).


Installed pillar; Illegal activity of fresh garden of tomatoes with eucalyptus and a bricks' kiln around L. Wamala shoreline in Mityana District

There was no developed management plan undertaken. Still under the legal framework for sustainable ENR management development, all activities planned and carried out were administrative and not related to the output. The inventory of degraded wetlands was not carried out either.

Some wetland systems were visited, and works had been done however re-encroachment was ongoing which required follow-up supervision and enforcement activities. However, the LGs were not able to follow up on these activities due to lack of transport. The MWE recruited wetland supervisors and bought bicycles which were yet to be delivered to the field. Thus making it hard for the supervisors to monitor the planted pillars and restored areas. Table 3.8 shows the different areas visited during the months of July-August 2023 and the situation on the ground.

Table 3.8: The Status of Wetland Systems monitored

Wetland system	Remarks
Mityana-L.Wamala degraded shoreline restoration	A total of 400 pillars were planted at a distance of 150m apart and in total about 30km were demarcated to restore the shorelines of L.Wamala. Though some pillars were uprooted, bricklaying in Mpamuzo swamp and agricultural activities were ongoing in the wetland, A stretch of about 4k remained unmarked in Nkonya LC owing to the lack of cooperation of the LC Chairperson.
Kyegegwa -Muziizi wetland demarcation	Demarcation of the wetland involved planting 75 pillars out of the estimated 200km along the Kaija wetland stream which drains into the Muzizi wetland. However, garden preparations for the next planting were noticed.
Hoima -R. Wambabya wetland restoration	River bank demarcation was done with pillars around the two sides of the wetland. However, the activity was not completed and some pillars were seen at the district headquarters. The community continued their activities e.g., cultivation of crops and bricklaying.
Rukungiri-Rulindo catchment degraded land restored	The catchment of about 5,195ha was demarcated in phases using live markers and the vegetation had started recovering. The cattle were seen grazing, garden preparations and local gin brewing ongoing on the restored wetland at the time of visitation.
Kagadi-Hondwa Muzizi demarcation	Demarcation of the Muzizi tributary-Hondwa was done in Kagadi. Pillars were planted for approximately 15km. However, agricultural activities were ongoing in the demarcated area. For example, tomatoes and maize had been planted and pillars shifted.
River bank restoration of R. Rwizi	Restoration of the river bank by planting 46,000 tree seedlings planted in Kihumuro, Kihumuro sub-county in Mbarara District. The seedlings around Kihumuo had grown and the area had been fenced off.
Kamwenge-Kabambiro, Kabuga and Kahungye - river bank restoration	A total of 45km of river Mpanga buffer zone was marked, and planted with pillars, bamboo seedlings and fenced off. The wetland was regenerating. The community group of 26 people called Kabuga beekeepers were given 55 beehives which had colonized by July 2023.

Wetland system	Remarks
Kasese-Nyamwamba River Bank restoration	A total of 20km of the river stretch was marked and planted with trees along the river banks; Upstream 449ha midstream 700 acres downstream 229ha; and provision of alternative sources of income. The banks had regenerated and communities were engaged in other activities like fishing, and coffee growing.
Kabale-Nyakahi	The wetland was restored and communities were given alternative income-generating activities. The group of beekeepers monitored got 160 beehives which had been colonized. However, one farmer had re-encroached by growing potatoes.
Wakiso-Mayanja	Wetland marking with pillars was done.
Masindi-Fumbya	A total of 5km restoration of river banks with 49 concrete pillars in Masindi municipality. The community was given a grace period of six months to harvest their crops. However, they had started preparing gardens for next season's planting and bricklaying was ongoing.
Hoima-Kiiha	The wetland restoration started way back in 2012. It had regenerated however, some community members re encroached. In FY 2022/23, 4,600 trees were planted but one cattle farmer used the area and the animals destroyed the trees.
Wakiso-Nsangi- Katere-ke Mayanja Wetland	A stretch of 10km was demarcated with pillars. However, activities farming were still ongoing and some pillars had been destroyed allegedly by scrap dealers. Permanent houses were seen coming up.
Lira District Aswa wetland system	A 25km stretch of the Aswa wetland was demarcated with 240 concrete pillars, regeneration was evident at the time of monitoring.
Oyam District Aminakullu Wetland	The Aminakullu wetland wise use was purposed to put in place interventions that demonstrate the proper use of wetlands. The plan was to implement a valley tank, three fish ponds and a solar mini-irrigation scheme. As of 30th June 2023, a 10,000m3 valley tank was constructed, two fish ponds were under construction, and the irrigation scheme was yet to commence. Implementation challenges included rocky terrain and machinery breakdown.

Source: Field Findings

Dry gin brewing and re encroached part of Rulindo wetland in Rukungiri District

A beneficiary with her diary cow in Maziba catchment, and a water retention facility in Rukungiri District

Under NFA some outputs were planned inclusive of 12,200km of CFRs boundary resurveyed, marked and maintained; 10 new eco-tourism concessions developed; 55 Forest Management Plans prepared and revised; 1.265mha of CFRs protected and freed from illegal activities and encroachment, 365,000ha of natural forests restored; 62,657ha forest inventory and biomass assessed; 113,000ha of forest established (13,000ha under NFA and 100,000ha under licensees on CFRs); 200 million seedlings supplied (5m-Bamboo, 50m-Indigenous and 145m exotic species)

Other planned outputs were: 1,770 modern forest management infrastructure procured; output Integrated Forest Information Management System developed; forest databases updated; 750 professional staff recruited at forest protection level; Sustainable natural resource management communication strategy developed; 48 business projects developed.

The plan and progress of different outputs is detailed hereafter. However, no business project proposals and communication strategy were developed; recruits and database updates were undertaken. Under infrastructure procurement, only 25 GPs and 354 corporate wear were procured.

12,200km of CFRs boundary resurveyed, marked and maintained

The NFA aimed at digitizing 1,000km of CFRs boundary plans and as a result, 1,188km of CFRs boundary plans were digitized by the end of the FY 2022/23. A total of 1,190,191ha of 506 CFRs in 17 management areas across the country protected from illegal activities and encroachment out of the planned 1.265 million hectares as 72km of fire lines re-opened of the planned 100km. This was in nine ranges of Lakeshore, Kyoga, Karamoja, Achwa, West Nile, Muzizi River, Budongo Systems, South West and Sango Bay. However, encroachment is prevalent in some CFRs like South Busoga, Bugoma and Budongo where encroachers continue to do so despite ongoing court proceedings.

The total of 250km of forestry boundaries was targeted for marking in FY 2022/23. Consequently, 960km of CFRs were resurveyed and marked with pillars and these are: 306,323.6km, carried out in Namwasa (102km), Luwunga (94km), Nkeera (13.1km), Ihimbo (11km), Olamusa (4km), Kandada-Ngobya (45km), Lagute (8.5km), Kasyoha-Kitomi (46km). 1,568.0 pillars were planted to demarcate the resurveyed CFRs. A total of 1,568 pillars were used to mark and demarcate the resurveyed CFRs boundaries.

The area of CFRs demarcated and mapped for licensed tree planters was 5,157ha demarcated the targeted 10,500ha for 67 farmers. These are in Bajo CFR 2,327ha for 50 farmers and in Alungamosimosi CFR 2,830ha for 17 farmers. Demarcations continue next FY 2023/24. However, demarcation in Kawbika-Mujwalanganda CFR was not fully done because of hostility from the local community leadership.

Forest Management Plans prepared and revised: In the FY 2022/23, 11 FMPs, 500km boundaries and 4,000ha inventories were targeted, however, by 30th June 2023, only 5 FMPs were approved by the Board of Directors (BOD). These include Buvuma, Mpanga, Matiri, Kasana-Kasambya and Kalagala CFRs by BOD while plans for 2,690ha under forest inventory and harvesting were updated.

1.265ha of CFRs protected and freed from illegal activities/encroachment: A total of 57,254 ha under CFM were demarcated by the end of FY 2022/23. A total of 5,157ha for 67 farmers were demarcated and mapped for licensed tree planters. In Bajo CFR 2,327ha for 50 farmers and CFR 2,830 ha for 17 farmers in Alungamosimosi. A total of 185ha against the targeted 5,000ha

in Tororo CFR, Luvunya CFR Amonikakinei and Ngereka CFR in Kyoga Range; 13,789ha in Bugoma and Wambabya CFR in Budngo Systems were demarcated. However, demarcation in Kawbika-Mujwalanganda CFR was not fully done because of hostility from the local community leadership.

A total of 323.6km against the targeted 700km of forest boundary were re-surveyed and marked with concrete pillars. This was carried out in Namwasa (102hm), Luwunga (94km), Nkeera (13.1km), Ihimbo (11km), Olamusa (4km), Kandada-Ngobya (45km), Lagute (8.5km), Kasyoha-Kitomi (46km).

