THE REPUBLIC OF UGANDA

Ministry of Water and Environment

Water and Environment Sector Performance Report 2016

Foreword

It is my pleasure to present to you the 8th Water and Environment Sector Performance Report (SPR) for the period 2015/16FY (i.e. SPR 2016). This report provides information on investments, targets, achievements, and challenges for the sector during the previous financial year.

The sector registered some achievements during the FY15/16. As of June 2016, the average access to safe water in rural areas was estimated at 67% (which is 2% increase from 65% as of June 2015). Communities need however to be sensitized on hygienic practices in order to maintain a safe water chain from the source up to storage at the household level. The functionality for rural water supplies has on the hand reduced to 86%, from the 88% which was reported in June 2015. Access to safe drinking water in the urban water currently stands at 71%. It is worth noting the water and sanitation services managed by the National Water & Sewerage Corporation (NWSC) have now expanded to cover a total of 170 towns. The quality, reliability, and number of connections in these towns has improved significantly.

According to data in urban areas outside Kampala, 84.6% of the urban population has access to sanitation, with an estimated 39% of the urban population having toilets with a hand washing facility. On the other hand, access to rural sanitation was 79% by June 2016, (which is an increase of only 2 percentage points from last year). While the national standards for school sanitation recommend a pupil to stance ratio of 1:40, this ration worsened to 70:1, from that of last year (67:1). Of the 111 districts, only 8 districts presently meet the national school sanitation standard. Access to hand washing in schools has continued to be low with only 34% of the schools having access to washing facilities, which puts the lives of the pupils at risk of faecal related diseases leading to absenteeism.

By the end of FY 2015/16, the national cumulative storage for water for production had increased from 31.7 million cubic meters (in FY 2014/2015), to 37.185 million cubic meters. However, this is just a small portion of the amount required meet all the livestock watering, irrigation and other economic needs.

Implementation of catchment based integrated water resources management activities is still on-going in the 4 Water Management Zones (WMZs). Never-the-less, some catchment management plans have been prepared taking into account all the various stakeholder interests. We however need to improve the capacity of the sector institutions enforce compliance to the water resources regulations for waste water discharge. This important if we are to reverse the on-going pollution of our water resources. The guidelines for source and catchment protection also need to be implemented by all sector players if we are to long-term sustainability (in terms of both quality and quantity) of our water facilities.

The percentage of Uganda's area covered by wetlands is estimated at 10.9%. Six Management Plans covering an area of 838 km^2 were completed. The total area of wetland under management plans stands 2,968 km^2. With an estimated wetland area of 26,330 km^2, this translates to 11.3% of the wetlands with a wetland management plan. Activities to restore wetlands are still on-going in many districts. About 35% of the Central Forest Reserves (CFRs) have management plans, and a total of 1,180 Ha was reforested in central forest reserves; 280 km of central forest reserve boundaries were surveyed and demarcated, and 670 ha of encroached central forest reserves were restored.

Monitoring of activities within the Albertine Graben was undertaken to establish whether the treatment and disposal of oil waste is in compliance with environmental laws and regulations.

The key challenge faced by the sector is the inadequate financing to achieve the targets under the National Development Plan (NDP-II) and the 2016 National Resistance Movement (NRM) re-election Manifesto. The sector continues to receive only 3% of the national budget resources yet its role in transforming Uganda into middle income status by 2020 is very strategic.

Finally, on behalf of the Government of Uganda, let me express our gratitude to the Sector Development Partners, the Civil Society Organisations and the Private sector for the support given during the financial year.

For God and my country,

Hon. Cheptoris Sam

MINISTER FOR WATER AND ENVIRONMENT, UGANDA

Executive Summary

This is the 8th Water and Environment Sector Performance Report (SPR). It provides a concise and transparent overview of investments, targets, achievements, outputs and challenges for the sector during 2015/16FY (i.e. SPR 2016). This report includes data and analysis with respect to the access, functionality and equity of improved water supplies, sanitation and hygiene, per capita investment cost, water quality, water storage, gender and community management, water resources management compliance as well as activities and achievements on wetlands and forestry management, meteorology, climate change and environmental monitoring and compliance.

Introduction

Data used for this report is derived from databases in the Ministry of Water and Environment, District Local Governments, sector semi-autonomous agencies, Ministry of Health, Ministry of Education, and the Uganda Bureau of Statistics (UBOS). Two projects were started up with regard to improving the functionality of databases within the sector.

Progress on undertakings of 2015/16

A total of 11 undertakings were adopted during last year's water and environment Joint Sector Review which was held in October 2015. Thematic groups and subgroups were formed to implement the undertakings; they prepared action plans with indicators/outputs to monitor progress of implementation of each undertaking, which were subsequently approved by the Water and Environment Sector Working Group (WESWG). Progress made on implementation of the 11 undertakings shows that only three undertakings were achieved (i.e. Nos 6, 7, and 9), one undertaking covering also FY2016/17 is on track (No.1), four undertakings were partially achieved (Nos 2, 4, 5 and 11) and delayed mostly as a result of insufficient resources for their implementation, whereas three have largely not progressed at all (3, 8 and 10).

Sector Finance

In the FY2015/16, the total financing to the Sector (including both off-budget and on-budget resources), totalled to approx. UGX bn 905.12, of which UGX bn 560.95 was on-budget (appropriated by Parliament), while UGX bn 344.17 was off-budget. The off-budget financing includes UGX bn 285.04 as internally generated revenue by the National Water & Sewerage Corporation (NWSC) from water sales, and UGX bn 59.13 mobilized by Civil Society Organizations (CSOs) both in the Water and Environment Sub-sectors.

In total, 62% of the total sector allocation was in the form of on-budget support, while 38% was off-budget support. In terms of releases of the allocated budget, the performance by GoU was 92%, while only 45% of the overall Development Partner (DP) budget was actually released. This was mainly due delays in implementation of some key projects under the ministry and NWSC, and also due to suspension of releases by KFW and Austria/EU to some of the Water and Sanitation Development Facilities.

Rural Water Supply

The main technology options used for water supply improvements in rural areas include protected springs (18%), shallow wells (23%), deep boreholes (44%), piped water schemes (gravity-fed) and piped water schemes (pumped) (11%), valley tanks and rainwater tanks.

As of June 2016, the national safe water coverage in rural areas is estimated at **67%** (up from 65% June 2015). The functionality for rural water supplies has on the other hand reduced to **86%**, (from 88% in June 2015). A total of UGX bn 94.28 was used by government to serve 850,192 persons with new improved water supplies. The overall per capita cost for rural water supplies is thus UGX 110,887 (which is less than UGX 116,897 for 2014/2015). A total of 12 billion was spent centrally by MWE on continued implementation of multi-year gravity flow water supply schemes (of Bukwo, Nyarwodho, Bududa, Butebo) and solar-powered mini-piped water schemes.

Urban Water Supply

Access to drinking water in urban water currently stands at **71%**. Of the 274 gazetted urban centres, 112 are currently being managed by the National Water and Sewerage Corporation (NWSC), leaving 162 under the responsibility of the MWE (i.e. Urban Water Supply & Sewerage Department) through various Water Authorities and/or Private Operators. Of the towns under MWE, a total of 60 presently do not yet have any piped water supply

system. A total of 36 schemes are currently being managed by Private Operators (i.e. a private firms working under management contract with the MWE).

The average per capita investment cost for new water facilities increased to **US$ 65.5** in FY 2015/16, compared to the US$ 45 for FY 2014/15 (both figures are still below the target per capita investment cost of US$ 85). The practice in the sector is now to invest in large multi-year schemes which supply water to clusters of towns with surface water abstraction and conventional treatment which partly explains the apparent increase in per capita investment costs.

Water for Production

MWE constructed and rehabilitated some earth dams and valley tanks mainly in the cattle corridor, which stretches from Isingiro in the South-West to Karamoja in the North-East. By the end of FY 2015/16, cumulative storage had increased from 31.7 million cubic meters in FY 2014/2015, to **37.2 million cubic meters**.

Water Resources Management

The main Water Resources Management activities during FY 2015/16 were related to **catchment based integrated water resources management** through the four Water Management Zones (WMZs), i.e. supporting the preparation of Catchment Management Plans and establishment of Catchment Management Organizations (CMOs) to promote coordination and collaboration among the various stakeholders. Nine catchments (Rwizi, Mpanga, Aswa, Maziba, Ruhenzyenda, Awoja, Katonga, Mpologoma, and Victoria Nile) now have CMOs and the process of forming another four (Albert Nile, Semliki, Lokok, and Lokere) is still ongoing.

The use of **Water Source Protection Guidelines** was promoted to secure the quality and quantity of water resources for water related infrastructure projects. Piloting of these guidelines has been done in Mbale, Arua and Bushenyi (under the NWSC).

The MWE participated in **transboundary water resources management** activities under the Nile Basin Initiative, East African Community (EAC)/Lake Victoria Basin Commission and Intergovernmental Authority on Development (IGAD), to ensure that Uganda's interests are safeguarded.

The **National Water Quality Management** Strategy is still being implemented. Key on-going activities include (i) upgrading of the existing Entebbe water quality laboratory to a National Reference Laboratory, (ii) establishment and operation of regional laboratories in the 4 Water Management Zones (WMZs) in Mbale, Lira, Wakiso & Fort Portal, (iii) development of water quality guidelines and standards for various emerging issues such as oil drilling and emergency response.

Other activities include (iv) review of the National Water Policy and Water Act, (v)development of reservoir regulation and dam safety guidelines, (vi)implementation of the strategy for compliance and enforcement of water laws and water permit conditions, and (vii)strengthening of **water resources monitoring and information system** through establishment of new water resources monitoring stations, operation and maintenance existing monitoring stations, compilation of a water resources status report and design of a new Water Information System.

According to a rapid assessment of the quality of drinking water undertaken for rural water supplies in 45 districts which was done during 2015/16FY, only **41%** of rural water samples comply with national standards for drinking water. This was due to a combination of poor hygiene at the household level, insufficient measures for water source protection, and abstraction of water from contaminated shallow aquifers, especially in shallow wells.

Sanitation and Hygiene

Faecal sludge management in Uganda is still poorly developed. Less than 10% of the toilet facilities in towns can be emptied, making the demand for faecal sludge removal low. There are no sludge disposal/treatment facilities in most towns, and most small towns lack do not have access to services of cesspool emptying trucks.

According to data in urban areas outside Kampala, **84.6%** of the urban population has access to sanitation. An estimated **39%** of the urban population have access to toilets installed with a hand washing facility, although this is not an

indication of actual use. Some of the hand washing facilities lack soap and/or water.

According to district reports, access to rural sanitation, was **79%** by June 2016**,** which is an increase of 2 percentage points from last year.

The national standards recommend a pupil to stance ratio of 1:40 in schools. According to district reports, the national pupil:stance ratio has worsened to **70:1,** compared to last year (67:1). Of the 111 districts only 8 districts presently meet the national standard.

Access to hand washing in schools has continued to be low with only **34%** of the schools having access to washing facilities, which puts the lives of the pupils at risk of faecal related diseases leading to absenteeism.

CSOs Contribution to Water and Sanitation

112 CSOs made a total investment of UGX bn 44.40 in the areas of water supply, sanitation and hygiene promotion, community management, water for production and integrated water resources management. Most investments were made for water supply (UGX bn 24.72).

Wetlands Management

The percentage of Uganda's area covered by wetlands is estimated at 10.9%. Six Management Plans covering an area of 838 km^2 were completed. The total area of wetland under management plans stands 2,968 km^2. With an estimated wetland area of 26,330 km^2, this translates to **11.3%** of the wetlands with a wetland management plan. Activities to restore wetlands are still on-going in many districts.

Forestry Management

About **35%** of the Central Forest Reserves (CFRs) have management plans. A total of 1,180 Ha of forest plantations were established in several central forest reserves, and 280 km of central forest reserve boundaries were resurveyed and demarcated, and 670 ha of encroached central forest reserves were restored. The major challenge for forest management in Uganda is de-forestation which is demonstrated by the decline of forest cover from 24% in 1990 to 11% in 2015.

Environmental Support Services

Monitoring of activities within the Albertine Graben was undertaken to establish whether the treatment and disposal of oil waste is in compliance with environmental laws and regulations. Environmental compliance has been enforced through EIAs, audits, inspections and monitoring by NEMA, NFA and MWE's DESSS and Wetlands Management Department with support from the Environmental Police Protection Unit (EPPU) who are engaged in monitoring, surveillance, crime management and community policing.

About 70% of inspected facilities are compliant, especially within the oil and gas sector. Significant non-compliance is found for developments within wetlands which is only at about 30%. A number of industries including cement, sugar processing and breweries have improved compliance by establishing effluent treatment plants, recruiting personnel for environment management, and improving house-keeping policies and other internal regulatory mechanisms.

A total of 1,261 environmental compliance inspections and audits were carried out. The inspections focused on the major sectors including chemicals, paints, foods and beverages, tanneries, and the oil and gas sector. Inspected facilities, especially tanneries, cement factories, food processing facilities and breweries have introduced self-regulatory systems and mechanisms and invested in waste treatment facilities, recycling and re-use.

NEMA continued to enforce the ban on polyethylene carrier bags (*kaveera*) with focus on the major towns, by stopping major producers from manufacturing and distributing them and discouraging retailers from using them. Most super markets and shops have complied and now provide alternative carrier bags.

Meteorology, Weather and Climate Services

The Uganda National Meteorological Authority (UNMA), is a semi-autonomous government authority which is now responsible for provision of weather information/forecasts and climate services. In total 39 Automatic Weather Stations were installed within the cattle corridor districts and hard to reach areas. UNMA also provided aeronautical meteorological services for aviation in

the country. 25,800 Flight Folders and International Route Forecasts were issued during 2015/16FY (compared to 13,400 in 2014/15FY).

Climate Change

A number of tools were developed and can now be accessed in the National Climate Change Resource Centre. These include an interactive web-based National Climate Atlas to centralize spatial information and knowledge on Climate Change. In addition, the MWE is in the process of developing a National Greenhouse Gas Inventory system which will archive data on greenhouse gas emissions from the different sectors of the economy.

CSOs in Environment and Natural Resources (ENR)

In total 33 CSOs active in ENR reported a contribution amounting to UGX bn 14.3. ENR-CSOs invested much of their resources in forestry (54%), followed by governance at 19% and environment at 12%. The CSOs spent 8% on weather, climate and climate change activities, and 7% was spent on wetlands management.

Gender Mainstreaming

Capacity building initiatives in gender were implemented in 24 new districts and targeted staff under the Environment and Natural Resources Sub- Sector given that gender mainstreaming initiatives under the ENR sub-sector were recently initiated. The purpose of the capacity building efforts was to disseminate the new Environment and Natural Resource Gender Strategy (2015) and to enhance capacity of district staff in gender mainstreaming.

Good Governance Activities

Implementation of the good governance action continued. A study to establish the efficiency and effectiveness of the **Urban Water and Sanitation (O&M) Grant** was implemented which revealed that the grant achieved its objective of keeping the water tariff low, but has not yet been effective in bridging the gap to break-even points of the utilities. The mechanism used to channel the grant was found to be both efficient and effective. However, inadequacies were found in accounting and financial management skills, inadequate financial reporting, while Umbrella Organisations did not provide grant reports to UWRD. Water Supply and Sanitation Boards fall short of provision of management oversight, and are sometimes non-existent.

MWE embarked on a study that aimed to suggest ways of **measuring sector governance** by use of indices, which are precise, easy to compile and aligned with the performance indicators that reflect the governance processes.

MWE has had negotiations with the MoFPED to ensure that the principles of the newly developed **allocation formula** by MWE would be incorporated in MoFPED's suggested formula (equity in distribution, un-served population, functionality, projected population, average investment cost for water in the district, minimum grant amount to cater for O&M and overheads). The MoFPED proceeded with its suggested formula with minor changes, including separating the sanitation grant from the water grant, and considering functionality.

Critical Issues for the Sector

Issues are listed in the final chapter of the report, to summarise main challenges in the sector and a way forward to address these.

Issues include first of all the need to **mainstream environmental protection** into the policies and programmes of Agriculture, Infrastructure, Lands, Energy and Water Sectors in order to reduce environmental degradation emanating from these sectors.

Also, the on-going process of update of the Water Supply Atlas (WATSUP II) has revealed that a sizeable percentage of boreholes non-functional for over five years may actually be fit for **rehabilitation**. The Government therefore needs to ensure that the actual status of these water sources is evaluated, and subsequently urge district local governments and sector CSOs to prioritise rehabilitation of those water sources that are repairable and thereafter ensure revitalisation of the water user committees.

Then, **alternative financing for small towns' water supplies** needs to be sought, including options like a Revolving Facility, improve local revenue collection by introducing innovative systems such as non-cash payment, billing software and pre-paid

water vending, and increasing the funding of Umbrella Organisations to a realistic level.

The inadequate framework for effectively **regulating the water and sanitation sub-sector** to improve service delivery, while protecting the interests of consumers as well as those of the public and private parties is another matter of concern. This challenge is becoming even more prominent at a time where the management of town water supplies is taken over by NWSC at a very fast speed without the accompanying regulatory modalities in place, where urban waste water treatment is grossly inadequate and the water resources quality is deteriorating. As an interim measure, before establishment of the independent regulatory authority, a decision has been taken by the Ministry to de-concentrate some regulation functions to regional Regulation Units to be based in the 4 regions where other MWE de-concentrated structures are operating, to specifically focus on executing regulatory functions in the entire Water and Sanitation sub-sector.

The **guidelines for catchment planning and water source protection** have been piloted before scaling-up their usage. In addition to the pilots, some other stakeholders/projects have used the guidelines for catchment planning and water source protection against quality and quantity degradation. The piloting has provided an opportunity to test the usefulness of the guidelines as well as assessing any existing gaps so that they can be addressed before the guidelines are formally adopted by all sector players.

In addition, a draft strategy for **operationalising the 3% contribution for water sources protection** was developed, and will be finalised after incorporation of experiences/lessons learnt from the pilots.

Finally, **Water resources pollution in Uganda** is currently on the increase as a result of the rapid population growth, increasing economic and industrial activities, urbanization and climate change. For example, Lake Victoria receives 25 tons of biodegradable substances and 4 tons of plant nutrients every day from the Ugandan side from industries, urban centres and fishing villages. Uganda is signatory to the Sustainable Development Goals (SDGs), and SDG 6.3 specifically reports on the status of water resources in terms of water quality parameters that measure pollution levels. To address the challenges, adequate and reliable financing is required for a holistic (integrated) approach to water resources pollution management.

Status of Golden and Platinum Indicators

The performance of the water and environment sub-sectors against the Golden and Platinum indicators respectively, is presented in the tables below and on the following page. Achievements above the target for FY 2015/16 are shaded green, while indicators shaded red highlight the non-achievement in FY 2015/16.

Water and Sanitation Sub-sector Performance against the Golden Indicators

Golden Indicators			Achievements		Targets
			14/15	15/16	16/17
1. **Access**: % of people within 1,000m (rural) and 200m (urban) of an improved water source		Rural	65%	67%	68%
		Urban	73%	71%	73%
2. **Functionality**: % of improved water sources that are functional at time of spot-check (rural/WfP). Ratio of actual hours of water supply to the required hours (small towns)		Rural	88%	86%	86%
		Urban	92%	94%	95%
		WfP	75%	84%	85%
3. **Per Capita Investment Cost**: Average cost per beneficiary of new water and sanitation schemes (USD)		Rural	41	32	40
		Urban	45	65.5	85
4.1 **Household Sanitation**: % of people with access to improved sanitation		Rural	77%	79%	80%
		Urban	84.1%	84.6%	85%
4.2 **School Sanitation**: Pupil to latrine/toilet stance ratio)		(from DHI reports)	67:1	70:1	40:1
5. **Water Quality**: % of water samples taken at the point of water collection, waste discharge point that comply with national standards.	Protected Rural Source	E.coli (from WQD)	36%	41%	95%
	Large Towns Drinking Water (data from NWSC)	E.coli	99%	99%	100%
		Colour	93%	93%	100%
	Wastewater (data from NWSC)	BOD_5	40%	46%	90%
		TSS	42%	45%	90%
6. **Cumulative Water for Production Storage Capacity** (million m^3)			31.7	37.2	40
7. **Equity**: Mean Sub-County deviation from the national average in persons per improved water point			162	142	130
8. **Hand washing**: % of people with access to (and using) hand-washing facilities		Household (rural)	33%	36%	50%
		School	38%	34%	50%
9. **Management**: % of water points with actively functioning Water & Sanitation Committees (rural/WfP)/Boards (urban)		Rural	77%	87%	90%
		Urban	78%	78%	95%
		WfP	80%	81%	85%
10. **Gender**: % of Water User committees/Water Boards with women holding key positions [Note * WfP 73% for valley tanks, 48% for dams]		Rural	84%	86%	95%
		Urban	67%	67%	95%
		WfP	73/48	73/48	75%
11. Water Resources Management Compliance: % of water abstraction and discharge permits holders complying with permit conditions (Note: before FY 2011/12, indicator referred to permit validity only. In FY 2011/12, for wastewater discharge, % compliance was taken. In FY 2012/13, permit conditions are compliance to permitted abstraction volumes and compliance with effluent quality. From FY 2014/15, a compliance on reporting on drilling is included).		Wastewater discharge	52%	56%	60%
		Surface water abstraction	71%	74%	75%
		Groundwater abstraction	71%	74%	75%
		Drilling	88%	90%	95%

Environment Sub-sector Performance against the Platinum Indicators

No.	Platinum Indicators	Baseline Value	Achievements FY2014/15	FY2015/16
1.	% Uganda's land area covered by forest	18%	11%	10-11%
2.	% natural forest under strict nature reserve	12%	12%	12%
3.	% survival of tree seedlings past year 3	60%	78%	75%
4.	% rural households that travel more than 1 km to collect firewood	2 km	unknown	unknown
5.	% forest reserves under management plans	32%	32%	35%
6.	% developers complying with certificate of approval conditions	60%	66%	
7.	% solid waste disposed of safely in the 9 municipalities	50%	60%	65-70%
8.	% meteorological rainfall observation network coverage of country	60%	unknown	95 stations
9.	% Uganda's land area covered by wetlands	10.9%	10.9%	10.9%
10.	% Uganda's wetlands used under management plans	0.9%	added 810 km^2	11.3%

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ACCRA	Africa Climate Change Resilience Alliance
ADB	African Development Bank
BFP	Budget Framework Paper
BOD	Biological Oxygen Demand
CBO	Community Based Organisation
CBMS	Community Based Maintenance System
CCU	Climate Change Unit
CDM	Clean Development Mechanism
CFA	Cooperative Framework Agreement
CFR	Central Forest Reserves
CLTS	Community Led Total Sanitation
CMO	Catchment Management Organisation
CSO	Civil Society Organisation
DESS	Department of Environment Services
DHI	District Health Inspector
DLG	District Local Government
DP	Development Partner
DWAP	District Wetland Action Plan
DWD	Directorate of Water Development
DWO	District Water Office(r)
DWRM	Directorate of Water Resources Management
DWSCC	District Water and Sanitation Coordination Committee
DWSDCG	District Water and Sanitation Development Conditional Grant
EAC	East African Community
EC	European Commission
EHD	Environment Health Division (of Ministry of Health)
EIS	Environmental Impact Statement
ENR	Environment and Natural Resources
EPPU	Environment Protection Police Unit
FAO	Food and Agricultural Organisation
FGD	Focus Group Discussion
FIEFOC	Farm Income and Enhancement and Forestry Conservation
FMP	Forest Management Plans
FO	Forest Officers
FSSD	Forestry Sector Support department
FY	Financial Year
GEF	Global Environmental Facility
GFS	Gravity Flow Scheme
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GGAP	Good Governance Action Plan
GGDS	Green Growth Development Strategy
GGWG	Good Governance sub-sector Working Group
GIS	Geographical Information System
GoU	Government of Uganda
ha	Hectares
HIC	Home Improvement Campaigns
HIP	Hygiene Improvement Programme
HIV/AIDS	Human immunodeficiency virus / acquired immunodeficiency syndrome
HPM	Hand Pump Mechanic

HPMA	Hand Pump Mechanic Association
HWF	Hand Washing Facility
ICT	Information Communication Technology
IDAMC	Internally Delegated Area Management Contract
IDP	Internally Displaced Persons
IGAD	Intergovernmental Authority on Development
ISDP	Infrastructure Service Delivery Plan
ISH	Integrated Sanitation and Hygiene
INDC	Intended Nationally Determined Contributions
JAF	Joint Assessment Framework
JBSF	Joint Budget Support Framework
JPF	Joint Partnership Fund
JSR	Joint Sector Review
JWESSP	Joint Water and Environment Sector Support Programme (2013 – 2018)
KCCA	Kampala City Council Authority
KfW	Kreditanstalt für Wiederaufbau
KP	Kyoto Protocol
KPI	Key Performance Indicators
LG	Local Government
LGDP	Local Government Development Programme
LVEMP	Lake Victoria Environmental Management Project
LVWATSAN	Lake Victoria Water and Sanitation Initiative
M&E	Monitoring and evaluation
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MIS	Management Information System
MoEMD	Ministry of Energy and Mineral Development
MOESTS	Ministry of Education, Science, Technology and Sports
MoFPED	Ministry of Finance, Planning and Economic Development
MoGLSD	Ministry of Gender Labour and Social Development
MoH	Ministry of Health
MoLG	Ministry of Local Government
MoLHUD	Ministry of Lands Housing and Urban Development
MoTTI	Ministry of Tourism, Trade and Industry
MoU	Memorandum of Understanding
MUCCRI	Makerere University Centre for Climate Change Research and Innovations
MTEF	Medium Term Expenditure Framework
MWE	Ministry of Water and Environment
MTEF	Medium Term Expenditure Framework
MRV	Measuring, Reporting and Verification
NAADS	National Agricultural Advisory Services
NAPA	National Adaptation Programme of Action
NAMA	Nationally Appropriate Mitigation Actions
NBI	Nile Basin Initiative
NDP	National Development Plan
NEA	National Environment Act
NEC	National Environment Council
NEMA	National Environmental Management Authority
NEMP	National Environmental Management Policy
NFA	National Forestry Authority
NGOs	Non-Government Organisations
NPHC	National Population and Housing Census

NPV	Net Present Value
NRW	Non-Revenue Water
NSDS	National Service Delivery Survey
NSOER	National State of Environment Report
NSWG	National Sanitation Working Group
NWIS	National Wetland Information System
NWSC	National Water and Sewerage Cooperation
NWQRL	National Water Quality Reference Laboratory
O&M	Operation and Maintenance
OBA	Output Based Aid
ODF	Open Defecation Free
PAF	Poverty Action plan
PEAP	Poverty Eradication Action Plan
PES	Payment for Ecosystem Services
PHAST	Participatory Hygiene and Sanitation Transformation
PMF	Performance Measurement Framework
PPDA	Public Procurement and Disposal of Assets Authority
PPEA	Participating Poverty Environment Assessment
PPD	Policy and Planning Department
PPP	Public Private Partnership
PSP	Public Stand Post
PRT	Performance Review Team
PWD	Person(s) with disabilities
PWP	Public water points
REDD	Reducing Carbon Emissions from Forest destruction and Degradation
RGC	Rural Growth Centre
R-PP	Readiness Preparation Proposal
RWHT	Rain Water Harvesting Tank
RWSS	Rural Water Supply and Sanitation
RWT	Rain Water Tank
SIM	Sector Investment Model
SIP	Sector Investment Plan
SPGS	Saw log Production Scheme
SPR	Sector Performance Report
SSIP	Sector Strategic Investment Plan
STWSS	Small Towns Water and Sanitation
SWAp	Sector Wide Approach
SWC	Soil and Water Conservation
SWG	Sector Working Group
SWSSB	Sub-county Water Supply and Sanitation Boards
TA	Technical Assistance
ToR	Terms of Reference
TSS	Total Suspended Solids
TSU	Technical Support Unit
UBOS	Uganda Bureau of Statistics
UfW	Unaccounted for Water
UGX	Uganda Shillings
UIA	Uganda Investment Authority
ULGA	Uganda Local Governments Association
UN	United Nations
UNMA	Uganda National Meteorological Authority

UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations International Children's Fund
UPHC	Uganda Population and Housing Census
USAID	United States Agency for International Development
UWASNET	Uganda Water and Sanitation NGO Network
UWSS	Urban Water Supply and Sanitation
VCT	Voluntary Counselling and Testing
VfM	Value for Money
VHT	Village Health Team
VIP	Ventilated Improved Pit
VT	Valley Tank
WAG	Wetland Advisory Group
WAP	Wetland Action Planning
WASH	Water, Sanitation and Hygiene
WED	World Environment Day
WfP	Water for Production
WMD	Wetland Management Department
WMZ	Water Management Zones
WPC	Water Policy Committee
WQ	Water Quality
WRM	Water Resources Management
WSDF	Water and Sanitation Development Facility
WSP	Water and Sanitation Programme
WSC	Water Source Committee
WSS	Water Supply and Sanitation
WSSWG	Water and Sanitation Sector Working Group
WUC	Water User Committee
WURD	Water Utility Regulation Department

Exchange Rate[1] **USD 1 = UGX 3,443** **EUR 1 = UGX 3,820**

[1] Actual annual average exchange rates based on official statistical exchange rate information from Bank of Uganda and The European Central Bank.

Glossary and Definitions

Alignment: an arrangement whereby the activities and systems of a Development Partner are harmonised with the Government's priorities and systems, thereby increasing the Government's "ownership" of activities and systems and making implementation more effective.

Basket Funding: aid finance flowing from a Development Partners' account, kept separate from other funding. The Joint Partnership Fund (JPF) is an example in the water sector of basket funding using on-budget project modalities.

Biomass: is the total living woody natural vegetation found above ground. It includes stems, branches and twigs. Biomass refers to their air-dry mass, measured after drying the wood for up to 15 days, until the mass is constant.

Biodiversity: the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Consolidated Fund: the consolidated fund is the main treasury account where all Government and external funds are received. Funds are then allocated according to approved budgets to the ministries and via fiscal decentralisation mechanisms to the local Governments.

Development Partner (DP): Bilateral, multilateral and international organisations and agencies providing support to Uganda.

(Earmarked) Sector Budget Support: financial support channelled through the Government budget that is notionally earmarked to a specific sector or sub-sector. In the water and sanitation sub-sector earmarked sector budget support includes support via the consolidated fund and Poverty Action Fund (PAF) to the District Water and Sanitation Development Conditional Grant (DWSDCG) and also to the Ministry of Water and Environment (MWE) at central level. There is no difference between earmarked sector budget support and sector budget support for the water, health and education (sub-) sectors as all sector expenditure is under the PAF.

General Budget Support: financial support given directly to the Government budget, with no earmarking of funds but accompanied with dialogue with the Government of Uganda (GoU) around the implementation of the Poverty Eradication Action Plan (PEAP).

Harmonisation: the process of rendering approaches, systems or policies between Development Partners and Government coherent.

Lead Development Partner: In any given sector or area, there are a range of leadership functions that can be taken on by one or more Development Partner (DPs). The role of the lead DP will depend on the agreements reached with Government and other DPs in the sector, but may include the following: acting as the main liaison with Government in policy dialogue and advocacy, facilitating funds and aid management, ensuring that joint reviews, monitoring and reporting take place following agreed formats, providing services to other DPs (information, communication and technical advice) and monitoring DP performance.

Large Towns: are classified as those gazetted for operation by National Water and Sewerage Corporation (NWSC), which provides water and sewerage services. NWSC currently operates in 110 "Areas". The NWSC coverage area extends beyond the above urban boundaries.

Medium Term Expenditure Framework (MTEF): is a three-year rolling budget framework used to guide public-sector resource allocation, including Aid. At the beginning of the budget process, sectors are provided with medium-term resource ceilings, which, in aggregate are consistent with the achievement of macroeconomic objectives. Sector working groups allocate these ceilings to institutions within the sector over the medium term consistent with the achievement of sector policy objectives. These allocations are articulated in the Budget Framework Paper (BFP), which represents the Government's medium term budget strategy. The first year of the MTEF forms the basis of the annual budget allocations, which are voted by parliament.

On-budget Aid: is Aid that is included in the MTEF and presented in the GoU budget estimate books. This includes aid that flows through Government systems (such as general, sector and PAF budget support), as well as other programme aid and projects that are reported to GoU and that the Ministry of Finance, Planning and Economic Development considers should be included in the MTEF and the budget presented to Parliament. A second category of on-budget aid includes Technical Assistance (TA) and basket funds that support GoU activities and institutions whose budgets are included in the MTEF and official estimate books. On budget aid falls within the sector ceiling.

Off-budget Aid: is Aid that is not reported in the MTEF and budget estimates GoU either because it is not reported to GoU, or because it is not related to institutions included in the MTEF and GoU official budget estimates. This might include some Aid to local Governments, as well as support to parastatals and NGOs, although many DPs do provide information on such aid to MOFPED. Off-budget aid is not included within sector ceilings.

Poverty Action Fund (PAF): established by GoU in 1998 under the Medium-Term Expenditure Framework, is a ring-fenced fund aimed at protecting resources for key poverty reducing areas including water, health, education and rural infrastructure.

Poverty Action Fund Budget Support: budget support notionally earmarked to expenditures within the Poverty Action Fund areas, but not earmarked to any specific sector. Transfers are made through the Government systems.

Project Support refers to assistance that is not channelled via the Government systems. It can be on-budget (i.e. within the ceiling) or off-budget (i.e. outside the ceiling).

Sector Ceilings: are the upper limits that each sector can spend. They include all on-budget DP finance. DP finance to a particular sector will not necessarily raise the sector ceiling. Sector budget support will, generally speaking, not increase the sector ceiling and is therefore not additional funding. Sector earmarking is thus only notional. The strict imposition of sector ceilings means that earmarking only offsets the Government budget.

Sector Wide Approach (SWAP) is a mechanism whereby GoU, civil society and Development Partners support a single policy, development plan and expenditure programme, which is under Government leadership and follows a common approach. A SWAP de-emphasises donor-specific project approaches and promotes funding for the sector through general, sector earmarked budget support or through basket funding. The rural water and sanitation sub-sector is the most advanced in terms of SWAP implementation.