A total of 1,568 pillars were used to mark and demarcate the resurveyed CFRs boundaries, while 122 illegal land titles were reported and two illegal land titles were cancelled of the planned 50. Some of the identified illegal titles are distributed as follows: Achwa River (6); Budongo System (18); Lakeshore (21); Kyoga (61); Sango Bay (12); and West Nile (4). Consequently, 1,190,191ha of 506 CFRs in 17 management areas across the country were protected from illegal activities and encroachment though the intended were 1.265 million hectares.

The area of degraded CFRs freed from encroachment was 13,659 ha, against the targeted 10,000ha. The different forest ranges had various achievements in terms of land freed from encroachment: Achwa River Range 213.4ha, Budongo System Range 1,622ha; Kyoga Range 30ha; Lakeshore Range 196ha; Muzizi River Range 30ha; South West Range 10ha; West Nile Range 98ha. For forestry inventory and biomass assessment, 2,690ha of maturing tree plantations inventoried were registered by the end of the FY.

365,000ha of natural forests restored: 365,000ha of non-degraded and restored natural forests protection awaited implementation in Sipi, Namalu and Unyama irrigation schemes.

113,000ha of forest established (13,000ha under NFA and 100,000ha under Licensees on CFRs: NFA established a total of 513.4ha of commercial tree plantations with an average survival rate of 70%. For example, 200ha were established i.e. 150ha in Mbarara and 50ha in Mwenge. Licensed tree planters established commercial tree plantations on 13,580ha with a survival of 65% - 163ha were planted in Sango Bay Range, 144ha in Kyoga Range, 185ha in Muzizi River Range and 33ha in Budongo Systems Range.

The area of degraded CFRs restored was as follows: 1,739ha (Achwa River Range 15ha in Ongom CFR with support from UETCL. Budongo System Range 912ha in Kagombe CFR (860ha) and Bugoma CFR (52ha). In Kyoga Range it was 40ha (Namatale CFR 30ha, West Bugwe CFR 10ha); Lakeshores Range 167ha (Kyewaga 20ha, Nakindiba 37ha, Bajjo 30ha, Mabira 80ha); Sango Bay Range 120ha (Bunjanzi 50ha, Jubiya 70ha); Muzizi River Range 70ha in Rwensambya CFR; West Nile Range 165 (HaLaura 15ha, Kulua 100ha, Enzeva50ha) and 250ha restored in Rwoho CFR. In addition, 47km of Fire lines were re-opened (23km of firebreaks maintained in Kyoga, and 24km in South West Range) in avoidance of fire outbreaks and to keep good relationships with neighbouring communities. Cutting down of forests is prominent in private/licenced forests. This is enhanced by the mushrooming plywood industries yet neither do the proprietors own forest reserves nor aid replanting. This is posing a threat to the depletion of private forest plantations.

The newly planted area in Bugamba Forest Reserve in Mbarara; Nursery bed in Nyabyeya Forestry College, Masindi District

3.3.2 Increase funding for promoting non-consumptive uses of natural resources

200 million seedlings supplied (5m-Bamboo, 50m-Indigenous and 145m exotic species)

The output performance was poor at 48%. To increase the areas covered by forests, 15 million assorted seedlings supply was targeted but only 11,925,444 seedlings were supplied during the FY. Of the planned 3.75 million assorted seedlings a total of 648,322 seedlings were supplied under; NFA own planting (63,820 seedlings); Uganda National Roads Authority (15,352 seedlings); and UNHCR (569,150 seedlings). Though the survival rate was estimated at 72% where seedlings were supplied but in other cases, the seedlings were produced but not yet distributed for example 336,000 seedlings were produced in the three sectors for Kisindi, Budondo and Kagadi for enrichment.

Cumulatively 1,914.85kgs of seed were collected of the planned 2,500kg of tree seeds (1,000kg-indigenous tree seeds, 1,000kg-exotic seeds and 500kg-bamboo propagules to be collected and procured. A total of 13,580ha of CFRs were developed under licenses and MoUs. The licensed private tree planters signed MoUs with NFA to operate.

3.3.3 Strengthen enforcement capacity for improved compliance levels

1,770 modern forest management infrastructure procured: Modern forestry management equipment was procured. These included: the planned 10 modern equipment and databases for forest inventory procurement and additional office management equipment. The equipment comprised one vertex IV and transponder, 4 electric haglof calipers, and six field maps procured. Survey equipment for digitising forest boundary plan data and five cars (three double cabins and two single cabins) were procured from Toyota Uganda to support forestry management activities.

A total of 140 assorted ICT equipment. The procurements included one survey equipment of the planned 13, (Global Navigation Satellite System) for digitising forest boundary plans, and 57 GPSs of the planned 10 GPSs to monitor the use of land and forest resources in CFRs. A total of 270 ha of commercial tree plantations were established and maintained by NFA on CFRS with survival above 70%, in Mbarara (150ha); and Mwenge (50ha). Adverse weather conditions affected the survival of commercial trees.

750 professional staff recruited at the forest protection level: The staff were to be recruited over the NDP III period. However, this was affected by the ongoing government restricting exercise. All 357 staff were equipped with safety and personal protection gear; 292 security personnel were deployed in CFRs across the country. The Mbarara plantation was visited and the findings are presented in the box below:

Box 1: Performance of the Mbarara Plantation as at 30th June 2023

A case of Mbarara Plantation

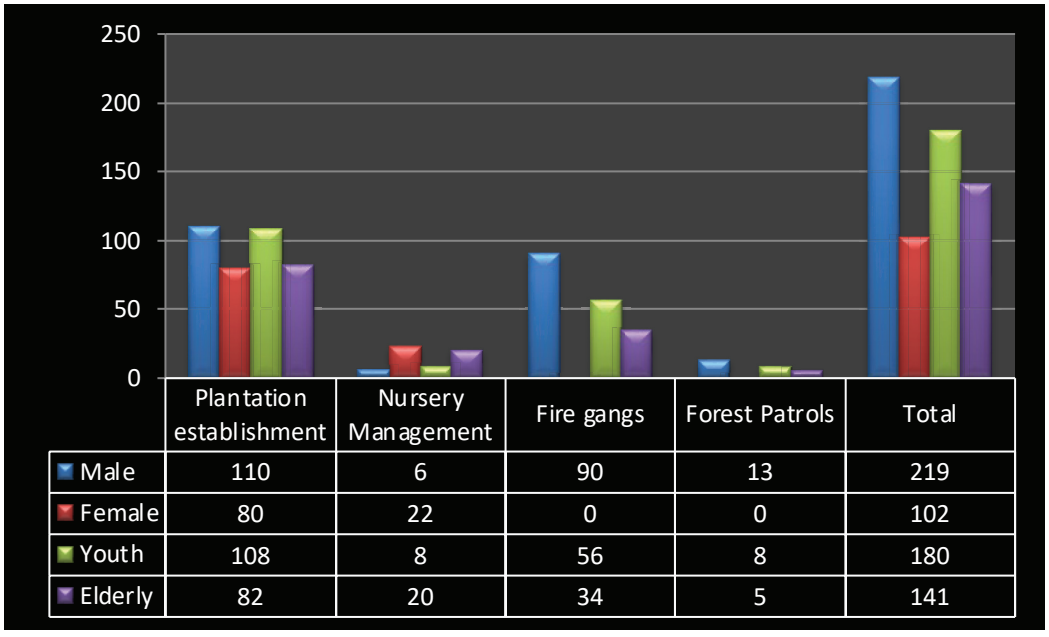
The plantation planned 200ha of commercial tree planting and by the end of the FY, 150.2ha were planted in both Bugamba and Rwoho CFRs. In Bugamba, 117.3ha were planted in compartments 4, 7, 8 and 9 of Bugamba CFR, while 30.9ha were planted in block 4 of Rwoho CFR. While the plantation planned to supply 672,280 seedlings, by 30th June 2023, 273,260 seedlings were supplied as follows: 93,600 to Isingiro District, Nakivale and Orukinga Refugee camps under the UNHCR project while 120,130 assorted seedlings were supplied to community members in Kazo and Mbarara districts. Of the planned 1,000ha area of restoration planting, only 504ha was achieved. While the planned 120ha of forest boundary re-surveying and marking with pillars was not done. The area of commercial tree plantations established on CFRs by licensed tree planters was 32ha of the planned 400ha in Kyahi CFR.

Gender Analysis

The Mbarara plantation had a total of 219 support staff employed in nursery operations and patrols. Of these, 31.8% were females whereas 68% were males. The youth comprised 56.07%, while the elderly was 43.92%. Figure 2 shows the detailed support staffing levels by gender under the Mbarara Plantation by June 2023.