Small Towns urban centres as defined by UBOS that are not served by National Water and Sewerage Corporation (NWSC), also includes Town Boards and Rural Growth Centres (RGCs) with populations of more than 500 people. Currently, there are 198 Urban Councils and 1,772 RGCs.

Software: is an umbrella term used to cover the activities of awareness creation, community sensitisation mobilisation and post-construction follow-up with respect to water supply and sanitation. These activities are undertaken to change behaviour and attitudes towards hygiene and sanitation and to ensure community management of improved water supply facilities.

Undertaking: strategic action agreed on in the Joint Sector Review to be undertaken by the sector, ideally within a 12-month period (in time for the subsequent JSR).

Urban and Rural: as defined by UBOS' National Population and Housing Census (NPHC) 2014, urban centres include all areas gazetted as City, Municipality, Town Council or Town Board All other areas are classified as rural.

Water and Environment Sector Working Group (WESWG): comprising stakeholders from GoU institutions within a sector, civil society organisations and Development Partners, the WESWG meet to agree sector budget submissions and new projects proposed for the sector, as well as to review sector performance and to deliberate on key sectoral policies.

1 INTRODUCTION

1.1 About this Report

The Uganda Water and Environment Sector Performance Report (SPR) is the most important document for assessing the performance of the water and environment sector. It provides an annual assessment of investments, targets, achievements, outputs and also highlights the major challenges or strategic issues which effect performance. The report includes data and analysis with respect to the agreed key indicators in the following water sub-sector performance themes: access, functionality and equity of improved water supplies and sanitation, hygiene, per capita investment cost, water quality, water storage, gender and community management. The SPR also includes essential information on Uganda's environment and natural resources and a description of the efforts being made to ensure sustainability of the ecosystems in the country. Annual SPRs for Water and Sanitation were produced from 2003 to 2008. Since the merger of the water and environment sectors in 2008, this is the 8th Water and Environment Sector Performance Report.

The Sector Performance Report is based on the water and sanitation sub-sector performance measurement framework developed in 2003. The environment and natural resources sub-sector performance measurement framework was developed in August 2010. A sector-wide approach to planning, implementation, reporting and accountability was first adopted in 2001, when a number of individual donor specific projects and reviews were phased out, and the first Joint Government of Uganda – Development Partners Water and Sanitation Sector Support Programme (JWSSPS, 2007 to 2013) was implemented. Currently, the five-year Joint Water and Environment Sector Support Programme (JWESSP) is ongoing, including also Environment as a sub-sector. In addition, the Joint Sector Review (JSR) for the water and environment sector has been held annually since the merger of the water and environment sectors in 2008. The SPR forms the basis for discussions at the Joint Sector Review, during which a number of Undertakings for the subsequent year are formulated and agreed.

The SPR has been prepared through a participatory process with inputs from the Ministry of Water and Environment (MWE), the National Water and Sewerage Corporation (NWSC), the National Environment Management Authority (NEMA), the National Forestry Authority (NFA), the Uganda National Meteorological Authority (UNMA), the Water and Sanitation Programme of the World Bank (WSP/WB), the Environment Health Division (EHD) of the Ministry of Health (MoH) as well as the Uganda Water and Sanitation NGO Network (UWASNET) and Environment and Natural Resources CSO Network. A senior management team from MWE collated, quality assured and synthesised these inputs. The primary data sources are Local and Central Government reports and databases at District Local Governments and MWE, and these are listed in Annex 1.

The urban water and sanitation sub-sector, through MWE's Water Utility Regulation Department, reports on the targets and achievements for the performance indicators under the performance contracts signed between MWE and NWSC, and the Water Authorities. Sanitation information and data is largely consolidated and provided by the sanitation sub-sector working group, based on data from the respective district local governments and the Environmental Health Division of the Ministry of Health.

Chapter 2 on Sector Planning, Human Resources Development and Finance includes an analysis of on-budget and off-budget resources, Government (GoU) and Development Partner contributions, and contributions from large cross-sectoral projects and programmes. The on-budget GoU financial data was obtained from the Integrated Financial Management System (IFMS), while the donor funding was obtained from the Joint Partnership Fund (JPF) and directly from the few development projects that are outside the JPF (like the Lake Victoria Environment Management Project and the Water Management Development Project). The off-budget financial information was obtained from the sector agencies (NWSC, NEMA, UNMA and NFA) and from the CSO umbrella organisations (UWASNET and ENR-CSO Network). Chapter 3 of the SPR provides a brief summary of the status of the undertakings agreed at the last JSR in 2015.

The structure of the SPR from Chapters 4 to Section 10 considers each component within the sector in the order of the Vote Function numbering under the Sector Budget Framework and Ministerial Policy Statement, namely (Chapter 4) Rural Water Supply, (Chapter 5) Urban Water Supply, (Chapter 6) Water for Production, (Chapter

7) Water Resources Management, (Chapter 8) Sanitation and Hygiene, (Chapter 9) Environment & Natural Resources and (Chapter 10) Climate Change.

Chapters 4 to 10 of the SPR provide an overview of the objectives, strategies, achievements and challenges for each component. Each component examines the status and trends of outcomes from the work undertaken in FY 2015/16. The relevant sector indicators, which form the core of the sector performance measurement framework, are presented within the respective sections. This structure is intended to take the reader through a logical progression from the inputs, activities and outputs to outcomes and analysis. Recommendations are provided for each component.

The remainder of the SPR describes progress on cross-cutting issues (Chapter 11), the contributions from Civil Society Organisation under Chapter 12 (Water and Sanitation) and Chapter 13 (Environment and Natural Resources), and progress of implementation of Good Governance activities in the sector (Chapter 14). Finally, Chapter 15 provides some considerations on selected key issues for further dialogue and/or action during the next twelve months.

1.2 Sector Institutional Framework

The Water and Environment sector consists of two sub-sectors: the Water and Sanitation (WSS) sub-sector and the Environment and Natural Resources (ENR) sub-sector. The WSS sub-sector comprises water resources management, rural water supply and sanitation, urban water supply and sanitation, and water for production. The ENR sub-sector comprises environmental management; management of forests and trees; management of wetlands and aquatic resources; and weather and climate. The institutional sector framework consists of:

- The Ministry of Water and Environment with the Directorates for Water Development (DWD), Water Resources Management (DWRM) and Environmental Affairs (DEA);
- Local Governments (Districts and Town Councils), which are legally in charge of service delivery under the Decentralisation Act;
- A number of de-concentrated support structures related to MWE, at different stages of institutional establishment, including Technical Support Units (TSUs), Water Supply Development Facilities (WSDFs), and Water Management Zones (WMZs);
- Four semi-autonomous agencies: (i) National Water & Sewerage Corporation (NWSC) for urban water supply and sewerage; (ii) National Environment Management Authority (NEMA) for environment management; (iii) National Forestry Authority (NFA) for forestry management in Government's Central Forest Reserves; and (iv) the Uganda National Meteorological Authority (UNMA) for weather and climate services;
- NGOs/CBOs (coordinated through UWASNET and ENR CSO Network) and Water User Committees/Associations;
- The private sector (water and sanitation infrastructure operators, contractors, consultants and suppliers of goods).

Activities undertaken in Sanitation and Water for Production (mainly focusing on agricultural and animal production) require close coordination with other line ministries including the Ministry of Health, Ministry of Education & Sports and the Ministry of Agriculture, Animal Industry & Fisheries.

The Water and Environment Sector Working Group (WESWG) provides policy and technical guidance and has representatives from key sector institutions (GoU), Development Partners and NGOs).

A more detailed description of the institutional set up at the national level, de-concentrated level, district level, private sector and community level is provided in Annex 2.

1.3 Data Collection

1.3.1 Introduction

Data used for the determination of the indicators is derived from a number of databases in the three directorates of MWE as well as other databases under the sector semi-autonomous agencies (i.e. NWSC, NEMA, UNMA, and NFA). Two activities are presently on-going aimed at improving the overall information management within the sector. These are:

- "Detailed Assessment of Requirements For Water Resources Information System", managed by the Directorate of Water Resources Management - The objective this assignment is to design and prepare an implementation plan to develop a sound **Water Information System (WIS)** covering all water-related data, under-pinned by a Hydrological Information System (HIS) including an upgraded hydrologic network to collect primary data on surface, ground water, meteorology, and water quality at the required intensity and frequency; time-effective transmission; and data processing, analysis and storage.
- "**WATSUP II**", managed by the Water and Environment Sector Liaison Department – which will culminate in an updated Water Atlas 2016.

Both the WIS and WATSUP are described in more detail in the following sections.

Table 1.1 summarises progress with respect to eleven key indicators used for sector performance measurement for water and sanitation.

Table 1.1 Water and Sanitation sub-sector Performance against the eleven golden indicators

Indicator			Achievement									
			05/6	06/7	07/8	08/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16
1. **Access** % of people within 1 km (rural) and 0.2 km (urban) of an improved water source		Rural	61	63	63	65	65	65	64	64	65	65	67
		Urban	51	56	61	66	67	66	69	70	73	73	71
2. **Functionality** % of improved water sources functional at time of spot-check (rural/WfP); ratio of the actual hours of water supply to the required hours (small towns)		Rural	83	83	82	83	80	83	83	84	85	88	86
		Urban	93	82	89	89	90	91	84	87	89	92	94
		WfP	-	35	23	23	26	24	67	71	74	75	84
3. **Per Capita Investment Cost** Average cost per beneficiary of new water and sanitation schemes		Rural	$35	$38	$44	$43	$41	$47	$44	$35	$47	41	32
		Urban	$93	$58	$93	$64	$46	$40	$38	$55	$46	$45	$65.5
4.1 **Sanitation** % of people with access to improved sanitation (Households).		Rural	58	59	62	68	70	70	70	71	75	77	79
		Urban	-	-	74	73	77	81	81	82	84	84	85
4.2 **Sanitation**: Pupil to latrine/toilet stance ratio –			61:1	69:1	47:1	43:1	54:1	66:1	69:1	70:1	70:1	67:1	70:1
5. **Water Quality** % of water samples taken at	Protected Source - Rural	e. coli	Sample data only			70	57	93	93	65	53	36	41
		e. coli	95	95	97	83	100	100	100	99.5	99.7	99	99

Indicator			Achievement									
			05/6	06/7	07/8	08/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16
the point of water collection, waste discharge point that comply with national standards.	Treated Drinking Water Supply -	colour	-	69	80	-	92	72	88	77.5	89.9	93	93
	Waste water	BOD_5	-	12	60	15	47	26	40	37	41	40	46
		Phosph		26	-	-	-	-	-	-	-	-	-
		TSS		40	67	100	61	61	45	-	73	42	45
6. **Quantity of Water** Cumulative water for production storage capacity (million m^3)						17	21.2	26.5	27.2	27.5	28.4	31.7	37.2
7. **Equity** Mean Sub-County deviation from the National average in persons per improved water point			-	-	243	178	159	114	160	153	161	162	142
8. **Hand washing** % of people with access to (and using) hand-washing facilities.		House hold	-	14	21	22	21	24	27	29	33	33	36
		School	-	41	-	31	33	33	35	37	38	38	34
9. **Management** % of water points with actively functioning Water & Sanitation Committees (rural/WfP)/Boards (urban).		Rural	-	63	65	68	70	71	72	71	71	77	87
		Urban	-	-	65	69	89	71	73	75	76	78	78
		WfP	-	-	31	29	65	68	79	78	80	80	81
10. **Gender** % of Water User committees/Water Boards with women holding key positions. (WfP: Valley tank/dam)		Rural	-	87	63	71	85	81	82	80	83	84	86
		Urban	21	18	71	15	37	39	45	49	63	67	67
		WfP	-	-	63	61	68	48	57	57	69/45	73/48	73/48
11. **Water Resources Management Compliance* -** % of water abstraction and discharge permits holders complying with permit conditions		Waste water discharge	-	-	-	40	44	46	22	48	50	52	56
		Surface water abstract	-	-	-	65	64	73	60	65	68	71	74
		Ground water abstract	-	-	-	55	63	67	60	68	68	71	74
		Drilling	-	-	-	-	-	-	-	-	-	88	90

*note that before FY11/12, indicator referred to permit validity only. In FY11/12, for wastewater discharge, % compliance was taken. In FY12/13, permit conditions considered are compliance to permitted water abstraction volumes and compliance with effluent quality.

1.3.2 Water Information System (WIS)

MWE is in the process of developing a water information system (WIS). The WIS will provide access to water related data from the different sectors and agencies in addition to an interface to standard

tools/applications/hydrological design aids, models and decision support systems (DSS) to enable rational water resources planning and management at catchment and national level in Uganda.

When developed, the WIS is expected to transform the current scenario of fragmented data across sectors and agencies, poor quality data, data that are not readily accessible nor readily usable and non-transparent policies, standards and protocols to a new paradigm of effective data collection, integrated and harmonized data warehouse and dissemination to all users. The WIS is obliged to recognize the mandate of the different institutions and organizations in the water sector and one of the principles of the design is that the various responsibilities with respect to water related information remain with the organizations who have been mandated with that responsibility. Therefore the envisaged system will be a distributed system where the different data sets remain in the hands of the different stakeholders, not gathered in a unique database.

The design process followed and extensive stakeholder consultation in (workshops and offices), stakeholders were required to provide their needs as far as water related data are concerned. In addition a task team including staff from the Ministry of Water and Environment, NEMA, NFA, UNMA, UBOS was formed to guide the design process.

So far, designs for the WIS have been completed, a road map for implementation as well as a sustainability plan have also been prepared. The implementation of the WIS will follow a two phase approach with phase 1 covering the implementation of the WIS at national level including all databases in the Ministry of Water and Environment and connecting to 1 Water Management Zone and 1 external database such as UBOS. During phase 2, the WIS will be extended to all the Water Management Zones and interfaced with all external databases, such as for instance Makerere University library. Funds to implement the WIS are being resourced.

1.3.3 WATSUP II

In FY2014/15, the Management Information System Unit in the Ministry of Water and Environment started WATSUP II, a project aiming amongst others at updating the Water Supply Database. Data collectors from the districts were trained in modern techniques using GPS receivers, and closely monitored during the data collection period. The preliminary results from the work in pilot districts proved that with this methodology a better quality dataset is obtained than with annual updates for the SPR.

In the FY 2015/16, WATSUP II continued to enable accurate computation of the golden indicators and also provide data for production of the Water Supply Atlas 2016.

So far, 81 districts have undergone training in data collection using hand-held Geographical Positioning System (GPS) devices. Water source data has been collected from these 81 districts and this data has been entered into the water supply database, analysed and discussed. So far, WATSUP II has incorporated 3,512 additional water sources in 40 districts, which were not in the water supply database; this has led to an overall increase in rural access to 67%. Similarly, during the physical visits to the water sources, some of the sources that were non-functional for more than 5 years were found to be repairable.

Upon analysis of functionality after data entry, a number of scenarios have been considered. Notable among these are: (a) computation of functionality including all water sources which have been non-functional for five years but can still be repaired, and (b) computation of functionality using the traditional approach where all non-functional sources (for more than 5 years) are excluded entirely from the computation. In the former, the functionality rate drops, while in the latter the functionality rate increases. There are many repairable sources, which have been down for more than 5 years that need to be repaired and included in the computation of the various indicators.

In conclusion, the additional sources, as discovered by WATSUP II will lead to an increment in the value of the indicators by the end of the data-update exercise. The ongoing national programme by MWE's Rural Water and Sanitation department handling rehabilitation of non-functional water sources should ensure all repairable sources generated by WATSUP II are rehabilitated.

1.3.4 Rural vs. urban population

The differentiation between urban and rural is made according to administrative levels. All city councils and municipal councils are urban as well as the sub-counties named as Town Council. Rural Growth Centers are considered rural when they are located in a rural sub-county.

The biggest challenge in the urban coverage calculation is the fact that NWSC reports on the number of connections they have outside the urban administrative units, yet this is considered a rural area. Therefore, the urban coverage as calculated by NWSC up to 2014/15FY (i.e. under SPR 2015) includes people that have also been counted for rural coverage. In FY2015/16, the Urban Sub-Sector has attempted to subtract rural coverage provided by NWSC from the urban coverage.

1.3.5 Access

Access is calculated for improved water sources. Improved water supply sources include boreholes, protected springs, shallow wells, and rainwater harvesting tanks. Improved piped water supply outlets include public stand posts, yard taps, kiosks, house (domestic) connections and institutional connections. Water for production facilities (dams and valley tanks) are consequently not regarded as improved water supplies for domestic use. The calculation of access is based on an assumed standard number of people served for each type of water source, as listed in Table 1.2. This number is then multiplied by the total number of that source type existing in a particular area to get the total number of people served in that area. The access rate is the ratio of the total number of served people from the total population. The total population is estimated using UBOS statistical abstract figures for 2015.

Table 1.2. Number of users per water source type

Water source type	Number of users
Protected Spring	200
Shallow Well	300
Deep Borehole	300
Kiosk	150
Rainwater Harvesting Tank <10,000 l	3
Rainwater Harvesting Tank >10,000 l	6
House connection	6
Institutional connection	100

In the access calculation, “Functional”, “Functional (not-in-use)” and “Non-Functional” sources are considered. Decommissioned sources are not considered. Sources with a downtime of over 5 years are also not counted. It should be noted that not all the decommissioned sources have officially been decommissioned by DWD.

A **capping** is implemented at sub-county level, resulting in 95 % access in cases where the calculated access is >95 %.[2] The population served for the entire district is calculated based on the capped population served per sub-county.

[2] “capping” of the figures is done to ensure that improved water sources in a particular sub-county do not serve more than 95% the population hence unrealistically high coverage figures at district and sub county level are avoided.

2 PROGRESS ON JOINT SECTOR REVIEW UNDERTAKINGS 2015

Eleven Undertakings were adopted at the 2015 Joint Sector Review. To implement these undertakings, thematic groups and subgroups were formed and charged with the responsibility for their implementation. The various thematic groups prepared detailed action plans (with indicators/outputs to monitor the progress of implementation), which were subsequently approved by the Water and Environment Sector Working Group (WESWG). This section presents the progress made on implementation of these undertakings.

2.1 Environment and Natural Resources

2.1.1 Undertaking No. 1: Implement the ENR Sector Performance Monitoring Framework

"Address the drivers of environmental degradation by mainstreaming ENR considerations across government sectors by focusing mainstreaming actions on the high profile/high impact sectors of agriculture, infrastructure, lands, energy and water in order to achieve reduced contributions to degradation by these sectors by the end of FY 2016/17".

The following has been achieved:

- The Terms of Reference with a roadmap for implementation were prepared, discussed and approved;
- A situational analysis report was prepared addressing the sectors' drivers and gaps, and a checklist of sectoral environmental issues was prepared' these were submitted to stakeholders for review;
- A roadmap to mainstream and integrate ENR considerations and options across government sectors was drafted; and
- Review of existing guidelines took place, and collecting information for preparation of guidelines is in process.

Constraints to implementation included:

- Limited sectoral information on environment mainstreaming to effectively track performance;
- The multi-sectoral nature of the undertaking and the large number of stakeholders and institutions require a lot of time and lengthy discussions to pursue mainstreaming;
- Limited or complete lack of responses by MDAs, in particular the focal point officers.

Next actions:

- Finalise the roadmap with appropriate milestones for the achievement of mainstreaming (FY2016/17)
- Develop TOR for an ENR Technical Team to review existing guidelines for mainstreaming in the ENR and other sectors and make recommendations to the Mainstream Thematic Team
- Establish the ENR Technical Team
- Undertake the review of sectoral ENR mainstreaming guidelines.
- Engage with stakeholders to develop ENR mainstreaming guidelines, mechanisms for their implementation and means to monitor their impact
- Prepare a sectoral monitoring and evaluation framework
- Draft environmental sustainability proposals to amend the Public Finance Management Act.

This undertaking is partially achieved and on track.

2.1.2 Undertaking No. 2: Demarcation and Management of Wetlands and Forests

» Complete demarcation of 6 new wetlands and commence the opening up of boundaries of 3 local forest reserves/finalise and implement the management framework of these ecosystems by the end of FY 2015/16."

The following has been achieved:

- Three contractors have supplied the pillars and 3 consultants are being procured to develop management
- Surveyors and local leaders were mobilised to participate in the demarcation and management planning process.
- All 6 wetland boundaries were demarcated with pillars totalling to 202 kms with reports and maps
- ToR for consultants to prepare the six wetland management plans has been submitted to PDU. Will be completed in FY 2016/17
- Monitoring and implementation of the plans is ongoing; it is a 3-year process that will be completed in the coming two years.
- Mobilization of surveyors, EPPU and local leaders to participate in the boundary opening for Local Forest Reserves and management planning process.

Constraints to implementation included:

- There was no funding for boundary opening and preparation of the management planning of the three Local Forests

Next actions:

- WMD to fast track the process for procuring the Consultants to develop management plans for the 6 wetlands.
- WMD has prioritized more 10 wetlands for demarcation and management planning in FY 2016/17.
- FSSD to secure funding from REDD+ to open the boundary of the 3 LFRs and develop the management framework as part of the REDD+ initiatives.
- NFA to get involved in this undertaking to secure more forest estates.

This undertaking, partially carried over from last financial year, was only partially achieved.

2.1.3 Undertaking No.3: Oil Contingency Plan

"*Operationalise the Oil Spill Contingency Plan for the Albertine Rift Graben by the end of FY 2015/16".*

The following has been achieved:

- Notifications, activations and reporting mechanisms were developed
- An oil Spill assessment (volume, directions, extent of the hazards) was done
- Response strategies, response tactics, net environmental benefits assessment were prepared
- Waste management strategies were developed
- Demobilisation, restoration and response termination was done
- Training programs, drill and exercise, health and safety were undertaken

Next actions:

- Validation at district level by end of September 2016
- Presentation of draft plan in November 2016
- Finalise the national Oil Spill Contingency.

This undertaking, carried over from last financial year, was not achieved.

2.2 Water Resources Management

2.2.1 Undertaking No. 4: Catchment-Based IWRM

"Coordination, implementation and funding mechanisms for catchment-based Integrated Water Resources Management (CbIWRM) developed based on experiences from on-going work in the 4 WMZs by the end of FY15/16".

The following has been achieved:

- Broadening and operationalisation of the Thematic Team on IWRM was done.
- Operationalisation of the National task Force on Catchment based IWRM was done.
- Experiences in implementing CbIWRM were captured based on input of key stakeholders implementing CbIWRM in the 4 WMZs.
- Reviewed and proposed coordination and implementation mechanisms for catchment-based IWRM.
- Information on experiences in implementing CbIWRM prepared and awareness raising and dissemination initiated.

Constraints to implementation included:

- The undertaking was based on information provided by all key stakeholders implementing catchment based integrated water resources management. Some stakeholders did not submit the required information thus affecting the completeness of the assessment of the coordination, implementation and funding mechanisms for catchment-based IWRM
- Some stakeholders provided the information on coordination, implementation and funding mechanisms for catchment-based IWRM rather late thus delaying implementation of the undertaking.

Next actions:

- Produce a brochure and documentary capturing information generated by the undertaking on coordination, implementation and funding mechanisms for catchment-based IWRM and disseminate the information widely to stakeholders
- Implement recommendations of the undertaking with regard to coordination, implementation and funding mechanisms for catchment-based IWRM
- Develop a resource mobilization strategy for catchment-based IWRM.

The undertaking was largely achieved.

2.2.2 Undertaking No.5: Drinking Water Quality Framework

"Develop a national drinking water quality framework taking into account the World Health Organization (WHO) drinking water guidelines, national water quality management strategy, and the Uganda Standard (2008) on drinking (potable) water – specifications, US 201".

The following has been achieved:

- Preparation of ToRs for consultancy
- Procurement of Consultants
- Inception workshop

Next Steps:

- Review of Legal and Institutional Framework for water quality management in Uganda
- Consultations with key stakeholders
- Water quality monitoring status report
- Consolidation of information from stakeholders and preparation of the framework
- Review of the draft framework
- Stakeholder workshop to present draft network
- Present draft framework to the sector working group for comments
- Finalize framework incorporating comments from sector working group
- Endorsement of the final framework by the Water Policy Committee

The undertaking is at 30% achievement level.

2.3 Water Supply and Sanitation

2.3.1 Undertaking No. 6: Sustainability of Piped Schemes

"Develop a detailed action plan to improve the sustainability of small towns and rural piped water schemes, establish the baseline and start monitoring improvements by FY2015/16."

The following have been achieved:

- Two stakeholder workshops held to identify and prioritise actions (Kampala, 3rd-4th Dec 2015 and Wakiso, 15th Feb 2016)
- Long list of actions was developed during these workshops
- Piloting of an "Improved Scheme Operator Model" that is tailored for small schemes; successful pilot in two towns in the Central Umbrella region, being rolled out to other regions was conducted in Kasanje and Nkoni
- Promotion of local revenue generation and investment was done. Advisory audits as well as credit and saving schemes being offered by Umbrellas was promoted in the 6No. Umbrella Organizations; water meters were distributed to promote commercialised operations
- Concept for a "Revolving Facility" was developed to receive local savings and combine these with subsidies to finance investments in major repairs, renewal of system components, metering, scheme extensions and source protection measures. This is done in all the 6No. Umbrella Organizations.
- Clustering at district level was developed and piloted in Karamoja; experience was described and shared among all UOs
- Draft "Scheme Operators Handbook" was developed and is available to define standard operating procedures and preventive maintenance duties for better sustainability
- A web-based monitoring system (UPMIS) has been developed to keep track of the sustainability status (functionality, financial, managerial and asset status) for all piped water systems; baseline data collection done in 400 water supply schemes are to be accomplished by September 2016..

Constraints to progress:

(i) Many old schemes are not metered or require rehabilitation as a prerequisite for commercialised operations and improved revenue collections

(ii) Umbrellas need Commercial Officers but currently no funding available

(iii) Inadequate budget for Umbrella activities related to this Undertaking (lack of transport).

Next Steps:

- Roll out of "Improved Scheme Operator Model" to more towns
- Learning events with NWSC, pilot non-cash payment and prepaid water

- Consultancy needed to work out financial management details of the proposed "Revolving Facility"
- Develop simplified tools for business planning and tariff determination for small piped schemes
- Finalise, approve and disseminate Scheme Operators Handbook, and organise related trainings
- Embed the use of UPMIS in the day-to-day workflows of Umbrellas, UWSD and Regulation (WURD); rollout system to all regions of Uganda.

This undertaking was achieved.

2.3.2 Undertaking No. 7: Allocation Formula

"*Pursue dialogue with the Ministry of Finance, Planning & Economic Development (MoFPED) on revision of conditional grants and their allocation formulas in order to seek that considerations behind the previously revised District Water and Sanitation Development Conditional Grant allocation formula are reflected."*

The following have been achieved:

- Hold start-up meeting with MoFPED
- Prepare proposal for MoFPED to consider with the required changes
- Hold meetings with the consultants to brainstorm on the suggested changes
- Presentation of draft final allocation formula, IPFs and Grant guidelines by the MoFPED consultant team.
- Presentation of the draft revised allocation formula, IPFs and guidelines to the Top management of the sector.
- Dissemination of the approved IPFs and guidelines to the respective stakeholders.
- Implementation of the Allocation formula in the FY2016/17.

Constraints to Progress

- There was limited time to internalise the changes which are very critical in the implementation of sector activities in the Local Governments.
- There are drastic deductions in Indicative Planning Figures for some districts and high increments for some districts which might affect morale of districts and low funds absorptions respectively.
- There are a number of new districts which have been allocated a lot of funds and there is a fear that they could fail to absorb those funds since they are still in the process of being formulated.
- It was noted that the promised increment of the funds to the Grant by MoFPED was never achieved.

Next Steps:

Review the allocation formula parameters based on the performance in 2016/17FY

This undertaking was achieved.

2.3.3 Undertaking No. 8: National Irrigation Policy

"*Finalize the national irrigation policy to guide planning, implementation and monitoring of irrigation development and use in the country (by the end of FY2015/16)."*

The following has been achieved:

- Preparation of TORs for consultancy to finalise National Irrigation Policy (NIP); the ToRs were approved by both MWE and MAAIF

Constraints to Progress:

Limited willingness on the part of MAAIF and MWE to work to finalize the national irrigation Policy.

Next Steps:

Following multiple requests, FAO is willing to assist on condition that one ministry is fully designated to coordinate other government agencies and stakeholders. FAO' support is intended to result in the following activities:

(i) Finalizing the Irrigation Policy and Master Plan/Strategy through a consultative exercise involving all stakeholders
(ii) Preparation of a strategy for private irrigation development including a PPP component;
(iii) Preparation of a comprehensive and realistic investment plan for the short, medium and longer run and the organization of a Round Table to help resource mobilization; and
(iv) Proposing of an institutional framework for the implementation of the Irrigation strategic documents and projects including the possible creation of a National Irrigation Development Authority.

This undertaking was not achieved.

2.3.4 Undertaking No. 9: Well Fields

»By the end of FY2015/16, design, document and disseminate a concept on development of well fields and multi village water supply systems to address the needs of water-stressed areas in collaboration with sector players."

The following has been achieved:

- Identification and mapping of water stressed areas was completed and the map is available. The map combined aspects of groundwater potential, surface water availability and rainfall. Karamoja, west Nile and Mid-Western (Greater Mubende) Sub-Regions stand out.
- Identify and develop large diameter wells for some areas. The identification/survey was done and the wells drilled in Bukanga County in Isingiro district. A total of 5 high yielding wells have been developed.

Village	Parish	Sub-County	Pump Test Yield (m^3/hr)
Nyamiyonga	Kabale	Rugaga	70.9
Kyakabindi Central	Burungawo	Ngarama	68.8
Chibeba	Kihanda	Mbaare	11.51
Katojo	Kyabahesi	Mbaare	14.21
Kalerema	Kyabishawo	Nharama	16

- As pilot areas for the design of the multi-village water supply systems, the Districts of Nakaseke, Lamwo-Potika, Kitgum-Orom, Bukedea, Bulambuli, Sironko, Kasese-Nyamugasani and Ntoroko were selected.
- Identified 70 borehole sites for upgrading to solar powered mini-piped water schemes; boreholes with yields above 3m^3/hr and serving a population of 1,000 people were considered.
- A complete design of the multi-village water supply system was carried out for Nakaseke, Ntoroko, Kasese, and Bukedea. The design process for Lamwo, Kitgum is ongoing.
- 30 designs for solar powered mini-piped water schemes were completed.

Constraints to Progress:

- There was limited interaction with the stakeholders because of the nature of the undertaking, which required presentation of a finished concept to the respective stakeholders.
- There were inadequate resources to facilitate the piloting of the concept.

Next Steps:

- Presenting the strategy to the Top Policy Committee for approval
- Funds allocation under the sector budget for 2016/17FY for piloting implementation starting with Bukanga in Isingiro district.
- Exploring feasibility in other water stressed areas (like Karamoja, Alebtong, Yumbe and Mayuge).
- Roll out implementation of the concept to the above areas.

This undertaking has been achieved.

2.4 Policy and Institutional Issues

2.4.1 Undertaking No. 10: Review of Sector Performance Framework

"Review Sector Performance monitoring framework – to incorporate the water quality monitoring, good governance, human right to water, climate change, Sustainable Development Goals (SDGs), and the National Development Plan (NDP II)."

The following has been achieved:

- Preparation of TORs for procurement of a consultant
- Engagement of consultant
- Draft Inception report was submitted.
- Review of existing literature ongoing and draft report expected by the end of September 2016.

Constraints to progress:

There has been some capacity limitations on the part of the consultant which has delayed the whole process. These are being addressed.

Next Steps

- Gap analysis and drafting of indicators (October 2016)
- Hold Stakeholder Workshop (November 2016)
- Agreement on priority indicators based on a detailed feasibility/reality check (end November 2016)
- Final report and implementation plan.

The Undertaking was not achieved.

2.4.2 Undertaking No. 11: Capacity Development Strategy

"Develop, by the end of FY2015/16, a costed strategic plan for implementation of the Sector Capacity Development Strategy for the period 2013/14 – 2017/18 aimed at improvement of the capacity of all water and environment sector institutions starting with MWE, NWSC and UNMA by the end of FY 2015/16, and mobilize funds for similar activities for NEMA, NFA and including district local governments."

The following has been achieved:

- Training in CD development for CD Focal Points
- Inventory of Sector CD plans On Plan.
- Costed CD Plans for 5no. Departments completed in June 2016, 4 Departments of UWS & Regulation completed in August 2016, Procurement of consultant to develop CD Plans for 3 Departments of DWRM completed.
- CD Plans for UNMA and NWSC completed.

Constraints to progress:

- There is generally no proper understanding of Capacity Development Planning (CDP) as elaborated in the Water and Environment Sector Capacity Development Strategy 2013-2018 and the Toolbox and Handbook. For most of the people responsible for CD, CD has been synonymous with training and this is evident in the CDPs which are really training plans. Hence there is still emphasis on Bottom-Up Training Planning as opposed to Top down CD.
- The feeling that some thematic areas in CDP are out of the scope of the departments e.g. the operating environment and the organization. Most of the plans do not include these two thematic levels.
- the lack of prioritization (for funding) of capacity development and other software activities by the GoU every year (deemed as consumptive activities) has engendered a sense of uncertainty about the budget and fostered a some form of powerlessness and apathy. There is need to match donor financing for capacity development with Government of Uganda funding for long term sustainability.

Next Steps

- Develop capacity development Plans for the 3 departments under DWRM
- Mobilization of funds for NEMA, NFA and LGs.

This undertaking was partially achieved.

3 SECTOR PLANNING, HUMAN RESOURCES DEVELOPMENT AND FINANCE

3.1 Introduction

This chapter provides information on the sector planning, capacity development and financial performance for FY 2015/16. It outlines the processes, outputs and significance to the overall national development goals. Reforms that have been introduced to improve planning and financial management within government are pointed out and how these were implemented.