Source: Field Findings

Figure 2: The support staff by gender under the Mbarara Plantation



	Plantation establishment	Nursery Management	Fire gangs	Forest Patrols	Total
Male	110	6	90	13	219
Female	80	22	0	0	102
Youth	108	8	56	8	180
Elderly	82	20	34	5	141

Source: Mbarara Plantation Documents

3.3.4 Increase investment in value addition to environment and natural resources products and services

Under this intervention, the protection and restoration of strategic fragile ecosystems achieved the targets while improved compliance to the standard of agro-forestry practices had no clear outputs planned.

Protection and restoration of strategic fragile ecosystems undertaken: The plan was to restore and maintain 450ha of degraded riverbanks and lakeshores; survey and demarcate 50km of natural water bodies and reservoirs, riverbanks, and lakeshores; soil and water conservation, stabilisation of river banks with vegetation and agroforestry among others.

By the end of the FY, a total of 20.4 million trees had been planted across the country, and 200ha of bamboo was planted and maintained along the River Nile. A total of 62km of protected areas were demarcated with concrete pillars as follows: 32km of protected areas were demarcated with concrete pillars in Kisozi Sub-county in Kamuli, Lake Kwania and River Wambabya in Hoima District and 30km of degraded river banks demarcated with concrete pillars along River Nile in Kamuli District.

Overall, 32 district wetland maps were ground-truthed and produced out of the targeted 50 district wetland maps along the 10 project wetland systems. These are in the districts of Nakaseke, Kiboga, Kampala, Wakiso, Luweero, Kayunga, Mukono, Mityana, Kyankwanzi, Buikwe, and Nakasongola. Ground-truthing is a long and costly exercise which could not be completed given the available resources.

Monitoring, inspection and regulation for compliance monitoring targeted 150 existing developments near or in wetland areas. However, 140 sites in or near wetlands were monitored, inspected and regulated in 17 districts. As a result, 20 improvement notices and 16 compliance agreements were signed with developers in the wetlands. The wetland exploiters were given specific time in which to vacate the areas. The time given ranged between three to six months to allow harvesting of existing crops.

The intended post-restoration patrols and compliance monitoring were conducted though encroachment and re-encroachment seem to be continuous. The Ramsar sites were supported because of their designated international importance. Other planned outputs like the National Gender and Climate Change Strategy development were not carried out.

A stakeholder meeting was held for district officials in Nakaseke, Luweero and Nakasongola to guide climate change integration and capture of Disaster Risk Reduction (DRR) in the District Development Plans (DDPs). The LG Performance Assessment was revised to include climate change. The National Climate Change Act was disseminated to over 15 districts and LG officials in the Sebei region of Kapchorwa, Kween and Bukwo with support from ActionAid. Similarly, the popular version of Nationally Determined Contribution, Climate Action Plan to cut emissions and adapt to climate impacts was disseminated in the districts of Kasese, Kagadi, Kibale, Mitooma and Kisoro. However, the districts did not take a keen interest in integrating climate change into their plans.

Backstopping was done for 10 industries to undertake improved resource use efficiency in the industrial parks of Jinja and Mbale. A draft concept to increase the conditional grant for ENR management at LGs was presented to the ENR sub-committee, and the revised version awaits presentation to the sub-committee for approval. A Draft National Green School's programme was developed and tree species for the establishment of green parks in the cities of Hoima, Mbarara,

Fort Portal and Masaka were identified. Greening of schools and cities contributes to the program for establishing green parks/belts gazetted in cities.

The planned development of an Environment Information Management System (EIMS) was ongoing. The ENR Conditional Grant Management for LGs was at the concept preparation stage. A chemical waste management guide for urban areas covering garages, schools, washing bays, and the Sustainable Natural Resource Management Communication Strategy were not undertaken due to budgetary constraints.

Over 550,000 planned assorted tree plants (seedlings) were distributed to farmers in the districts of Adjumani, Amuru, Nwoya, Gulu Amudat, Bukedea, Kapchorwa, Bulambuli, Sironko, Kween, Moroto, Napak, Nakapiripiriti, Soroti, Katakwi, Ngora, Kumi, Nabilatuk and Amuria to support fragile ecosystems in those areas.

Development of a five-year National Environment Action Plan (NEAP), development of a robust Environmental assessment, monitoring, and surveillance plan and operationalization of an Environmental Enforcement Strategy were not undertaken due to budgetary constraints.

3.3.5 Mainstream environment and natural resources management in policies programmes and budgets with clear budget lines and performance indicators

The intervention aims to ensure that all policies, programmes and budgets take care of environmental-related aspects during implementation. This is to be achieved by training the MDAs and LGs in incorporating environmental aspects into their programmes and budgeting process.

The planned outputs were: climate change responsive innovations nurtured and financially supported; a robust environmental assessment, monitoring and surveillance plan operational in cities/municipalities and countrywide; capacity of cities and urban councils in sustainable urban development (greening, pollution and waste management) enhanced; increased funding to non-consumptive uses of the natural resources. The output performance was rated fair at 64%.

Climate change responsive innovations nurtured and financially supported: A total of 24 participants from NEMA, NPA, UBOS and MFPED were trained and sensitized on Natural Capital Accounting. A consultant was hired to review the Nyabyeya Forestry College curriculum to add a diploma course in forestry to the existing certificate course. The upgraded curriculum will enable the college to produce graduates with the capacity to add value to forestry products. The draft report was produced and awaited a stakeholders' workshop review for the final product to be produced.

A robust environmental assessment, monitoring and surveillance plan operational in cities/ municipalities and countrywide: Three regulations were developed and approved to provide the legal framework for a sound environment; these included regulations on the management of chemicals, Environment Protection Force and the Administrative Penalty Scheme. Meanwhile, the development of regulations on noise and vibrations, conduct and certification of Environmental Practitioners, and Economic Instruments for Charge System is still on course.

The capacity of cities and urban councils in sustainable urban development (greening, pollution and waste management enhanced). There was one community engagement with the communities residing within the confines of Mabira Forest in Buikwe District as part of the commemoration of WED 2023 which does not translate into the output indicator.

Increased funding to non-consumptive uses of natural resources: Project concepts and proposals for funding were being developed. By 30th June 2023, an Infrastructure Development Project Concept for NEMA was approved by the Programme Working Group (ENRCCLWM) and MFPED's Development Committee.

3.3.6 Enhance access and uptake of meteorological information

The planned outputs were: research on future climate trends and potential impacts; and information and knowledge base on projected climate trends and impacts established and disseminated**.** the intervention performance was good at 71% and presented hereafter are the output findings:

Research on future climate trends and potential impacts: The UNMA planned to attend meetings, a communication strategy updated, standard records management systems streamlined and strengthened, UNMA's client charter developed, bankable projects developed, enhanced compliance to the act for stakeholders with weather equipment; aeronautical cost recovery regulations for provision of meteorological service; 2-research papers on weather and climate developed and submitted to international journal UNMA Gender Strategy implementation monitored and evaluated. Awareness programs on the importance of meteorological services developed and disseminated in schools; customer feedback in the provision of aeronautical meteorological services sought.

During the FY, no research studies were undertaken. The UNMA participated in the East African meeting on aeronautical meteorology in Entebbe Uganda and the Regional Climate Change Technical Working Group, and training on conflict resolution in the context of climate security held in Bujumbura, Burundi. The UNMA's client charter was not developed, and neither was the communication strategy and records management system updated.

The UNMA engaged officers in charge of meteorological stations in the Western and Eastern regions to enhance compliance with the Act for stakeholders with weather equipment. A draft of aeronautical cost recovery regulations for the provision of meteorological services was developed and was pending consideration by UNMA Top Management.

Two manuscripts were developed with one under review and the second on weather and climate yet to be submitted. The UNMA Gender Strategy was edited and awaited finalisation in the subsequent quarter. Awareness programs on the importance of meteorological services were developed and disseminated through the secondary teachers workshops that had representation from 40 districts; 10 schools were engaged in the weather and climate quiz competition and a user engagement for the Weather and Climate Dissemination System was conducted at Busitema University. One customer satisfaction survey on the provision of aeronautical meteorological services was conducted in Kasese and Entebbe.

Information and knowledge base on projected climate trends and impacts established and disseminated: The aim was to disseminate the issued seasonal forecast and generate feedback on the utilization of meteorological forecasts through the following: four seasonal forecasts disseminated through 40 radio talk shows across the country; four seasonal rainfall performance evaluations conducted in four regions of the country; ICT-based dissemination platforms of climate information utilized; 140 LGs engaged in the co-production and use of climate information for planning and decision making; 150 champions for climate forecast dissemination established at districts; vulnerability maps produced for four regions; 20 media personnel trained in downscaling and interpretation of climate forecasts and information to increase access to the information by the communities in the districts.

Four seasonal climate outlooks (June-August), (September-December), (December-February) and (March-May) were issued for central, eastern, northern and western regions with advisories to particular climatological zones and conducted one National Climate outlook to downscale, interpret and develop advisories for September-October-November-December (SOND) seasonal forecast.