3.2 Overall Sector Planning Framework

The Government of Uganda (GoU) is implementing the second in a series of six 5-year National Development Plan (NDP-II) aimed at achieving its Vision 2040. The main goal of the NDP-II is to propel the country into middle income status by 2020 through strengthening the country's competitiveness for sustainable job creation (employment), inclusive and equitable growth, and wealth creation.

In pursuit of the above, the Water and Environment Sector developed and is implementing its Sector Development Plan (SDP) that is aligned to the second National Development Plan (NDP2) covering the period 2015/16 – 2019/20. The SDP outlines key strategies, interventions and targets to be achieved in the five years in support of the NDP2.

Implementation of the SDP is through projects and programmes for which funds are annually allocated and approved by the Water and Environment Sector Working Group (WESWG), the Ministry of Finance, Planning and Economic Development (MoFPED) and finally appropriated by Parliament. The Development Committee (DC) of MoFPED reviews projects annually for their worthiness to merit being in the Public Investment Plan (PIP). Through this process some projects, which no longer meet the criteria and guidelines are dropped from the PIP. Some revert to the recurrent operations category, while others are replaced with new projects that clearly focus on delivery of specific development outputs and objectives. In this respect, all sector projects are now redefined to be time bound (start and end date), designed for specific objectives, destined to deliver key defined outputs and having a systematic and approved financial requirement and source over the given period. This is intended to separate funding for development from that for recurrent activities.

The WESWG, with a secretariat under the Policy and Planning Department of MWE, has been strengthened to oversee sector planning and budgeting with the issuance of SWAp operational guidelines by MoFPED. The WESWG is supported by two sub-sector working groups – Water and Sanitation (WSS) sub-sector and Environment and Natural Resources (ENR) sub-sector, which provide convenient and strong platforms for coordination, implementation and monitoring of activities at sub-sector level for efficient and effective service delivery. In order to manage cross-cutting issues, seven (7) function sub-groups (FSGs) have been set up to support the WESWG. These are: Finance, Good Governance, Sector Capacity Development, De-concentrated Structures, Sanitation, Catchment Management, and Climate Change Sub-Groups.

3.2.1 Budget for FY 2016/17

The Budget for FY 2016/17 was prepared in a process that complied with the revised budget cycle as prescribed in the new Public Finance and Management Act (PMA 2015). The process started with consultations and negotiations with LGs, under the coordination of the Local Government Finance Commission (LGFC), on key sector issues in accordance with Article 193(3) of the Constitution of the Republic of Uganda. Thereafter, regional consultations with stakeholders, providing sector guidelines for budgeting and receiving feedback, were held (organized by the MFPED).

Upon receipt of the first Budget Call Circular (BCCI), the Top Policy Meeting of the Ministry and its affiliated institutions/agencies was held to guide and kick-start the budget process at the Center. This

was followed by two WESWG meetings to discuss and approve the draft Budget Framework Paper (BFP) for FY 2016/17. The priorities and allocations in the BFP were further presented and discussed with the Sessional Committee of Parliament on Natural Resources, leading to the preparation of detailed budget estimates and the 2016/17FY Ministerial Policy Statement (MPS), which were submitted to MoFPED for consolidation into the national budget.

Among the key features of the new reforms in the budgeting process is the introduction of a section for reporting on Appropriation in Aid (AIA) by institutions that are permitted to generate and spend internal revenue. These figures are captured in the MTEF and appropriated within the budget. Similarly, the revenues by parastatals and state enterprises (in this case the National Water and Sewerage Corporation (NWSC) were captured in the 2016/17FY MPS.

3.2.2 New Projects

Annually, the MoFPED undertakes to review existing projects under the Public Investment Plan (PIP) with a view of assessing their performance in line with the project objectives and also approval of new viable projects for the subsequent years. This exercise was undertaken during the year and the following new major sector projects were added to the PIP:

i. **The Karamoja Towns Water and Sanitation project**, a 5-year project aiming to serve 350,000 people in Small Towns and Rural Growth Centres (STs/RGCs) of the Karamoja Sub-Region. Safe water supply and sanitation service level improvements are planned to be achieved in 60 Small Towns / Rural Growth Centers in the 7 Districts of the Karamoja Sub-Region.

ii. **Water for Production facilities for North, Central and South West**, for provision of water for productive use in livestock and aquaculture, while mitigating the effects of climate change through modern irrigation technology by establishing regional implementation and back-up support units in Mbale for Eastern Uganda and Karamoja Sub-region; Lira for Northern, West Nile and Upper Central Sub-Regions; and Mbarara for Lower Central Sub-Region and Western Uganda. Each of these is considered a separate project with a distinct code in the PIP.

iii. **Farm Income Enhancement and Forestry Conservation (FIEFOC) Programme**, with the objective to improve household incomes, food security and climate resilience through sustainable natural resources management and agricultural enterprise development in 39 districts that form the watershed area of the identified five irrigation schemes. This project builds on the first phase of a similar project. The project is financed with a loan of UA 75 million equivalent from the African Development Bank over the period 2016/17 – 2019/20.

iv. **Water Supply & Sanitation Programme – Phase II (WSSP-II)** to be implemented over the period 2016/17 – 2019/20 under the overall framework of the Joint Water & Environment Sector Support Programme (JWESSP). The project is financed with a loan of UA 65 million equivalent from the African Development Bank and its activities include urban water supply and sanitation under the WSDF-Central, large gravity flow systems and solar pumped/piped systems in various areas of the country, and sector programme support.

v. **Multinational Lakes Edward and Albert Integrated Fisheries and Water Resources Management Project (LEAF-II)**, with the objective to reduce poverty and improve livelihoods of the local fishing communities, through joint monitoring and management of Lakes Edward and Albert water and fisheries and related resources. The project is financed with a loan of USD 7.5 mn from the African Development Bank over the period 2016/17 – 2019/20.

3.2.3 Sector Development Plan

The Sector Development Plan covering the period FY 2015/16-2019/2020 is aligned to the second National Development Plan (NDPII), which builds upon the lessons and experiences learned during

implementation of the NDP-I. The key undertakings under the sector SDP are that the water supply coverage is targeted to reach 79% in rural areas, 95% in urban areas and sanitation coverage to be at 90% in rural areas and 100% in urban areas.

3.2.4 Study on Contribution of Water & Environment Resources to Uganda's Economy

MWE undertook a study to establish the Contribution of Water and Environment Resources to Uganda's Economy with the objective to assess the economic value of water and environmental goods and services – and the costs of degradation and insufficient action in the Sector. This is aimed at providing the sector ministry with solid data/evidence to lobby for increased funding to the sector.

In the final report (released in September 2016), the key finding is that without proper investment in environmental and water management, the projected increase in GDP and employment in Uganda could suffer significantly and would constrain Uganda's strategy to achieve middle income status and structural transformation through especially increased industrial activity, with a focus on manufacturing, including value-addition in agro-processing. The final study report further indicates that achievement of Uganda's economic 2040 growth targets will require a tripling of reliable water services relative to today's levels, which will require heavy investment in environmental management and water resources.

3.2.5 Roadmap for implementation of the 2016 NRM re-election Manifesto

MWE reviewed its performance for the 2011-2016 NRM manifesto, and since the NRM party was re-elected on 18th February 2016 and commenced a new term with effect from May 2016, the ministry made an input into the 2016NRM manifesto in regard to water and environment issues.

3.2.6 Sector Monitoring and Reporting

Quarterly budget performance reports and annual performance report were produced and submitted to the Ministry of Finance, Planning and Economic Development as well as the Office of the Prime Minister. These reports form part of the consolidated Government Half Annual Performance Report (GHAPR) and the Government Annual Performance Report (GAPR, FY 2015/16) which are compiled by the Office of the Prime Minister, and are discussed during semi-annual Cabinet retreats.

The performance reports are supplemented by monitoring field visits and on spot assessment and validation of progress on implementation. Box 3.1 summarises some key findings of these monitoring visits.

Box 3.1 Key findings of monitoring visits in FY2015/16

In some of the field visits conducted in sampled local governments , the key findings noted and reported for action by relevant institutions were:

(i) Yumbe district is characterised by a low safe water coverage, poor solid waste management, inadequate office space in the water office, and lack of spare parts for boreholes.

(ii) Drying up of some water sources occurs and subsequently decommissioning of non-functional water points is needed in the districts of Zombo, Amudat and Koboko.

(iii) Hygiene and sanitation issues occur, as faecal materials get washed into the lower areas in Budaka, Butaleja and Manafwa districts as a result of a shallow water table during rainy seasons.

(iv) There is improper catchment management due to poor human waste management as the faecal material is emptied in the upper part of river Adwat, yet people use the same water in the lower part of the river in Pallisa District.

(v) The contracts for FY 2015/16 were awarded in the second quarter of the financial year in Maracha District; by the 3rd quarter, construction works had not commenced. In Zombo District, a large part of the funds for construction works was returned to the Treasury due to procurement challenges.

(vi)	In Zombo district, about 100 boreholes due for decommissioning have not been decommissioned, this leads to overestimates of actual safe water coverage figures.
(vii)	Most of the district Environment and Natural Resources Departments lack transport means.
(viii)	There is insufficient funding for the environment and natural resources sub-sector at district local government level.
(ix)	Local governments are not involved by NEMA in environmental monitoring issues.

3.3 Sector Finance

3.3.1 Introduction

Water and Environment activities presently have different sources of funding. Apart from government and donor funding, households spend part of their incomes to develop systems and facilities for water collection, storage and use. Similarly, households directly buy water from vendors especially in urban areas as well as Rural Growth Centres. At community level, a contribution for O&M of facilities is made by users, under a local source specific arrangement, to keep their facility operational and functional.

This section summarises the resource allocation, release and expenditure by government and development partners under the sector ceiling for the FY2015/16. Local Governments (including Lower Level Governments) undertake interventions financed through central grants and their own resources to provide services in the sector. The central government, through dedicated projects implemented by MWE and de-concentrated facilities, implements multi-year projects in selected locations, some of which cover various districts while others are trans-boundary (international). Civil Society Organizations (CSOs) and the private sector, especially institutions such as schools, hospitals, markets and entrepreneurs have provided own financing to develop water supply systems. Other Ministries, Departments and Agencies are also known to have allocated/budgeted substantial amounts of money to develop own systems.

Figure 3.1 shows the allocation of government funding to the water and environment sector over the last five financial years. The figure shows a gradual increase in On-budget funding allocation. An overview of all financial data summarising the financial performance of the Sector is provided in Annex 4.

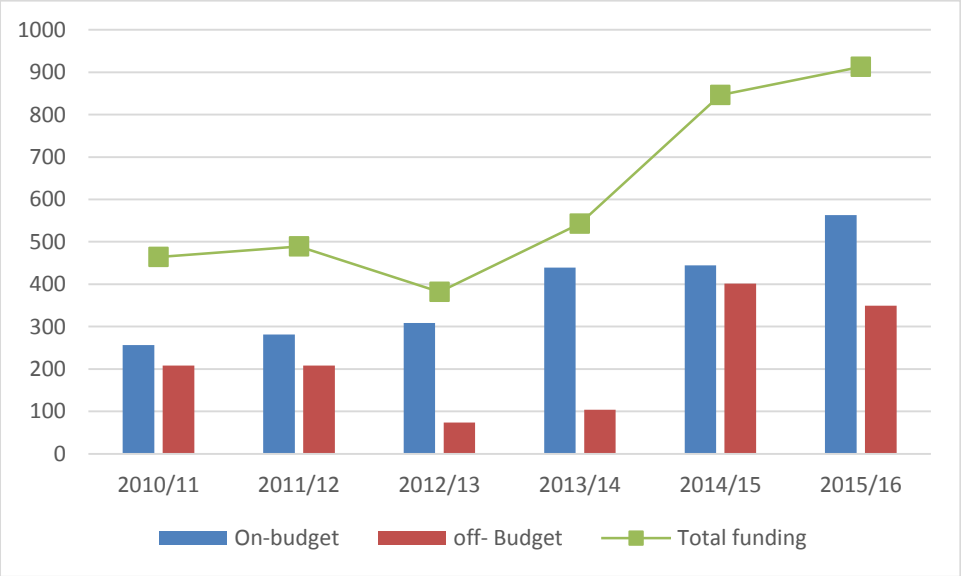

Figure 3.1 Trends in Overall Sector Funding Amounts [UGX bn]

3.3.2 Overall Budget Performance

A summary of overall budget performance is given in Table 3.1. In the FY2015/16, the total funds allocation to the Sector, both off budget and on budget[3], totalled to UGX bn 905.12, of which UGX bn 560.95 was on budget (appropriated by Parliament), while UGX bn 344.17 was off budget including UGX bn 285.04 as internally generated funds by NWSC and UGX bn 59.13 as funds appropriated by the CBOs both in the Water and Environment Sub-sectors.

Off-budget allocations are still relatively high as a result of mostly increased funding for NWSC, but reduced from UGX bn 401.55 in FY14/15, to UGX bn 344.17 for the period under review.

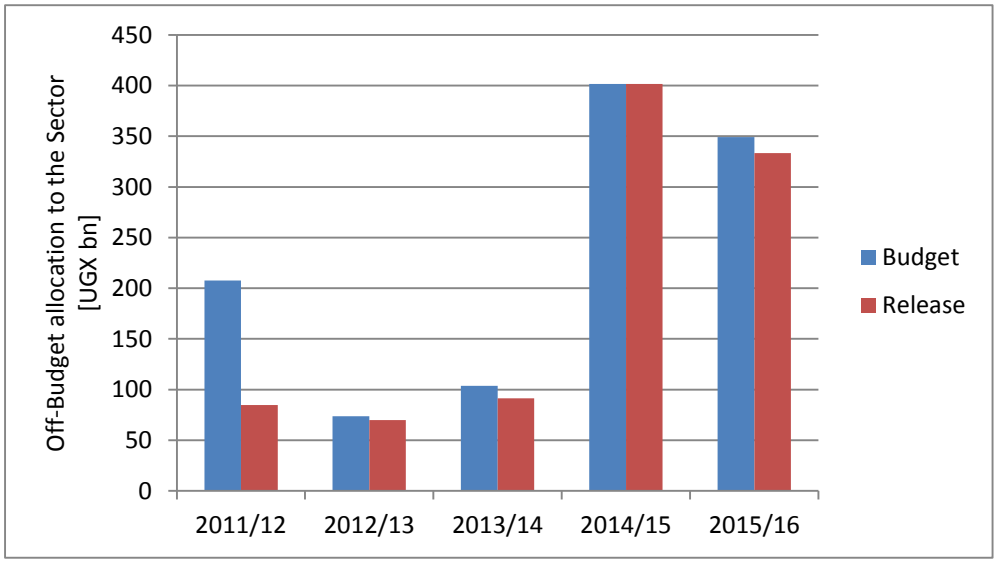

Figure 3.2 Off-Budget funding to the Water and Sanitation Sector from FY2011/12 to 2015/16

The total sector budget (on-budget) was UGX bn 560.95, and this was distributed as follows: Vote 019 UGX bn 462.39 (82.1%), Vote 0150 (NEMA) was allocated UGX bn 9.22 (1.6%), Vote 0157 NFA was allocated UGX bn 23.26 (4.1%), the Conditional Grants totalled up to UGX bn 68.20 (12.1%), while a grant budget of only UGX bn 0.01 was provided for Kampala Capital City Authority (KCCA), as compared to UGX bn 6.353 in the FY2014/15[4]. The UGX bn 60.37 as Conditional Grants to Local Governments comprised of:

- District Water and Sanitation Development Conditional Grant for Rural Water: UGX bn 60.37
- Urban Water Operation and Maintenance Grant: UGX bn 2.50
- District Health and Sanitation Conditional Grant to selected districts: UGX bn 2.00 and
- Natural Resources Grant, more specifically Wetlands Conditional Grant: UGX bn 1.20.

In total, 62% of the total sector allocation was in form of on-budget support, while 38% was off-budget support (see Figure 3.3).

[3] the sector receives funds from the Government of Uganda (GoU) composed of Treasury releases known as 'on budget support' including both government's own resources and development partners' contributions, whereas 'off budget support' is composed of mainly donor funds independently accessed by organisations.

[4] In the FY2015/16, no budget was provided for Non-Tax Revenue for sanitation since KCCA no longer collects funds for public toilet use, while garbage collections also has been tendered out to private management..

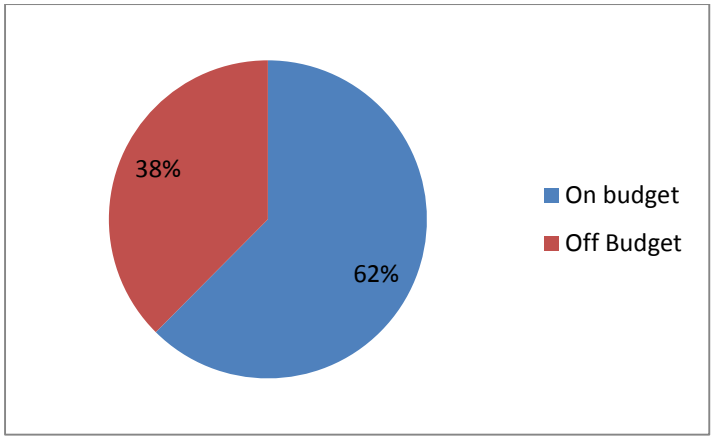

Figure 3.3 Percentage on-budget and off-budget resources to the Sector, 2015/16

Table 3.1 Allocations, releases and actual expenditure [UGX bn] by Vote and budget category, FY2015/16

Budget Category			Approved budget [bn UGX]	Released	Spent	% of budget released	% release spent
Vote 019 (MWE)	Recurrent Component	Wage	5.356	4.836	4.666	90.3%	96.5%
		Non-wage	22.668	19.091	18.833	84.2%	98.6%
	Development Budget	GoU	165.951	147.98	147.36	89.2%	99.6%
		Donor	233.276	105.009	105.009	45.0%	100.0%
		Taxes	35.135	34.05	34.028	96.9%	99.9%
	Vote 019 Total		462.39	310.97	309.90	67.3%	99.7%
Vote 0150 (NEMA)	Recurrent Component	Wage	3.775	3.609	3.507	95.6%	97.2%
		Non-wage	4.221	2.328	2.341	55.2%	100.6%
	Development Budget	GoU	1.050	0.583	0.583	55.5%	100.0%
		Donor	0.177	0.133	0.133	75.1%	100.0%
	Vote 0150 Total		9.22	6.65	6.56	72.1%	98.7%
Vote 157 (NFA)	Recurrent Component	Wage	5.40	5.4	5.4	100.0%	100.0%
		Non-wage	0.133	0.13	0.13	97.7%	100.3%
	Development Budget	GoU	2.09	1.93	1.93	92.3%	100.0%
		NTR	15.64	8.08	8.08	51.7%	100.0%
	Vote 157 (NFA) Total		23.26	15.55	15.55	66.8%	100.0%
Conditional Grants to LG			66.07	66.07	64.38	100.0%	97.4%
Conditional Grant to KCCA			0.01	0.01	0.01	100.0%	100.0%
Total on Budget			560.95	399.23	396.40	71.2%	99.3%
Off Budget							
WSS			329.44	313.84	313.84	95.3%	100.0%
ENR			14.73	14.73	14.73	100.0%	100.0%
Total Off Budget			344.17	328.57	328.57	95.5%	100.0%
Grand total (on and off budget)			905.12	727.81	724.97	80.41%	99.5%

The On-budget category includes funds that are contributed by both the Development Partners supporting the Joint Water and Environment Sector Support Program (JWESSP) and funds for other projects (outside the JWESSP) like the World Bank funded Water Management Development Project (WMDP), the Lake Victoria Environmental Management Project – Phase II (LVEMP-II), and other donor financed projects under the NWSC (e.g. Kampala Sanitation Project, Kampala WATSAN Project).

3.3.3 Sector Funding as a Share of the National Budget

Over the years, GoU's contribution to the Sector's budget has been gradually increasing, but compared to the overall budget, the Sector has maintained a stable share of approximately 3.0% of the national budget, which has not enabled the Sector to achieve its targets over the years.

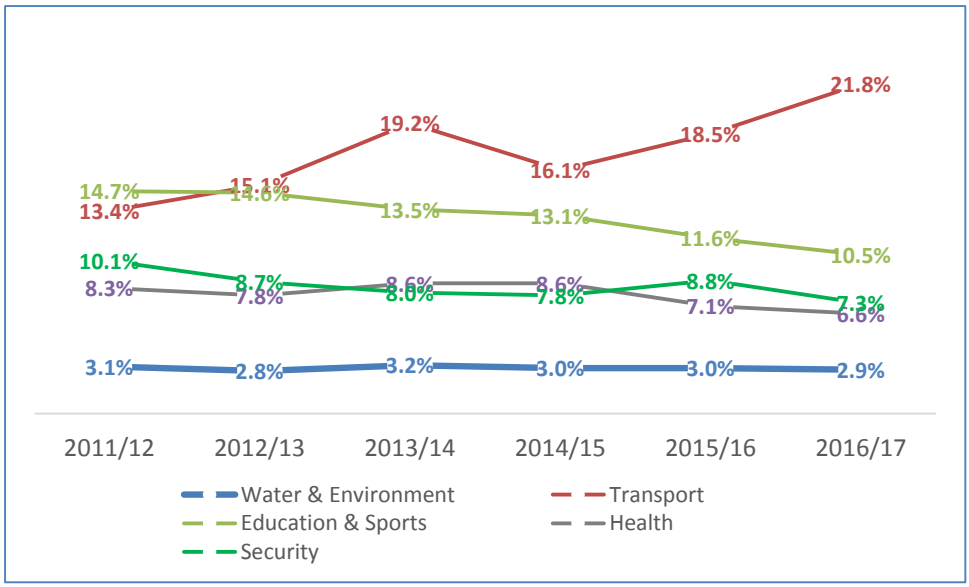

Figure 3.4 Comparison between MWE and other key sectors of the economy - share to the National Budget

3.3.4 GoU Funding and DP Funding

Over the medium term, funding allocation to the Sector has been increasing both from Government and the Development partners through loans and grants, but the releases have not been realised especially during 2015/16FY as initially planned. This has greatly affected planned outputs which affected the Sector's targets. This under-release is most pronounced on the part provided by development partners, as shown in Figure 3.5.

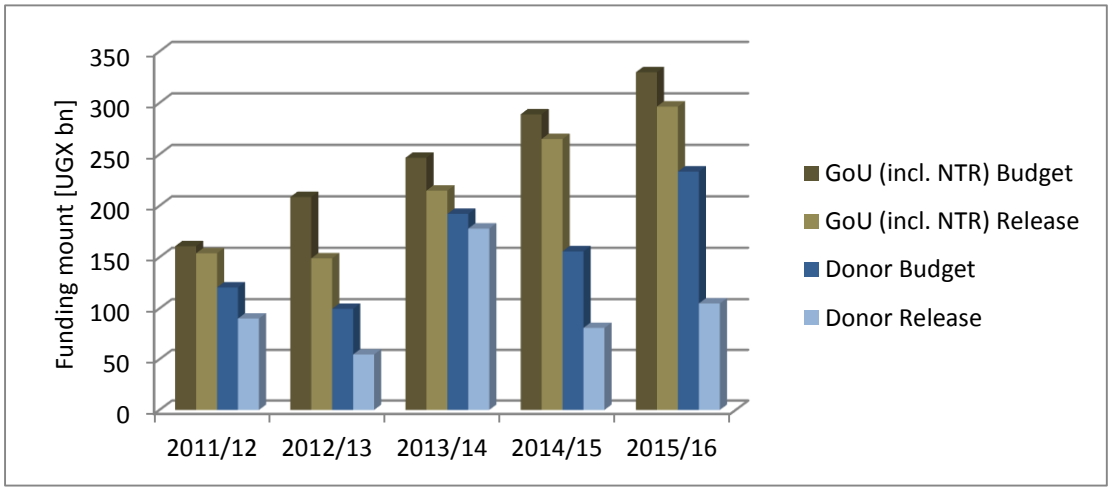

Figure 3.5 On Budget: Trends in GoU/ DP support in the medium term, FY2011/12-2015/16

For the FY 2015/16, The GoU component of the On-budget Sector represented 56% of the total budget of UGX bn 563.1, while donor funding, including Loans (World Bank and ADB, AfDB and EIB (NWSC) and Grants under the JWSSPS, UNDP and EU, represented 41%[5]. In terms of releases of the allocated budget, the performance by GoU was 92%, while only 45% of the overall Donor budgeted funds were released. This was mainly due to 3 reasons: Delays in procurement of contracts for some towns under the Water Management & Development Project and LVEMP-II, (ii) delays in implementation of the Kampala Sanitation Project and the Kampala WATSAN project under the NWSC, and (iii) suspension of funding by Austria and by Germany (by KFW) to the Water and Sanitation Development Facilities SW, East and North due to cases of financial mis-management identified under the WSD-East. An action plan to address the financial irregularities was agreed upon with the Development Partners after which release of funds resumed after its implementation.

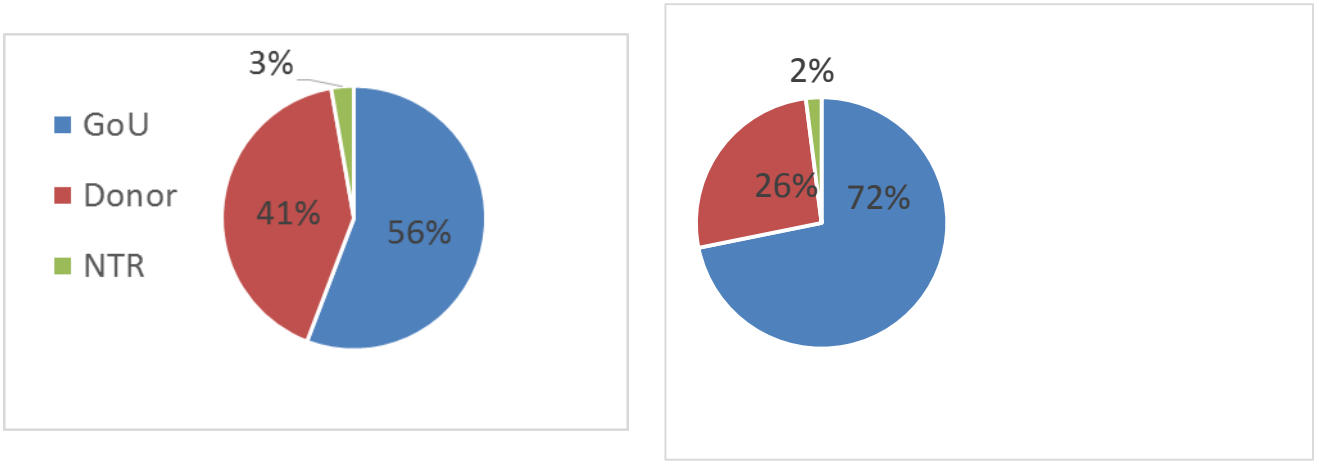

Figure 3.6 Percentage allocation (left), and actual release (right) of GoU and DP funding to the Sector, FY2015/16

3.3.5 Distribution of On-budget Funding

The 2015/16 approved budget to the sector was UGX bn 560.98, an increment compared to the FY 2014/15 budget of UGX 444.66 bn. The increment was mostly the result of donor funds from the World Bank funded WMDP, and NWSC LV-WATSAN. Of this budget, UGX bn 462.39 was allocated to Vote 019 (MWE), UGX bn 9.22 to vote 0150 (NEMA), and UGX bn 23.26 to Vote 0157 (NFA). UGX bn 66.07 was allocated as conditional grants.

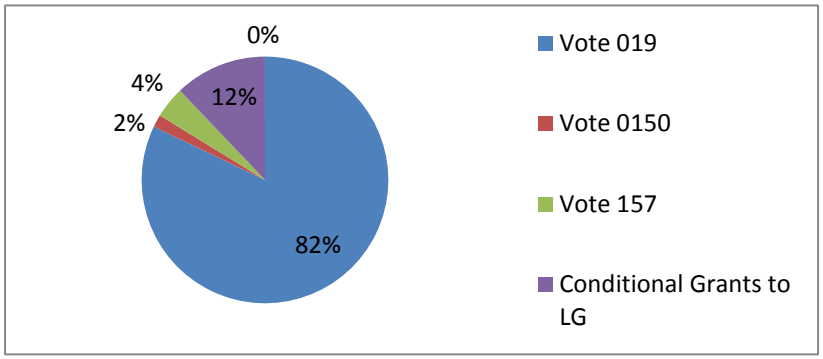

Figure 3.7 Approved budget, comparison of the various sector Votes for FY2015/16

[5] It should be noted that donor allocations in this context are to the central government only, and do not include sector budget support intended for conditional grants to local governments.

The centrally coordinated programs realised 67.3% of the planned budget, of which 99.5% was spent; only 61.9 % was released for the Urban vote function. The perceived low releases for the Water Resources vote function are the result of late submission of donor project figures, as these had not been reconciled by the time of completion of this report; e.g. donor releases to LVEMP II of UGX bn 12.91 were reported to the SPR Secretariat beyond the final submission date.

Table 3.2 Performance by Vote function for FY2015/16; Vote 019 MWE

Sub Sector	Vote Function [UGX bn]	Funders	Approved budget	Released	Spent	% Budget released	% Releases spent
WSS / WRM	VF:0901 Rural Water Supply	Total GoU + Ext Funding	64.64	47.23	46.8	73.1%	99.1%
	VF:0902 Urban Water Supply and Sanitation (Small Towns/RGCs)	Total GoU + Ext Funding	213.01	131.79	131.95	61.9%	100.1%
	VF:0903 Water for Production	Total GoU + Ext Funding	42.17	29.53	29.46	70.0%	99.7%
	VF:0904 Water Resource Management	Total GoU + Ext Funding	41.54	8.54[6]	8.44	20.6%	98.8%
	Total for WSS		**361.36**	**217.09**	**216.65**	**60.1%**	**99.8%**
ENR	VF:0905 Natural Resources Management	Total GoU + Ext Funding	24.88	23.83	23.68	95.8%	99.4%
	VF:0906 Weather, Climate and Climate change	Total GoU + Ext Funding	14.68	11.01	11.01	75.0%	100.0%
	VF 0150 NEMA	Total GoU + Ext Funding	9.22	6.65	6.56	72.1%	98.7%
	VF 0157 NFA	Total GoU + Ext Funding	23.26	15.55	15.55	66.8%	100.0%
	Total for ENR		**72.05**	**57.04**	**56.80**	**79.2%**	**99.6%**
Sector Support Services	VF:0949 Policy, Planning and Administration + Arrears	Total GoU + Ext Funding	26.33	24.93	23.99	94.7%	96.2%
	Taxes	Taxes	35.14	34.05	34.03	96.9%	99.9%
	Total for SPS		61.47	58.98	58.02	96.0%	98.4%
	Total for Vote		**494.87**	**333.11**	**331.47**	**67.3%**	**99.5%**

[6] Excludes donor project funding incl. LVEMPII

3.3.6 On-Budget Figures for Grants to Local Governments

The sector has four conditional grants of which two are development grants (Rural Water Development Conditional Grant and Sanitation Development Grant), while Urban O&M Grant and the Wetland Grant are recurrent grants. The Conditional Grants are transferred directly to the district local governments from Treasury. The annual budget for these grants was UGX bn 68.2 in FY2015/16. This budget was realised fully by the end of the 3rd quarter of the financial year. The absorption rate stood at 97.4% at the time of final compilation of this report (early September 2016)[7]. The detailed performance by each local Government per grant is attached in Annex 9.

Table 3.3 Conditional Grants to Local Governments, FY2015/16

Grant name	budget [bn UGX]	Released	Spent	% Released	% release spent
Rural Water Development	60.37	60.37	58.68	100.0%	97.2%
Urban Water O&M	2.50	2.50	2.50	100.0%	100.0%
Sanitation Development	2.00	2.00	2.00	100.0%	100.0%
Wetlands	1.20	1.20	1.20	100.0%	100.0%
Vote 0580 LGs	68.20	68.20	58.83	100.0%	86.3%

3.3.7 Off-Budget Financing for water and environment sector

The sector receives funds Off-Budget as appropriation in aid and grants. National Water and Sewerage Corporation treats the internally generated funds as off-budget Appropriated in Aid (AIA). These are largely used in operations and distribution network expansions. NWSC budgeted an internally generated revenue of UGX bn 285.04 and realised an actual revenue of UGX bn 269.44, translating to a 95% budget performance.

The Non-Governmental Organisations (both under the ENR and WSS sub-sectors) contributed UGX bn 59.13 to the sector; these funds were directly or indirectly used in the country in areas of water supply, sanitation and hygiene promotion, activities related to community management, water for production and integrated water resources management, wetland conservation, tree planning and promoting, climate change actives under the ENR subsector.

Funding in the sector has also been supported by the community based organizations in both the Water and sanitation subsector and the Environment and natural resources subsector; these have contributed substantial investments in water supply, sanitation and hygiene promotion, activities related to community management, water for production and integrated water resources which supplements government's efforts highly. Table 3.4 shows the trends in Off-budget funding to the sector in the last 5 years.

[7] The absorption rate was 86.3% based on a total of 87 LG reports submitted by August 5th, 2016.

Table 3.4 Off-budget funding in the Water and Environment sector in the FY 2015/16

Subsector	Vote	Budget	Release	Spent	% Released	% release spent
Water, sanitation and water resources management	UWASNET	44.40	44.40	44.40	100.0	100.0
	NWSC	285.04	269.44	269.44	94.5	100.0
	Subtotal	329.44	313.84	313.84	95.3	100.0
ENR	ENR CSOs	14.73	14.73	14.73	100.0	100.0
	REDD+	0	0	0	-	-
	Subtotal	14.73	14.73	14.73	100.0	100.0
Total		344.17	328.57	328.57	95.5	100.0

3.3.8 Challenges

The key challenge faced by the sector is limited funding to achieve the national and sector targets as set under the NDP-II and the 2016 NRM re-election Manifesto. The sector continues to receive around 3% of the national budget resources yet its role in transforming Uganda into middle income status by 2020 is very strategic.

Releases are made quarterly but fall short of the quarterly (and annual) projections to allow for timely implementation of all the planned activities.