A seasonal rainfall performance evaluation on the communities was conducted in the Western Region (Mbarara, Bushenyi, Sheema, Rubirizi, Kabale), Central Region (Kampala, Wakiso, Kayunga, Mukono, Sembabule, Masaka, Rakai, and Mityana), and Eastern Region (Kamuli, Pallisa and Kumi). Utilised the website, email, and social media and acquired the Unstructured Supplementary Service Data (USSD) code to access climate information for the general public. The seasonal forecast was disseminated through telegram and USSD code. The June-August seasonal forecast was disseminated through a page pullout in The New Vision.

Public awareness on weather and climate issues was raised through 14 radio talk shows on Radio One (2), KFM, CBS (3), Messiah (2), Voice of Toro (2), Grace Radio Mbarara, Radio Kabale One in Bushenyi, one on Mbabule FM (Sembabule), one on KFM and seven TV talk-shows on NTV (3), UBC, BBS, NBS and Bukedde. Commemoration of four national days was undertaken as - Environment Day, Liberation Day and Women's Day and by placing adverts in the New Vision and an international day (World Meteorological Day).

The DLGs were engaged in creating awareness of the importance of weather and climate information in planning and decision-making in the Central region (Wakiso, Kayunga, Mukono, Mpigi, Luweero, Nakaseke, Nakasongora), Western region (Bushenyi, Mbarara, Ntungamo, Kabale) and Eastern region (Kibuku, Pallisa, Mbale and Kumi).

Weather and climate information dissemination champions and coordinators for Easter Region Districts (Jinja, Mabale, Manafwa, Bududa and Butaleja) were established. Vulnerability maps for the four regions produced and Media personnel training in downscaling and interpretation of climate forecasts and information to increase access to community information in the districts were not carried out.

3.3.7 Install new and adequately equip and maintain existing automatic weather stations to ensure maximum functionality

The intervention aims to have functional automatic weather stations installed and maintained. The automatic meteorological stations and weather stations were operated and maintained.

The target was to have 6,570 terminal aerodromes forecasts, 810 SIGMETs and 65,700 METARs and 35,570 flight folders issued for Entebbe and Soroti (operating 24hrs), Gulu, Arua, Kasese, Kasese, Kajjansi, Kabaale, Jinja and Tororo; three automatic stations in the Albertine districts of Bundibugyo, Ntoroko, Buliisa and one in Pakuba (Gulu) established, a Radar Operation Centre at Kigungu constructed, rehabilitation of different station undertaken. The output performance was good at 78%.

By 30th June 2023, a total of 2,202 terminal aerodrome forecasts, 139 SIGMETs and 11,413 flight folders were issued for Entebbe and Soroti, 44,016 METARs were issued from 11 synoptic stations of Gulu, Masindi, Mbarara, Makerere, Kasese, Soroti, Lira, Kabale, Jinja, Entebbe and Tororo.

Daily forecasts were disseminated to four media houses of UBC TV, Star TV, and Bukedde TV 1 after the newscasts in Luganda, Swahili and English. The four regions of Lake Victoria benefited

from 184 Lake Victoria marine forecasts; radar and wind shear operations maintained at Lira, Rwampara and Entebbe. These give guidance to flight paths and taking the right control actions. The COROBOR system was procured and installed for an upgrade of the Automatic Switching System at the National Meteorological Centre.

The Radar and Wind shear Operations were maintained at the Lira, Rwampara and Entebbe stations. Automatic Weather Stations (AWSs) were installed in Bundibugyo and Buvuma island in Buliisa District; Pakuba AWS establishment was ongoing in Gulu, while the hydromet station at Butiaba was upgraded from a manual to an automatic one. The planned rehabilitation of various stations was not undertaken due to resource constraints.

3.3.8 Develop and implement a framework that reduces adverse per capita environmental impact of cities (air quality and waste management practices)

This intervention aims at addressing target number 11.6 of the Sustainable Development Goals (SDGs) of creating clean cities. It proposes the reduction of adverse per capita environmental impact of cities by paying special attention to air quality and municipal and other waste management by 2030. This intervention is mainly contributed to by NEMA.

The plan was to implement different outputs which included: i) 25 cities/municipalities with Functional solid waste/e-waste management facilities; ii) A legal framework for environment management strengthened; iii) A robust environmental assessment, monitoring and surveillance plan operational in cities/municipalities and countrywide; iv) Capacity of relevant stakeholders on environmental laws and standards enhanced v) Environment management by lead agencies undertaken, vi) The national state of environment report prepared; vii) An environmental enforcement strategy developed and operationalized. The intervention performance was fair at 59%.

Cities/municipalities with functional solid waste/e-waste management facilities: A total of 12 CDM sites out of the planned 25 cities in Mbarara, Kabale, Fortportal, Kasese, Arua, Hoima, Masindi, Mukono, Jinja, Soroti, Mbale and Lira were visited and technical assistance provided in handling waste (solid and e-waste). The facilities were functional however, proper handling of waste was still a challenge. The rubbish collection was not done in time and at times thrown in wetlands around these cities especially plastic bottles and polythene bags.

Legal framework for environment management strengthened: The plan was to develop one regulation to be developed and finalize three more. Three regulations were developed and approved to provide the legal framework for a sound environment. These were regulations on the management of chemicals, the Environment Protection Force (EPF) and the Administrative Penalty Scheme. The guidelines for economic instruments, and the Administrative Penalty Scheme, were reviewed and provided to the Minister of Water and Environment (MWE) for assent. However, the development of regulations on noise and vibrations, conduct and certification of Environmental Practitioners, and Economic Instruments for Charge System was ongoing.

A robust environmental assessment, monitoring and surveillance plan operational in cities/ municipalities and countrywide: The plan was to provide technical advice and support to 12 CDM sites in five municipalities in Uganda and 4 Tier 2 Oil Spill Contingency Plans (OSCPs) developed among others. By the end of the financial year, not much was achieved concerning this.

The NEMA worked with the Petroleum Authority Uganda (PAU) and the Office of the Prime Minister within the Technical Working Group in the implementation of the Oil Spills Contingency Plans. A local consultant was engaged in the development of the Tier 2 Oil Spill Contingency

Plans which was ongoing. The NEMA engaged the DLGs of Buliisa, Hoima, and Kikuube in the development of the OSCP.

Capacity of relevant stakeholders on environmental laws and standards enhanced: The annual target was 20 court attendances in all courts in Uganda, 20 environment offences prosecuted and 30 investigations concluded. Consequently, four new prosecution cases were filed in Court and 30 existing cases were prosecuted in the period. Improvement Notices given were 29, Restoration Orders two, Stop Orders three and only two Compliance Agreements were issued in the period. Finally, 26 civil matters and 21 criminal cases were handled in FY2022-23.

Environment management by lead agencies undertaken: The target was 2,000 compliance inspections undertaken, 1,000 Environment, Social Impact Assessment and Baseline Verification applications verified, and four quarterly practitioner support activities implemented. Compliance inspections were made and as a result, 2,029 ESIA certificates were issued in FY2022/23. The compliance monitoring and enforcement operations undertaken by both the EPF and technical staff were 2,057 in number.

The 2022 National State of Environment Report prepared: The report was prepared with an emphasis on harnessing the environment for sustainable cities and resilient prosperous communities.

An environmental enforcement strategy developed and operationalized: There were no steps taken to achieve this planned output.

3.3.9 Formulate and implement vehicle emission standards and sustainable management of chemicals to curtail the high levels of air, land and water pollution particularly in urban areas

The intervention aims to formulate and implement vehicle emission standards. The existing draft standard specifies permissible limits for common pollutants found in exhaust emissions of motor vehicles, namely carbon monoxide, particulate matter (PM), oxides of nitrogen (NOX), and hydrocarbons. In the FY 2022/23 the plan was: Air Quality Monitoring Equipment procured and installed and the Mobile Laboratory of the NEMA retooled and re-equipped to meet the field spot checks on environmental monitoring needs. The intervention performance was rated poor at 32%.

The planned assorted air quality monitoring equipment was not procured. Instead, an online environmental monitoring and licensing system was procured and a consultant was hired to upgrade the system. System upgrade was ongoing. The real-time and portable equipment for monitoring environmental parameters and their consumables to operate the NEMA mobile laboratory were not procured either. The targeted Air Quality Index PM2.5 was 90% but by the end of June 2023, it was 150%. This quality is unhealthy for Sensitive Groups such as children, the elderly, and individuals with respiratory or heart conditions who may experience health effects.

3.3.10 Undertake applied research and innovation on sustainable consumption and production to ensure resource use efficiency to reduce domestic material consumption per capital

In the FY the aim of the intervention is research and innovations conducted. The intervention was rated fair at 61% as there was no research or study undertaken due to limited financing.