3.4 Sector Capacity Development

Sector Capacity Development is planned and coordinated under the Policy and Planning Department of MWE. Interventions continued to focus on the operationalization of the Water and Environment Sector Capacity Development Strategy (SCD) and implementation of JSR 2015 Undertaking No. 11 (see also 2.4.2): Key achievements during the FY 2015/16 are highlighted under the following sections 3.4.1 - 3.4.4.

3.4.1 Capacity Development Needs Assessment

A training course to conduct CD needs assessments to inform their organisation's CD plan, analyse the CD needs results and prepare the Departmental/Organizational CD plan was conducted for 30 participants comprising Departmental CD Focal Points in the MWE and key officers from NWSC and Nyabyeya Forestry College.

3.4.2 Capacity Development Plans

CD Plans were finalised under the “Skills Development for Human Resources (SDHR)” project for the following departments of the MWE: Policy and Planning, Finance and Administration, Forestry Sector Services Support, Wetlands Management, Climate Change and Uganda National Meteorology Authority. The process commenced to develop other CD Plans for the Urban Water sub-sector based on comprehensive Organizational Development (OD) Analysis. A draft CD plan for NWSC has also been produced and is currently under review.

An appraisal of a comprehensive inventory of CD plans in the Water and Environment was done and a report was compiled, highlighting the gaps where an agency /organisation or department of the MWE does not have a CD plan and where CD plans exist, to identify the synergies and overlaps in the CD plans.

The study noted that, although CD is fundamental to sector performance, there is a mismatch between the budgets allocated to CD and the expected outputs and the related reporting systems for the various departments/implementing units. It is therefore recommended that all CD plans should have

budgets and scheduling which will guide the deployment of staff, mechanisms should be put in place to improve coordination among technocrats involved in the CD process, all the staff of in the sector should understand the role of CD plan process, the annual staff appraisal process should provide some of the input in the training needs assessment and monitoring evaluation methods and procedures should be part and parcel of the CD plan.

3.4.3 Other On-going CD Interventions

Strengthening the capacities of the human resources for sustainability of sector services

- A 4-day regional training workshop was held on drilling supervision and contract management for 30 sector personnel.
- A training course in procurement and contract management was conducted for 66 (23 males and 43 females) sector personnel drawn the de-concentrated structures (WSDFs, TSUs, WMZs & UOs). In addition, routine quarterly support supervision and monitoring on the performance of de-concentrated structures was conducted for the four (4) WSDFs. The overall aim is to promote good governance and capacity building for better and improved service delivery.
- Implementation of the standard capacity development programmes aimed at equipping the fresh graduates with practical skills through attachment to on-going projects continued. A total of 122 fresh graduates (59 males and 63 females) of not more than two years field experience were admitted to the program during the FY 2015/16.

Capacity Development for the Urban Water Sub-sector (NWSC and MWE)

Capacity Development (CD) is one of the five components under the current phase of the Reform of the Urban Water and Sanitation Sector Programme (RUWASS) that is being implemented during the period June 2014 – May 2017. In addition to the CD Plan development activities mentioned above, the following was achieved:

- Pilot research and implementation of suitable Infrastructure Asset Management (IAM) approaches to operations and maintenance (O&M) planning and management have continued, with WSDF North (Umbrella Organisation) as the pilot area. Initial focus has been on data and Operation and Maintenance (O&M) issues, but review of the organization structure have started and proposals will be completed in 2017.
- Development of training materials at entry level for multidisciplinary scheme operators to improve sustainability of small schemes is currently on-going. This to address the low level of skills noted in the O&M of small town schemes including in infrastructure asset management, and the lack of structured training courses at this level.
- Options to establish a sustainable approach to capacity development financing using internationally conventional approaches based on total staffing expenditure with structural training funding systems have been analysed, to complement other research based on donor funding sources. The draft report is available is under review.
- Ggaba vocational training institute has been supported with basic infrastructure, and learning materials for the key training topics have been upgraded or developed to support trainers and training for Industrial Plumbing Plumbers (up to level 3 diploma), Electrical and Mechanical Technicians (up to level 4 diploma), and Supervisors.

Workers Practically Acquired Skills (PAS) under NWSC

The Workers' Practically Acquired Skills (PAS) is a new concept that was formally approved by NWSC management; it aims to certify experienced technicians without formal qualifications. The PAS exercise is a product of the Memorandum of Understanding between the MWE and Ministry of Education and Sports that was signed in 2012 to boost the capacities of plumbers, electromechanical technicians and other artisans to deliver quality service to the Sector. Over 60 informally trained NWSC technicians – for Workers' PAS certification – have been internally assessed.

Construction of Kachung Vocational Skills Development Facility (VSDF)

Architectural designs have been completed for the facility, and the procurement process for the contractor is on-going (using NWSC's internally generated resources). The facility, once completed, will enhance capacity of skilled and qualified technicians to the sector and the East African region in general.

3.4.4 Challenges and Way Forward

The key challenges in the implementation of the sector capacity development include (i) the mind-set of stakeholders from the concepts of training to capacity development and the current focus on bottom up training planning verses top down capacity development, (ii) the role of the Capacity Development Division that is responsible for Sector Wide CD Planning + Sustainable CD Financing vis-à-vis the Human resources function that is responsible for active career management of the staff of the MWE, NWSC and other sector semi-autonomous institutions, and (iii) matching the GoU contribution to CD with the current donor funding.

To finalise the activities formulated in the Undertaking on capacity building, the Sector will complete the development of the capacity development plans for DWRM and NWSC over the FY2016/17, and initiate the process for the remaining MWE Departments (RWS, WESLD) as well as NEMA, NFA, Nyabyeya Forestry College and the district local governments. In addition, a database will be compiled of the CD initiatives undertaken by the different MWE and other Sector Stakeholders within and outside the JWESSP, and their reporting will be harmonised within the MWE and the respective sector institutions.

4 RURAL WATER SUPPLY

4.1 Background

Data and projections from Uganda Bureau of Statistics indicate a population of 36.86 million as of June 2016 with 30.08 million (81.6%)[8] living in rural areas.

Rural water supply provision covers communities or villages (at the level of Local Council 1 (LC1)) with scattered population in settlements up to 1,500 people, and Rural Growth Centres (RGCs) with populations between 1,500 and 5,000.

The main technology options used for water supply improvements in rural areas include protected springs (18%), shallow wells (23%), deep boreholes (44%), piped water schemes (gravity-fed) and piped water schemes (pumped) (11%), valley tanks and rainwater tanks9. Boreholes are the most predominant water supply technology in our rural communities. Whereas the number of point sources is more than the number of villages in the country, there are still villages in water-stressed areas that do not have water sources while some have more than one source. The size of villages also varies substantially in the country, where people in some villages in Eastern and Northern Uganda walk much longer distances than the minimum walking distance for a safe water source. Key programmes and projects.

4.2 Programmes and Projects

The major programmes, projects and initiatives under Rural Water Supply Department are:

- **District Water and Sanitation Development Conditional Grant (DWSDCG) and Peace, Recovery and Development programme (PRDP)**: These programmes are implemented through district local governments based on work plans and budgets approved by MWE. The DWSDCG and PRDP finance construction of water supply and sanitation facilities, community sensitisation and mobilisation in rural areas. The eight regionally based Technical Support Units (TSUs) of MWE provide capacity building, monitoring and technical back-up support to local governments in the implementation of the programmes
- **The central government through MWE's rural water supply and sanitation department** (i) coordinates use of the DWSDCG & PRDP including resource mobilisation and allocation, setting standards, technical support, and monitoring compliance, (ii) promotes appropriate technology through action research, development and up-scaling, (iii) plans and develops water schemes that traverse local government boundaries i.e. large gravity flow schemes and large motorised piped water schemes, (iv) strengthens improved sanitation hygiene service delivery in the District Local Governments (DLGs) through capacity building programmes, and (iv) carries out quality assurance of water supply designs developed by DLGs.

4.2.1 District Water and Sanitation Development Conditional Grant and Peace, Recovery and Development Programme

District Local Governments planned to implement a total of 2,102 facilities using the Conditional Grant and PRDP and managed to achieve 2,033 water facilities indicating 97% performance as of June 2016.

[8] Table 2.1 B: Census Population by Residence and Midyear Population Projections, in UBOS, Statistical Abstract, 2015

[9] MWE's Water Supply Data Base, August 2016)

Table 4.1 Targets and achievements using the DWSDCG and PRDP as on June 2016

Type of water source	Target	Achievement	taps	% Achieved	No. of persons /source	Persons served
Protected springs	266	269		101%	200	53,800
Shallow wells	514	486		95%	300	145,800
Boreholes	1,034	1,010		98%	300	303,000
Piped schemes/ GFS	96	81	548	84%	150	82,200
Rainwater Harvesting Tanks 10m^3	192	187		97%	6	1,122
Total	**2,102**	**2,033**		**97%**		**579,922**

The physical performance of 97% for hardware facilities is attributed to the timely release of funds to the DLGs whereby districts received 100% of the budget by January 2016. The total number of persons served is 579,922, 79% of the number of people (729,868) served in FY2014/15.

It is also worthwhile noting that the achieved number of water facilities for FY2015/16 is lower than in FY2014/15, because 16 districts planned and procured new vehicles with an expenditure estimated at UGX bn 2.0. Additionally, UGX mn 700 was expended so far for 8 multi-year piped water schemes under phased implementation by district local governments (DLGs), but the schemes have not yet reached a level of supplying water to communities, so did not contribute to the outputs. A total of UGX bn 1.7 was not utilised by DLGs by June 2016.

In regards to financial performance, 73% of the districts absorbed 100% of their budget, up from 62% in the FY2014/15, and only three districts absorbed below 80%[10]; a summary of budget and absorption figures of the DWSDCG is provided in Annex 7. The under-performance in a few districts is expected to be mainly due to low staffing levels especially in the district water offices as well as poorly trained / equipped Local Government Procurement & Disposal Units (PDUs), which affect the procurement process. Overall, 97% of funds released to local governments was absorbed representing an improvement from last year at 92 %. The trends shows that a predictable release of funds will instil confidence in local governments to implement activities early.

4.2.2 MWE Centrally implemented Development Projects

The activities implemented through centrally managed projects by MWE are outlined in the table below. These include large gravity flow piped water systems, pumped water systems with abstraction of groundwater from solar pumped boreholes, and borehole fitted with hand-pumps. An additional total number of 210,270 persons were served with MWE central government interventions[11] during 2015/16FY. Rehabilitated boreholes restored supply to 60,000 persons and the off-budget support programmes JICA and Egyptian Grant served an additional 38,500 persons.

Table 4.2 Performance of development projects managed by MWE

Description	Target	Achieved	Comment
Construction of large gravity flow schemes including detailed design			
Nyarwodho GFS-Phase I in Nebbi district	100%	92%	Targeting a population of 85,582 persons in Jonam and Padyere Counties. Delays in payments to contractor by shortfalls in budget releases from central government. Substantial completion expected by October 2016 with 900 connections.

[10] Nakapiripirit (48%), Nebbi (69%, and Nwoya (72%)

[11] Kanyampanga (55,000), Lirima 78,4000, Bukhooli (22,470) Wadelai (7,000)+158 new boreholes (47,400)

Description	Target	Achieved	Comment
Bududa – Nabweya GFS in Bududa District	100%	70%	Project to serve a population of 63,000 persons. Accessibility to project sites hindered by heavy rains and the difficult terrain in Bududa. Substantial completion expected by December 2016 with 800 connections.
Kanyampanga GFS	100%	100%	Project substantially completed in 26/12/2015 and handed over to NWSC for management in June 2016. Serving a population of 55,000 through 750 connections.
Lirima GFS in Manafwa District	100%	100%	The gravity flow scheme was technically commissioned on the 23rd March 2016 and handed over NWSC for management. The scheme is serving a population of 78,400 through 1,000 connections.
Bukwo GFS in Bukwo District	80%	70%	Targeting population of 54,000 persons. Progress hindered by heavy rains, difficult terrain and delays in GoU counterpart funding. Expected completion January 2017, 300 connections.
Butebo water supply in Pallisa District	100%	50%	Project experienced slow progress due to delays in payments to the contractor. The scheme is expected to be completed by January 2017 with 100 connections.
Bukhooli RGC, Namayingo D.	100%	100%	Project substantially completed serving a population of 22,470 persons through 105 yard connections.
Wadelai RGC WSS in Nebbi district	100%	100%	Substantially completed serving a population of 7,000 persons. Technical commissioning scheduled in September 2016.
Kahama GFS – Phase II, Ntungamo D.	40%	0	Commitment through contract halted because of the shortfalls in budget releases from Ministry of Finance.
Construction of piped systems in the RGCs of Acholi sub-region plus drilling of boreholes	6No	6No	Works were completed for the 6 RGCs of Koch Goma, Awere, Unyama, Adilang, Corner Kilak and Kitgum Matidi serving a population of 16,000 persons. 75 boreholes drilled serving a population of 22,500.
Finalize detailed designs for Orom, Potika, Nyamugasani, Ogili, Bwera, Bukedea GFS	100%	75%	Orom, Potika and Ogili are at feasibility study stage. Progress slowed down by delays in payments due to shortfalls in budget releases. Detailed designs for Nyamugasani, Bwera and Bukedea GFS are complete.
Solar powered mini-piped water schemes			
Construction of 35 solar powered mini-piped water schemes in rural areas	80%	60%	Civil works for 35 sites progressed up to 60%. Solar components from abroad arrived in the country in July 2016. Solar package installations commenced August 2016, substantial completion scheduled for December 2016 with 110 service points. Delays in payments to the contractors slowed down works progress.
Rehabilitation of chronically broken down boreholes			
Rehabilitation of boreholes	1100	200	Water supply for 60,000 persons was restored; Limited budget resulted in revision of target downwards.
Drilling of Boreholes			
New boreholes with hand pumps	**170**	**158**	The borehole drilling interventions served a total of **47,400** persons.

NB: The large piped water supply systems of Lirima, Bukwo, Kanyampanga, Nyarwodho and Bududa have a potential of realising an increment of 500 connections annually per system during the first 4 years of operation.

4.2.3 Technical Support to Local Governments

The Technical Support Units continued to provide technical support to District Local Governments in the aspects of planning, budgeting, procurement, contract management as well as monitoring DLG activities.

Key activities by the TSUs during the year under review included provision of technical support to district local governments (DLGs) in the development of District Investment Plans, verification of reported district outputs, orientation of DLGs on the new Planning and Budgeting Guidelines, review of individual district performance, and documentation of best operational practices in water supply and sanitation service provision; More details on these activities are provided in the following sections.

Technical Support in Development of District Investment Plans (DIPs)

Water for People developed a decision support planning tool aimed at i) determining the investments required to achieve water and sanitation for all, ii) ascertaining funding the government can leverage to achieve universal access to WASH, and iii) identifying key players in the districts that can contribute to WASH service provision. The NGO, in partnership with MWE through the TSUs, facilitated district local governments to develop district investment plans for water activities. A total of 60 districts have been supported to develop DIPs as of June 2016. The DIPs focus on both the institutional and community WASH needs. It is clear that with the current water sector funding, universal access to WASH services cannot be achieved by 2030. The most challenging aspect of the exercise is the unavailability of required data, especially for institutions.

Box 4.2 illustrates the outcome of the DIP exercise for Kabarole district.

Box 4.1 Outcome of the DIP exercise for Kabarole district

Kabarole district requires UGX bn 35 to have universal access to safe water supply by 2030, as indicated in the DIP summary:

Kabarole District		
Item Description	**Investment Required**	
	UGX	**USD**
Sanitation promotion in communities (CLTS)	4,445,768,000	1,291,248
Hardware Schools	6,952,300,000	2,019,256
Hardware Health centres	2,028,000,000	589,021
Water Infrastructure in Communities	18,407,066,301	5,346,229
Software implementation	2,738,736,630	795,451
Monitoring and Evaluation	547,747,326	159,090
Total	**35,119,618,257**	**10,200,296**

Verification of Reported District Outputs

The TSUs are mandated to verify water facilities constructed in the districts using the District Rural Water Grant to ensure physical accountability; adherence to sector standards, specifications and guidelines. For the FY2015/16, a total of 188 protected springs, 362 hand dug shallow wells, 704 deep boreholes, 256 tap stands, 71 rain water harvesting tanks, 6 valley tanks and 315 rehabilitated facilities constructed under the DWSDCG have been verified by the various TSUs. The verified numbers represent 50% of the total facilities implemented during FY2015/16

All facilities were found in place as reported by the different District Local Governments. There is improvement of labelling of facilities and dates of construction can be easily identified thus avoiding

double accounting. Increased involvement of sub-county extension staff in software activities was measured. Official commissioning of projects was conducted as well as a good practice of certificates of ownership issued to the communities. The verification exercise forms a basis for informed feedback to district leaders.

Orientation of District Local Governments on the new Planning and Budgeting Guidelines

Effective FY2016/17, the implementation of the DWSDCG will be under revised guidelines which were introduced by the Ministry of Finance, Planning and Economic Development. The planning and budgeting for the FY2016/17 by the DLGs was in that respect a challenge. As a way of technical support, the TSUs committed a lot of time in building capacity of DLG staff through orientation meetings and on-the-job training to ensure work plans and budgets developed by DLGs are compliant.