By 30th June 2023, the procurement for review of the Strategic plan was on track and the National State of Environment Report (NSOER) for 2022 was finalised under the theme ‘’Harnessing Environment for Sustainable Cities and Resilient Prosperous Communities.”

Sub-programme challenges

1. Continuous degradation of wetlands and forests by the population for agriculture, charcoal burning, bricklaying, construction works etc.
2. Lack of proper garbage management system, and non-prioritisation of waste management in urban areas thus there is dumping everywhere.
3. Lack of physical plans in the urban areas where there are no proper garbage collection places.
4. Poor disposal of oils from garages, which ends up in water drainage channels and wetlands thus posing a threat to aquatic life and human consumption.
5. Poor human/economic activities in mountainous areas, river banks and lakeshores causing soil erosions resulting in soil infertility, and gullies that are hazardous to both human beings and animals.
6. Lack of policy on carbon credit to guide on preservation and gain from conservation of forests.
7. Limited value addition on timber and instead it is exported in a raw state, not its products.
8. Limited knowledge, technology and undeveloped infrastructure for proper use of the Natural Resources.
9. Improper utilisation of natural resources like clay, and soils as minerals.

Conclusion

The sub-programme was on track to achieve the NDP III targets where forest coverage was 13.3% against the target of 13% while wetlands were 8.9% against the 9% target. Strides were made in the demarcation and maintenance of river banks, lakeshores, wetlands, wetland systems forest reserves using pillars and live markers. Restoration activities were carried out, and illegal titles identified. Consequently, 19 illegal titles were cancelled in both wetlands and forests. Restoration of river banks and lakeshores included planting various tree seedlings, and evicted communities offered alternative livelihoods although signs of re encroachment were noted. More still, the Air Quality Index PM2.5 at 150% was a threat to a group of people including the elderly. The GHG emissions too were 1.27% missing the 1.15% target. The following is recommended to improve the performance of the sub-programme.

Recommendations

1. The MWE should continue to lobby for political support in the protection of the wetlands and forestlands through the promotion of sustainable development and management practices.
2. There is a need for Town councils to formulate bylaws regarding solid waste disposal and maintenance of wetlands which are within their areas of jurisdiction.
3. The NEMA should strengthen the oil and gas policy to include the safe disposal of oils from garages to protect the environment and water resources.
4. The MAAIF should continuously sensitize the community on the proper agricultural methods for soil conservation, and restoration of degraded environment.
5. The MWE should fast-track the formulation of the carbon credit policy to preserve the forest reserves as part of climate change mitigation measures and air quality control measures.

6. The MWE should put more effort into value addition on timber to benefit from its products before exporting them.
7. The government through MAAIF and MWE should provide farmers with access to machinery like tractors at sub-counties and increase the number of Forestry Officers to sensitize communities on better forestry/agricultural methods.

3.4 Land Management Sub-programme

Introduction

The sub-programme aims at reducing land-related conflicts by 30% and increasing the percentage of titled land from 21% to 40% in the NDP III period thereby contributing to the objective of *strengthen land use and management.* The key sub-programme implementers are the Ministry of Lands Housing and Urban Development (MLHUD), and Uganda Land Commission (ULC). The planned outcome indicators in the FY were to increase the percentage of titled land to 26% and to reduce the turnaround time for titling land to 10 days. The sub-programme planned for eight interventions which were all assessed. These are listed below:

1. Complete the automation and integration of the Land Management Information System with other systems
2. Develop and implement a Land Valuation Management Information System (LAVMIS)
3. Promote land consolidation, titling and banking
4. Fast-track the formulation, review, harmonization, and implementation of land laws, policies regulations, standards and guidelines
5. Promote tenure security including women's access to land
6. Strengthen the capacity of land management institutions in executing their mandate geared towards securing land rights
7. Undertake a comprehensive inventory of Government Land for proper management
8. Capitalize the land fund to ensure access to land by lawful and bonafide occupants

Sub-programme financial performance

The annual sub-programme budget for FY 2022/23 was Ug shs 163.368bn an increase of Ug shs 48.66n (42%) from Ug shs 114.71bn. By 30th June 2023, Ug shs 146.572bn (89.72% was released which was a good release performance and Ug shs 61.552bn (41.99%) expended reflecting a poor expenditure performance. The intervention, complete the rollout and integration of the Land Management Information System with other systems took the lion's share in the budget with less expenditure due to delays in procuring service providers under the Competitiveness and Enterprise Development Project (CEDP).

Sub-programme performance

The Land Management Sub-programme performance was good at 71.3% average achievement on outputs and outcomes. Overall, the percentage of titled land in the nation stood at 22.4%, lower than the NDP III target of 32% for the end of FY 2022/23. On the other hand, the turnaround time for titling land took 15 days against the targeted 10 days. The establishment of the Data Processing Center (DPC) was one of the major efforts geared towards the mass production of land titles. However, the DPC was yet to be equipped and the data capturing and processing software

was upgraded and maintained. To strengthen land use and management, a draft land acquisition and resettlement policy was prepared, and District Land Boards, District Land Officers and Area Land Committees were trained on land management. The Lands Management interventions' performance is summarized in Table 3.9 and detailed presented hereafter. Refer to Annex 4 for details of sub-programme, intervention, outcome indicator and outputs performance analysis.

Table 3.9: Overview of the Intervention's Performance by 30th June 2023

Intervention	Performance Rating	Remarks
Complete the automation and integration of the Land Management Information System with other systems	On track	51% was a fair performance as LIS was integrated into six organisations. Other output targets were ongoing.
Develop and implement a Land Valuation Management Information System (LAVMIS)	Off track	Poor performance at 7% a consultant procured to develop the LAVMIS.
Promote land consolidation, titling and banking	Achieved	Illegal titles cancelled and new titles offered rated at 97%.
Fast-track the formulation, review, harmonization, and implementation of land laws, policies regulations, standards and guidelines	Off track	At 25% achievement. Land resettlement policy at the draft level.
Promote tenure security including women's access to land	Achieved	Both men and women are given titles.
Strengthen the capacity of land management institutions in executing their mandate geared towards securing land rights	Achieved	Capacity built for Training of DLB, DLO, and ALC.
Undertake a comprehensive inventory of Government Land	Achieved	A total of 39 certificates of title were processed for MDAs.
Capitalize the land fund to ensure access to land by lawful and bonafide occupants	Achieved	Absentee landlords compensated.

Source: Authors' Compilation

3.4.1 Complete the rollout and integration of the Land Management Information System with other systems

The intervention aims at ensuring that the Land Information System (LIS) is automated and integrated with other systems. The planned outputs were: i) Topographic maps, large-scale maps and the National Atlas revised; ii) Data Processing Centre (DPC) established; and iii) LIS automated and integrated with other systems.

A total of 45 out of 54 topographic maps were updated and disseminated in five districts (9-Kole, 9-Luka, 9-Kiryandongo, 9- Napak and 9-Otuke districts). These shall assist districts in planning for the location of services. In addition, two out of four large-scale maps were revised (Arua and Mbale city maps) and 40km of the planned 100km inter-district boundaries were affirmed to reduce border conflicts. The planned revision of the National Atlas and demarcation of 200km of international boundaries were not done due to insufficient funding. Although data collection for the National Atlas and border meetings between Kenya-Uganda, and South Sudan-Uganda had commenced.

To enable the mass production of land titles, the DPC was established in Entebbe to 100%, however, it was yet to be fully operationalized, by procuring equipment and ensuring the Systematic Land Adjudication and Certification (SLAAC) data capturing and processing software is upgraded and maintained. The procurement of service providers was underway. Additionally, the planned archives centre was not established due to delayed procurements. A total of 15 out of 100 overlapping surveys and titles were reviewed and harmonized. The LIS was integrated with six systems[1] out of five planned. Furthermore, the LIS was rolled out in all 22 Ministry Zonal Offices (MZOs) across the country, and all staff were trained on the same.

3.4.2 Develop and implement a Land Valuation Management Information System

The intervention aims to ensure that a Land Valuation Management Information System (LAVMIS) is developed and implemented. The key planned outputs in the FY were: Land values collection software developed, a countrywide land market values compiled, registration of titles act amended.

All the above outputs were not achieved. A consultant was yet to be procured for the development of the land values collection software. An MoU was signed between MLHUD and the Uganda Bureau of Statistics (UBOS) for the collection of data on property yields and indices, and stakeholder consultations for the amendment of the Registration of Titles Act were ongoing.

3.4.3 Promote land consolidation, titling and banking

The planned output was land demarcated, surveyed, registered and certified. Achievements by the end of the FY were as follows 3,280 out of 25,000 valuation assessments and inspections carried out in 22 MZOs, 142,787 out of 120,000 land conveyances i.e. mortgages, caveats, transfers carried out, and 47,349 out of 88,450 titles processed and issued to both men and women.

3.4.4 Fast-track the formulation, review, harmonization, and implementation of land laws, policies regulations, standards and guidelines

The intervention aims to create an enabling legal atmosphere in the management of land matters. The annual planned outputs were: The Land Acquisition and Resettlement Policy and Land Acquisition, Resettlement and Rehabilitation Bill finalized and disseminated to 40 districts; Principles for the Land Acquisition, Resettlement and Rehabilitation Bill submitted to Cabinet; Land Act and land regulations reviewed and disseminated to 40 selected districts.

A draft Land Acquisition and Resettlement Policy was prepared, and Principles for the Land Acquisition, Resettlement and Rehabilitation Bill submitted to Cabinet. Consultations on the Land Act were ongoing.

3.4.5 Promote tenure security including women's access to land

The annual planned output was: Tenure security for all stakeholders including women enhanced through 400 lease transactions processed, and Four Land Inspection and Sensitization Reports produced. These were all achieved as planned, as 400 lease transactions were processed as follows: 176 for companies, 157 for males, and 67 for females.

1 LIS integrated with Systems at NITA-U, URA, NIRA, UIA, NBRB, and URSB.

3.4.6 Strengthen the capacity of land management institutions in executing their mandate geared towards securing land rights

The planned annual output was the Capacity of Land Management Institutions (state and non-state actors) strengthened. The target was 50 DLBs, 50 DLOs and 140 ALCs trained in land management, 10 public sensitizations on land matters undertaken and 60 District Land Board (DLBs) appointments reviewed and approved. Targets were partially achieved as 18 DLBs, 18 District Land Officers and 77 Area Land Committees were trained in land management, these were also monitored and supervised during the FY. Additionally, sensitization on land matters was undertaken in seven out of 10 sub-regions of Ankole, Teso, Buganda, Acholi, West Nile, Bugisu and Lango. Terms of service for 22 DLBs was reviewed and approved.

3.4.7 Undertake a comprehensive inventory of Government Land

The planned output was a comprehensive and up-to-date government land inventory undertaken. This was to be attained through the following: (i) 240 certificates of title processed for MDAs, (ii) 240 surveys conducted for processing of certificates of title for land under MDAs, (iii) 36 land inspections and sensitization reports produced, and (iv) Filed Court Documents attended and managed court cases. The performance at the end of the FY was as follows: 39 certificates of title were processed, 30 surveys were conducted, 58 land inspection and sensitization reports were produced, and 200 land court cases were managed across the country. Few certificates were produced due to the incomplete upgrade of the data processing centre, while surveys were limited by the few staff in the Surveys Department.

3.4.8 Capitalize the land fund to ensure access to land by lawful and bonafide occupants

The PIAP output is Land Fund Capitalized and accessed by bonafide and lawful occupants. The annual planned outputs were: (i) The ULC Bill 2017 tabled in Cabinet and Parliament for consideration and approval, (ii) Land Fund Guidelines developed, (iii) 1,000 copies of Land Fund Regulations and Guidelines disseminated to lawful and bonafide occupants in Bunyoro Ankole Buganda and Toro, (iv) 4,200 hectares of land acquired through compensation to absentee landlords for securing lawful and bonafide occupants in Buganda, Bunyoro, Ankole and Toro, (v) 3,000 subdivision surveys conducted for parcels of land for title processing for lawful and bonafide occupants in Buganda Bunyoro Ankole and Toro, (vi) Eight field sensitizations or consultations meetings conducted.

By the end of the FY, the Bill was not tabled, the land fund guidelines were developed and 1,000 copies were disseminated to lawful and bonafide occupants in Bunyoro-Ankole Buganda and Toro. Additionally, 3,224.711 hectares of land were acquired through compensation to absentee landlords for securing lawful and bonafide occupants in Buganda Bunyoro-Ankole and Toro, and 6,430 subdivision surveys conducted, certificate of titles processed for lawful and bonafide occupants on Buwekula Block 249 plot 24, Bugangaizi Block 90, Plot 9 Block 2 Plot 1 and Gomba Block 209 and 20 field sensitizations meetings were conducted.

Challenges

1. Understaffing in the Survey Department and at the Ministry Zonal Offices compared to the workload, created a backlog in the processing of land titles.
2. Low absorption under the Competitiveness and Enterprise Development Project (CEDP) occasioned by delays in procuring service providers for implementation.
3. Inadequate funding of district land boards.

Conclusion

The sub-programme exhibited a good performance of 71.3% on average achievement of outputs and outcome indicators. However, the percentage of titled land (22%) fell short of the national target of 32% for the FY. There is a need to fast-track equipping of the Data Processing Centre to enhance land titling and reduce turnaround time for land title processing. Furthermore, fast-tracking the draft land acquisition and resettlement policy shall greatly contribute to the objective of strengthening land use and management.

Recommendations

1. The MLHUD should fast-track procurements under CEDP.
2. The MLHUD should prioritise the allocation of funds to the District Land Boards.

CHAPTER 4: CONCLUSION AND RECOMMENDATIONS

4.1 Programme Conclusion

Over the last three years of the NDP III, the Natural Resources Environment, Climate and Climate Change Programme has received 18% of its financing with total expenditures at 60%. For FY2022/23, the programme expended 41% of its budget. Entirely this was both poor release and expenditure. The programme's overall performance was rated good at 72%. Good performance was reflected under the Water Resources Management Sub-programme having achieved all its NDP III targets. The Environment and Natural Resources Sub-programme achieved four out of 13 outcome indicators, while Lands Management did not achieve its two indicators. Therefore, the programme's goal, "to stop and reverse the degradation of water resources, environment, and natural resources as well as the effects of climate change on economic growth and livelihood security" may not be attainable if the situation does not change. It is important to note that since information on intermediate indicators is secondary data, it was difficult to ascertain this performance.

The programme performance was affected by over-delayed procurements and fulfilment of World Bank requirements in seeking "no objections". The programme also struggles with coordination challenges with various MDAs in terms of planning and budgeting reflected in mixed-up activities/outputs in different interventions and sometimes not aligned to the PIAP outputs or even NDPIII outputs. Some outputs seemed to be planned for the sake of allocating money but with unclear outcome contributions.

4.2 Overall Challenges

1. Low absorption of released funds for the programme due to late initiation of procurements, contractors' delay to invoice, seeking no objection for the World-Bank funded projects, and lack of ready ESIA reports.
2. Continuous encroachment/re-encroachment of the fragile ecosystems by the neighbouring communities aggravated by unclear boundaries/unmarked and political influence.
3. Illegal titled forest reserves and wetlands in some cases aggravated by politicking which encourages more encroachment together with endless unresolved court cases.
4. Inadequate staffing at both central and the LLGs to follow up on implemented programmes/enforce environment management laws.
5. Weak linkages, synergy and collaboration between the implementers of the different sub-programmes resulted in duplication of effort and wastage of resources, missed opportunities for learning from each other for more effective programme implementation.

4.3 Recommendations

1. The MFPED and programme implementing agencies should engage the World Bank on delays in granting "no objection" to fasten procurements, project initiations and release of counterpart funds to ease absorption and implementation of works.
2. The MWE should continue to advocate for political support at all levels in mobilisation and sensitisation of communities to take up alternative livelihoods other than forestland and wetlands.

3. The MLHUD should fasten the process of cancellation of illegal titles in both wetlands and forest reserves.
4. The programme actors should ensure that the existing staff gaps are filled up after the staffing audit report.
5. The MWE and agencies should strengthen intra-programme collaboration and synergy in resource prioritization and implementation of the core actions.

REFERENCES

Integrated Financial Management System Data at the end of June FY 2022/23.

Ministry of Finance, Planning and Economic Development, Approved Estimates of Revenue and Expenditure (Recurrent and Development) FY 2022/23, Volume I Central Governments Votes.

Ministry of Finance, Planning and Economic Development, Budget Speech FY2022/23.

Ministry of Water and Environment, Ministerial Policy Statement, Water and Environment Sector FY 2022/23, March 2022.

Ministry of Water and Environment, Integrated Water Management and Development Project Implementation Manual, January 2019.

Ministry of Water and Environment, Quarter Four Performance Report FY 2022/23.

National Forestry Authority, Quarter Four Performance Report FY 2022/23.

National Environment Management Authority, Quarter Four Performance Report FY 2022/23.

Ministry of Lands, Housing and Urban Development, Ministerial Policy Statement, FY 2022/23.

Ministry of Lands, Housing and Urban Development, Quarter Four Performance Report FY 2022/23.

National Development Plan III (NDP III) FY2021/22-FY2024/25.

National Development Plan III; Project Action Implementation Plan (PIAP) - Natural Resources, Climate Change, Land and Water Management (NRECCLWM) FY2021/22-FY2024/25.

Uganda Land Commission, Quarter Four Performance Report FY 2022/23.

ANNEXES

Annex 1: Monitored Interventions under the NRECCLWM Programme FY2022/23

1. Improve coordination, planning, regulation and monitoring of water resources at the catchment level.
2. Strengthen enforcement capacity for improved compliance levels.
3. Strengthen conservation, restoration of forests, wetlands and water catchments and hilly and mountainous.
4. Increase funding for promoting non-consumptive uses of natural resources.
5. Strengthen enforcement capacity for improved compliance levels.
6. Increase investment in value addition to environment and natural resources products and services.
7. Mainstream environment and natural resources management in policies programmes and budgets with clear budget lines and performance indicators.
8. Enhance access and uptake of meteorological information.
9. Install new and adequately equip and maintain existing automatic weather stations to ensure maximum functionality.
10. Develop and implement a framework that reduces adverse per capita environmental impact of cities (air quality and waste management practices).
11. Formulate and implement vehicle emission standards and sustainable management of chemicals to curtail the high levels of air, land and water pollution particularly in urban areas.
12. Undertake applied research and innovation on sustainable consumption and production to ensure resource use efficiency to reduce domestic material consumption per capital.
13. Complete the rollout and integration of the Land Management Information System with other systems.
14. Develop and implement a Land Valuation Management Information System.
15. Promote land consolidation, titling and banking.
16. Fast-track the formulation, review, harmonization, and implementation of land laws, policies regulations, standards and guidelines.
17. Promote tenure security including women's access to land.
18. Strengthen the capacity of land management institutions in executing their mandate geared towards securing land rights.
19. Undertake a comprehensive inventory of government land.
20. Capitalize the land fund to ensure access to land by lawful and bonafide occupants.

Annex 2: Performance of the Water Resources Management Sub-programme by 30th June 2023

Output Performance								
Intervention	Output	Financial Performance			Physical Performance			Remark
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
Improve coordination, planning, regulation and monitoring of water resources at the catchment level	Functional gender-sensitive water catchment management committees established	436,370,500	186.8	57	100.00	50.50	27.04	Poor performance as 3 CMCs were formed and operationalised but the quarterly meetings of CMCs generally not held and only 250 out of 2,000 panned benefited from IGAs.
	Joint Transboundary catchment investment projects prepared	1,882,464,000	84.1	88	100.00	50.00	59.47	One prefeasibility approved, subscriptions made but no designs for fragile sections of Trans-Boundary Rivers not done.
	Improved water use efficiency for increased productivity in water consumptive programmes (agro-industrialization, manufacturing, mineral development)	1,666,480,500	154.2	52	100.00	87.00	56.43	Hydromet equipment was procured but not installed; the research vessel was not commissioned. Most activities herein planned contribute less to the output.
	National Water Quality Monitoring infrastructure and networks upgraded and functional	2,893,744,000	138.1	13	100.00	36.80	26.65	Poor performance through monitoring station were operated; NWQM database upgraded but water quality monitoring vessel was not yet shipped; NWQL not ISO certified.
	Demonstration centres for demonstration of innovative catchment management measures established	2,084,039,760	157.5	53	100.00	90.00	57.13	Demos were established, WECS and revolving funds were ongoing.
	Nile water allocation tool Developed and deployed	88,125,000	84.1	95	100.00	60.00	71.37	The tool was not completed as planned. Progress was at 60%.
	Water resources data (Quantity and quality) collected and assessed	605,285,000	68.6	85	100.00	85.00	100.00	Water quality and quantity assessments were made as planned.

Output Performance								
Intervention	Output	Financial Performance			Physical Performance			Remark
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
	Operational Water information systems at the central level and in the 4 Water Management Zones	124,177,000	100.0	100	60.00	70.00	100.00	The WIZ development was 70% implemented.
	Wastewater samples collected and analysed for national standards	1,163,910,000	68.6	98	100.00	58.20	84.84	Water quantity and quality data were collected and assessed.
	Increased water storage capacity to meet water resource use requirements	2,578,790,250	157.5	46	60.00	40.00	42.31	40% of the groundwater study to assess available resources and demand has been undertaken.
	National Water Quality Reference Laboratory analytical capacity upgraded and regional laboratories established to address issues related to drinking water, pollution and SDGs	12,135,190,000	68.1	96	100.00	39.20	57.56	The Regional laboratories were operated and maintained but construction of the NWQRL was slow.
	Degraded water catchments protected and restored through implementation of catchment management measures	29,352,112,140	154.3	36	100.00	86.00	55.73	The protection of Nyamwamba was affected by unexpected foods, while the implementation of IGAs was still ongoing.
	Robust E-based Water Resources Information System	5,298,224,400	156.3	53	100.00	74.30	47.53	The permit assessments and issuance were done but only 7 Audits out of 20 were done.

Output Performance								
Intervention	Output	Financial Performance			Physical Performance			Remark
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
	Catchment Management Plans in the Water Management Zones	2,716,600,150	146.1	50	100.00	56.90	38.94	The Albert Action Management Strategy developed to 30% only 3 CMPs were completed and operationalised
Strengthen enforcement capacity for improved compliance levels	Water resources compliance monitoring equipment procured and installed	1,240,289,100	81.7	100	100.00	73.80	90.38	Major output and outcome targets were achieved.
Average Output Performance							61.03	
Outcome Performance								

Outcome Indicator	Annual Target	Achieved	Score (%)	Remark
Increase water permit holders complying with permit conditions at the time of spot check				
Groundwater	0.77	0.787	100	
Surface water	0.79	0.802	100	
Wastewater discharge permit conditions	0.64	0.63	98	
Increase water samples complying with national standards				
Supplies/water collection point	0.71	0.7345	100	
Average Outcome performance			99.6	
Overall sub-programme performance			**74.5**	***Overall performance of sub-programme***

Annex 3: Performance of the Environment and Natural Resources Sub-programme by 30th June 2023

Output Performance								Remark
Intervention	Output	Financial Performance			Physical Performance			
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
Strengthen conservation, restoration of forests, wetlands and water catchments and hilly and mountainous areas	Improve coordination, regulation and monitoring of environment management at both central and local government levels	10,741,533,000	67	53	100	75	100	A total of 467.75km of wetland and 960km of CFRs boundaries were demarcated with pillars and live markers, 2 illegal land titles in forest reserves were cancelled but the gazettement of wetlands was not complete.
	Undertake an inventory of degraded wetlands; Restoration of critical wetlands; Demarcate, gazette and restore 900kms of wetlands; Gazette 6 critical Wetlands.	5,404,271,000	59	68	100	47	79	A total of 32 wetlands were ground-truthed, degraded riverbanks and lakeshores were surveyed and demarcated and restored in various places.
	12,200km of CFRs boundary resurveyed, marked and maintained	682,714,286	87	99	100	82	94	A total of 998km of CFRs boundaries were resurveyed, marked and maintained.
	1.265mha of CFRs protected and freed from illegal activities and encroachment	682,714,286	87	99	100	34	39	A total of 1,190,191 ha of 506 CFRs in 17 management areas across the country protected from illegal activities and encroachment.
	55 Forest Management Plans prepared and revised	1,365,428,571	87	99	100	45	52	Two FMPs were approved in Mwenge and Rwoho CFR.

Output Performance								Remark
Intervention	Output	Financial Performance			Physical Performance			
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
	113,000 ha of forest established (13,000 ha under NFA and 100,000 ha under Licensees on CFRs)	1,219,500,000	80	100	100	81	100	A total of 513.4ha of commercial tree plantations were established by NFA, while for licensed tree planters, 13,580ha.
	Effective engagement with UN and other partners in environmental issues	175,600,000	87	99	100	33	38	Government MDAs were trained and sensitized on Natural Capital Accounting.
Increase investment in value addition to environment and natural resources products and services	Protection and restoration of strategic fragile ecosystems undertaken	18,647,145,000	63	49	100	69	100	The Environment Police Protection Unit (EPPU) undertook environment inspection, monitoring and enforcement activities.

Output Performance								Remark
Intervention	Output	Financial Performance			Physical Performance			
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
Mainstream environment and natural resources management in policies, programmes and budgets with clear budget lines and performance indicators.	Climate change-responsive innovations nurtured and financially supported	1,100,000,000	62	59	100	70	100	A draft curriculum was developed by the consultant for Nyabyeya Forestry College to introduce a diploma in forestry for forestry product development.
	The capacity of cities and urban councils in sustainable urban development (Greening, pollution and waste management) enhanced	117,066,667	87	99	100	10	12	One community engagement with the communities residing within the confines of Mabira Forest was conducted in Buikwe District as part of the commemoration of WED 2023.
	Partnerships established	117,066,667	87	99	100	33	38	No partners' meetings were held.
	Increased funding to non-consumptive uses of the natural resources	4,445,766,850	98	97	100	25	26	One project concept on the Infrastructure Development Project for NEMA was approved by the MFPED's Development Committee.
	The institutional capacity of the relevant institutions to manage and regulate environmental aspects including oil and gas activities enhanced	4,445,766,850	98	97	100	80	82	One training of 20 staff on M and E skills was undertaken.

Output Performance								Remark
Intervention	Output	Financial Performance			Physical Performance			
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
Increase funding for promoting non-consumptive uses of natural resources	200 million seedlings supplied (5m-Bamboo, 50m-Indigenous and 145m exotic species)	1,219,500,000	80	100	100	38	48	A variety of 648,322 seedlings were supplied.
Strengthen enforcement capacity for improved compliance levels:	1,770 modern forest management infrastructure procured	3,017,334,747	67	94	100	80	100	A total of 25 GPSs, 140 assorted ICT equipment, 5 cars and 1 survey equipment for digitising forest boundary plan data were procured.
Develop and implement a framework that reduces adverse per capita environmental impact of cities (air quality and waste management practices)	25 cities/ municipalities with Functional solid waste/e-waste) management facilities	141,365,300	99	99	100	48	48	Twelve CDM sites were visited and technical assistance was provided in handling waste (solid and e-waste).
	A legal framework for environment management strengthened	141,365,300	99	99	100	65	65	Three regulations were developed and approved to provide the legal framework for a sound environment.
	A robust environ-mental assessment, monitoring and surveillance plan operational in cities/ municipalities and country-wide	353,413,250	99	99	100	30	30	No monitoring and assessment plan for cities/municipalities was developed.
	An environmental enforcement strat-egy developed and operationalized	141,365,300	99	99	100	40	40	An Environmental Enforcement Strategy was not developed.

Output Performance								Remark
Intervention	Output	Financial Performance			Physical Performance			
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
	Capacity of relevant stakeholders on environmental laws and standards enhanced	141,365,300	99	99	100	70	70	Four new prosecution cases were filed in court and 30 existing cases were prosecuted in the period but no capacity enhancement was undertaken.
	Environment management by Lead Agencies undertaken	141,365,300	99	99	100	90	91	A total of 2,029 ESIA certificates were issued and compliance monitoring and 2,057 enforcement operations were by both the EPF and technical staff.
	The National State of Environment Report prepared	262,365,300	92	98	100	67	73	The National State of Environment Report was prepared.
Undertake applied research and innovation on sustainable consumption and production to ensure resource use efficiency to reduce domestic material consumption per capita	Research and innovations conducted	121,000,000	83	97	100	50	61	No research or studies conducted.
Formulate and implement vehicle emission standards and sustainable management of chemicals to curtail the high levels of air, land and water pollution particularly in urban areas	Air Quality Monitoring Equipment procured and installed	1,083,333,331	62	100	100	75	100	One online environmental monitoring and licensing system was procured.
	The Mobile Laboratory of the NEMA retooled and re-equipped to meet the field spot on environmental monitoring needs	1,083,333,331	62	100	100	20	32	Four inspection fleet and an Environmental Monitoring and Licensing System procured.

Output Performance								Remark
Intervention	Output	Financial Performance			Physical Performance			
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)	
Enhance access and uptake of meteorological information	Research on future climate trends and potential impacts undertaken	14,318,878,068	90	98	100	45	49	One customer satisfaction survey on the provision of aeronautical meteorological services was conducted in Kasese and Entebbe.
	Information and knowledge base on projected climate trends and impacts established and disseminated	328,250,000	47	55	100	44	95	Four seasonal climate outlooks were issued, and seasonal forecasts disseminated.
Install new and adequately equip and maintain existing automatic weather stations to ensure maximum functionality	Functional automatic weather stations installed and maintained	2,858,915,000	54	87	100	42	78	Weather forecasts disseminated (daily, L. Victoria marine, Terminal Aerodrome), SIGMETs and Flight folders issued.
Average Output Performance							**65.70**	
Outcome Performance								

Outcome Indicator	Annual Target	Achieved	Score (%)	Remark
% of land area covered by forests	0.13	0.133	100	Achieved
% of land area covered by wetlands.	0.09	0.089	98.9	On track
% of key biodiversity areas covered by protected areas	0.18	0.18	100	Achieved
% of Municipal solid waste disposed off safely	0.5	0.45	90	On track
% of permit holders complying with ESIA conditions at the time of spot check	0.85	0.7	82.4	On track

Output Performance							Remark
Intervention	Output	Financial Performance			Physical Performance		
		Annual Budget (Ug shs)	% of Budget Received	% of Budget Spent	Annual Target	Cum. Achieved Quantity	Physical Performance Score (%)
Air Quality Index PM2.5			90	150		60%	The air quality is unhealthy for sensitive groups such as children, the elderly, and individuals with respiratory or heart conditions may experience health effects.
Percentage area of degraded catchment areas protected			0.3	0.38		100	Achieved
Average Annual Change in a Green House Gas (GHG) emissions (Mt-CO2e)			0.0115	0.0127		100	Achieved
Climate Change Vulnerability Index			0.0111	0.0107		96.4	On track
% of Automation of Weather and Climate Network			0.7	0.67		95.7	The NDP III target is 60%
Increase Accuracy of Meteorological Information (%)			0.84	0.77		91.7	The NDP III target is 78%
Average Outcome Performance						**86.3**	
Overall Sub-programme Performance						**73.1**	***Good sub-programme performance***

Annex 4: Performance of the Land Management Sub-programme by 30th June 2023

Intervention	Output	Financial Performance			Physical Performance			Remark
		Annual Budget (Bn. Ug shs)	% of Budget Received	% of Budget Spent	Annual Target (%)	Cum. Achieved Quantity (%)	Physical Performance Score (%)	
Complete the rollout and integration of the Land Management Information System with other systems.	Data Processing Centre established	49.50	49.27	7.17	100	15.6	15.70	The DPC established pending equipment and software upgrade.
	Land Information System automated and integrated with other systems	49.50	49.27	7.17	100	100.4	100.00	The Land Information System integrated with systems in only six organisations.
	Revised topographic maps, large scale maps and National Atlas	2.82	2.48	2.48	100	34.6	39.20	Target partially achieved with maps revision ongoing.
Develop and implement a Land Valuation Management Information System (LAVMIS)	National Valuation Standards and Guidelines developed and disseminated	13.35	8.65	8.62	100	5.0	7.71	Consultant under procurement for Land Valuation Management System development while valuations were undertaken.
Promote land consolidation, titling and banking.	Land demarcated, surveyed, registered and certified	7.33	5.45	5.44	100	72.9	97.94	A total of 19 land titles issued in wetlands and forest reserves cancelled; 47,349 titles issued to men and women.
Fast-track the formulation, review, harmonisation, and implementation of land laws, policies regulations, standards and guidelines	Land Laws, Policies, Regulations, standards and guidelines formulated and reviewed	0.37	0.34	0.34	100	22.5	25.02	A draft land acquisition and resettlement policy was prepared.

Intervention	Output	Financial Performance			Physical Performance			Remark
		Annual Budget (Bn. Ug shs)	% of Budget Received	% of Budget Spent	Annual Target (%)	Cum. Achieved Quantity (%)	Physical Performance Score (%)	
Promote tenure security including women's access to land	Tenure security for all stakeholders including women enhanced	0.15	0.02	0.01	100	95.0	100.00	Titles are given to both men and women.
Strengthen the capacity of land management institutions in executing their mandate geared towards securing land rights.	Capacity of Land Management Institutions (state and non-state actors) strengthened	0.41	0.12	0.12	100	80.0	100.00	Training of DLB, DLO, ALC and sensitisation on land matters undertaken.
Undertake a comprehensive inventory of Government Land	A comprehensive and up-to-date government land inventory undertaken	11.15	2.18	10.28	100	54.8	100.00	A total of 39 certificates of title were processed for ministries departments and agencies.
Capitalize the land fund to ensure access to land by lawful and bonafide occupants	Land fund capitalized and accessed by bona fide and lawful occupants	20.28	12.92	8.93	100	76.0	100.00	A total of 3,224.711 hectares of land was acquired through compensation to absentee landlords for securing Lawful and bonafide occupants in Buganda Bunyoro, Ankole and Toro.

Intervention	Output	Financial Performance			Physical Performance			Remark	
		Annual Budget (Bn. Ug shs)	% of Budget Received	% of Budget Spent	Annual Target (%)	Cum. Achieved Quantity (%)	Physical Performance Score (%)		
Average Output Performance							**68.56**		***Fair output performance***
Outcome Performance									
Outcome Indicator		**Annual Target**		**Achieved**			**Score (%)**		**Remark**
Percentage of titled land		26		22.4			86.2		Achievement lower than the NDP III target of 32%.
Turnaround time for titling of land (days)		10		15			66.7		The process of land titling takes longer than planned.
Average Outcome Indicator Performance							**76.4**		***Good performance***
Performance							**71.3**		***Good overall performance***

Plot 2 -12 Apollo Kaggwa Road
P. O. Box 8147, Kampala - Uganda
www.finance.go.ug