However, it was noted that there was insufficient time for local governments to internalise the changes. In addition, it was noted that the budget provision for the 'recurrent non-wage' budget line, which should take care of district water office operations, is too small for districts to operate efficiently and effectively.

Quarterly TSU Performance Reviews

The MWE organised and conducted quarterly TSU performance review meetings to assess and evaluate the performance of TSUs, and also enhance staff capacities to effectively support district local governments. During the year under review, TSU performance review meetings were held in Moroto, Kalangala, Hoima and Jinja Districts. Field visits were organised as part of the TSU review meetings to provide a platform for learning Best operational Practices (BoP) in the various areas which are documented by the BoP committee. The best performing TSUs were motivated with rewards. The key outcomes and lessons from TSU reviews noted are gradual performance improvement by the TSUs in areas of assessment, improved teamwork among TSUs and improved collaboration/coordination between the TSUs and the TSU management team of MWE.

Documentation of Best operational Practices (BoP) in Water Supply and Sanitation Service Provision

MWE formed a BoP committee that assesses and documents good practices in water supply and sanitation provision by various stakeholders for purposes of replication and promotion. The outstanding practices during the year are summarised in Box 4.2.

Box 4.2 Best operational practices in water supply and sanitation service provision

(a) Water and Sanitation **"Bulungi-Bwansi"** (Communal Work revived in Rutoto Sub-County, Rubirizi District)
"Bulungi Bwansi", also referred to as communal work, dates back to the 1970s, and has over the decades remained a point of reference as a successful strategy for implementation, operation and maintenance of community projects like sanitation, water facilities and community roads.

Rukoto Sub-County in Rubirizi District, with 19 point water sources, was facing a number of challenges with regards to operation and maintenance of these water facilities. In a bid to remedy these challenges, the sub-county sought to revive "Bulungi Bwansi". On a monthly basis, each household in the different parishes sends a representative to take part in the communal work. Extension staff also take advantage of the days to conduct practical operation and maintenance sessions on water sources and household hygiene and sanitation. Following the success in Rukoto, the strategy has been rolled out to the neighbouring sub-counties of Ryeru and Katunguru. The initiative of extension workers to use the general community activities and table/ present water and sanitation issues is a good lesson. Additionally, the participation and monitoring of the activities by the district staff propelled the initiative to an exciting level.

(b) **Buddebutakya ODF Sustain Lens**
The Buddebutakya ODF village started with actions driven by Lutheran World Federation in collaboration with Sembabule District Local Government. In 2013 it had a total of 152 households. The initiative was a result of the Community Led Total Sanitation triggering session implemented by the Lutheran World Federation and Lwebitakuli Sub-County health extension staff. At the start, the village had a latrine coverage of only 44% and

as a result it was selected for CLTS triggering. Three months down the road of implementation, substantial progress had been made by the communities. The latrine coverage was 100%.

TSU 7 staff went for a monitoring event as a follow up after 2 years of certification and declaration; it was established that the achievements had been sustained to date. The discussions with the stakeholders attributed the success to existence of a committee comprising of Village Health Teams with updated data management records as well as vigilance of the parish chief, LC I's and health assistant. In addition, existence of a penalty system guided by by-laws together with commitment from the sub-county authorities to enforce the by-laws also significantly contributed to the sustainability of the ODF status.

4.2.4 UNICEF WASH Activities

UNICEF supported Government to deliver WASH services, through provision of water systems, rehabilitation of existing sources, supporting operation and maintenance activities of new and existing facilities, provision of sanitation through construction of institutional latrines and hygiene promotion and support to water quality monitoring.

UNICEF supported four districts (Abim, Moroto, Kaabong and Napak) in Karamoja sub-region in development of comprehensive work plans to remove WASH bottlenecks.

Working with Uganda Red Cross Society (URSC) and district partners, UNICEF supported the containment of cholera outbreaks in 10 districts[12] through provision of supplies, funds for social mobilisation and communication for development.

UNICEF supported emergency refugee's intervention through extending the water supply pipeline in Nakivale settlement serving 9,000 Burundi refugees, drilling of six boreholes in Rwamwanja serving 1,800 refugees and providing comprehensive WASH services to approximately 45,000 South Sudanese refugees in Kiryandongo, Arua and Adjumani districts.

Water Supply

During the FY 2015/16, UNICEF supported the construction and rehabilitation of water facilities, serving an estimated population of 85,430 people as shown in the table below:

Table 4.3 Water facilities constructed and rehabilitated by UNICEF in FY2015/16.

Activity	Number achieved	Locations	Persons served	Direct cost (UGX)
Construction and rehabilitation of solar powered motorized systems	10	Napak 1, Kaabong 3, Kotido 1, Kasese 1, Kabarole 2, Mubende 2	40,000	3,200,690,230
Rehabilitation boreholes and shallow wells	147	Bugiri 21, Amudat 10, Ntoroko 10, Yumbe 30, Kyegegwa 5, Mubende 14, Kasese 10, Kyenjojo 11, Wakiso 14, Ntoroko 12, Adjumani 10	44,100	387,890,000

Institutional Sanitation

A total of 15 school latrines blocks were constructed at primary schools serving more than 3,000 pupils.

Capacity Development

[12] Busia, Moroto, Sironko, Bulambuli, Mbale, Bundibugyo, Nebbi, Zombo, Adjumani, Kayunga

Nine District Local Governments[6] were supported in operation and maintenance, whereby 129 Water and Sanitation Committees at point water sources were retrained, while the Water and Sanitation Boards at 10 piped water systems were trained in operation and maintenance.

4.2.5 Appropriate Technology Centre for Water and Sanitation, Mukono

Appropriate Technology Centre for Water and Sanitation (ATC) planned to continue applied research, training and development of capacities of sector actors and promotion of appropriate water and sanitation technologies for the year 2015/2016. The achievements by the ATC during the year under review fall are categorized in line with the centre objectives as follows:

Applied research

The centre profiled U2 **metered hand pumps** as an option for O&M of point water sources in Kamwenge district and developed a guide as a catalyst for promotion and uptake of the technology. The exercise was carried out in partnership with Water for People.

Research on **iron removal** from ground water done in three districts of Mpigi, Kamwenge and Rakai. It was observed that the current Silsoe iron removal plant design is effective for iron concentration below 10mg/l and therefore can be popularised in places with such levels of iron concentration. It is therefore recommended that the current design model of the iron removal plant is improved to accommodate iron concentration levels above 10mg/l.

A **menstrual hygiene management and briquetting** project was carried out in two schools i.e. Kabimbiri Roman Catholic and Misindye Church of Uganda primary schools. The project was implemented in less privileged government aided schools in partnership with UNICEF and empowered 130 girls to produce low cost sanitary pads from banana stems and waste paper which they use during their menstruation period. This intervention has reduced the absenteeism of the girl child. In a parallel activity, 170 boys trained to make briquettes from organic wastes and these briquettes supplement school fuel requirements. Two boys have taken the briquetting skill beyond school premises and are now earning some little money for meeting scholastic needs.

Technology Promotion

The ATC continued to implement the **rainwater harvesting project using the revolving fund approach** in four water-stressed districts of Sheema, Mukono, Kaliro and Namayingo through NGOs i.e. Shuuku development Foundation, Katosi Women Development Trust, Busoga Trust and Uganda Muslim Development Association. In total 55 improved rainwater tanks have so far been constructed serving a population of 1,265. A total of 45 technicians were trained on improved rainwater harvesting technologies.

ATC has become a one stop learning Centre for visitors and institutions of higher learning from both within and outside the country for exposure learning on appropriate technologies. A total of 300 visitors reached out to the centre for exposure learning on appropriate water and sanitation technologies.

A number of the planned activities were not implemented because the Centre is undergoing restructuring and as such, it had budgetary constraints for activity implementation. Additionally, inadequate transport means and staffing gaps curtailed the operations of the centre.

4.3 Status and trends of key indicators for rural water and sanitation

4.3.1 Golden Indicator No 1: Access to Safe Water in Rural Areas

Access / coverage refer to the percentage of people that collect water from an improved water source. The golden indicator for access13 for rural water supplies is defined as *"% of people within 1.0km (rural) of an improved water source*". The average access per district by June 2016 is shown in Figure 4.1.

The Water Supply Data Base of MWE (accessed online via www.mwe.go.ug) was used to generate the access figures for rural water supply for 2015/16FY**.** The access computation excludes non-functional water facilities (which are reported to be down for more than 5 years).

As of June 2016, the national safe water coverage in rural areas is estimated at **67%**, up from 65% recorded in June 2015. The National Household Population Census results (2014) have been used in the estimation of access figures for 2015/16FY. The MIS Unit under the Water and Environment Sector Liaison Department (WESLD) of MWE is in the final stages of updating the Water Supply Atlas (2016). This process of updating the atlas has revealed a total of 3,512 water sources which were not in the MWE Water Supply database from 40 districts (36% of all districts) which partly explains the increase in rural access figures. The atlas update is planned to be completed by December 2016 in all districts (see also Section 1.3.3).

Based on the analysis done under the water atlas update, 69% of the districts have a coverage above the national average coverage figure (which is a slight improvement from 70% of the districts estimated in June 2015). Nine districts were recorded with a coverage below 40%, down from 10 recorded in June 2015.

The current strategic policy directive by the government is to ensure provision of at least one safe or improved water source per village. Implementation of this policy will of course be guided by the results of the updated water supply atlas. Therefore, it is worth noting that the method of estimation of rural access to safe water will be changed, and this will definitely have some effect on the reported figures for percentage access.

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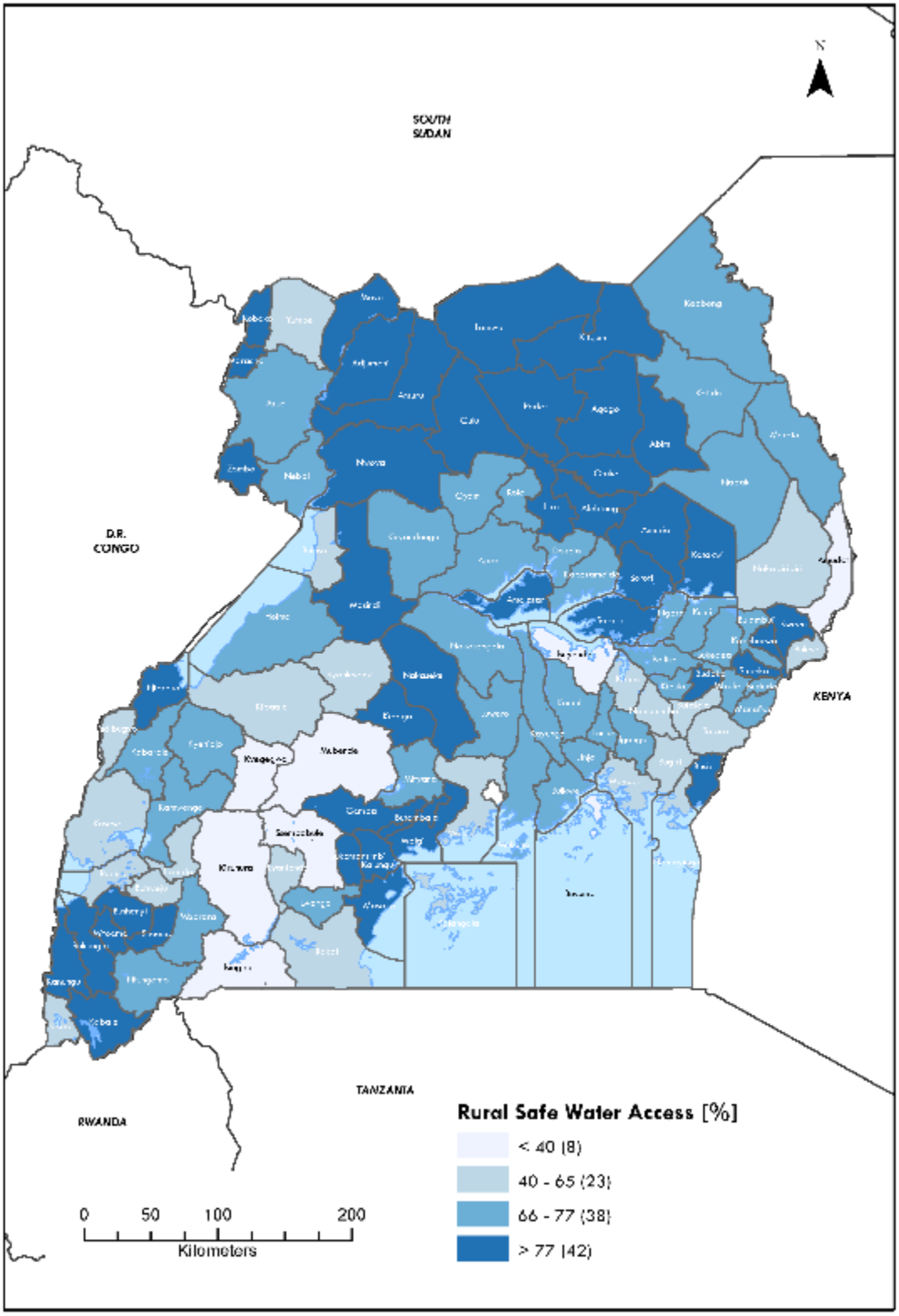


Figure 4.1 Access to safe water supply by district (June, 2016)

4.3.2 Golden Indicator No 2: Functionality

The golden indicator for functionality for rural water supplies is defined as the *"% of improved water sources that are functional at time of spot-check*". The average functionality rate for rural water supplies by district is shown in Figure 4.3.

The trend in average nation-wide functionality of rural water supplies, defined as the "*percentage of improved water facilities found functional at the time of spot check*", is indicated in Figure 4.3.

As of June 2016, the functionality for rural water supplies is estimated at **86%**, down from **88%** in June 2015. The drop in functionality is attributed to non-repair of broken down facilities. 53% of the districts have had their functionality reduce or has remained stagnant; an indication of a process where the rate of repair is lower than that of facilities breaking down. Overall, 52% of the districts have functionality above the nationwide average compared to 68% in 2014/15. The wide variation in functionality over the years reflects inadequacy of finance and structures to sustain functionality.

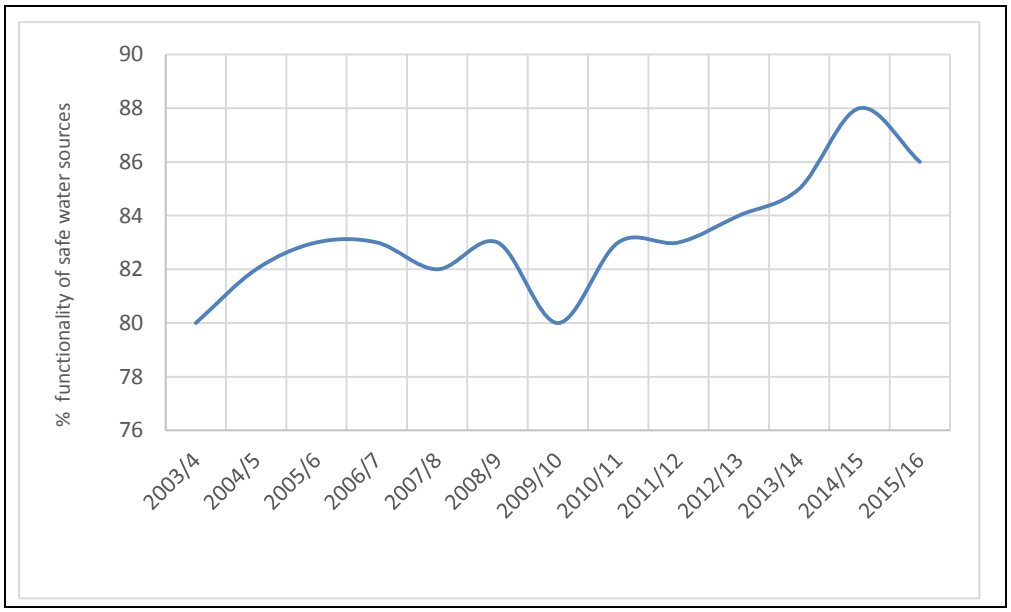


Figure 4.2 Trend in functionality of rural improved safe water sources in Uganda, June 30th, 2016

A total of 58 districts are above the national average of 86%. The five districts with lowest functionality include Napak (58%), Kitgum (59%),Kotido (59%), Kalungu(65%) and Kiboga (67%), while the five districts with highest functionality include; Rubirizi (95%), Bukomansimbi (96%),Luuka (97%),Ngora (98%) and Isingiro (99%).

Main challenges in the O&M of RWSS facilities

Government of Japan in technical cooperation with Government of Uganda (Ministry of water and Environment) are implementing a project for operation and maintenance for rural water supply and improved hygiene and sanitation. The project commenced in 2015 and is due to end August 2019. The study aims to, among others, develop a strategy for capacity development and strengthened O&M systems of rural water facilities.

Among the findings from the baseline study for hand pump facilities carried out in the districts of Mubende, Mpigi, Butambala and Kiboga, it follows that hardly any operation and maintenance systems are fully functioning. The main challenges to community-based operation and maintenance of water sources and their causes are listed in Table 4.4.

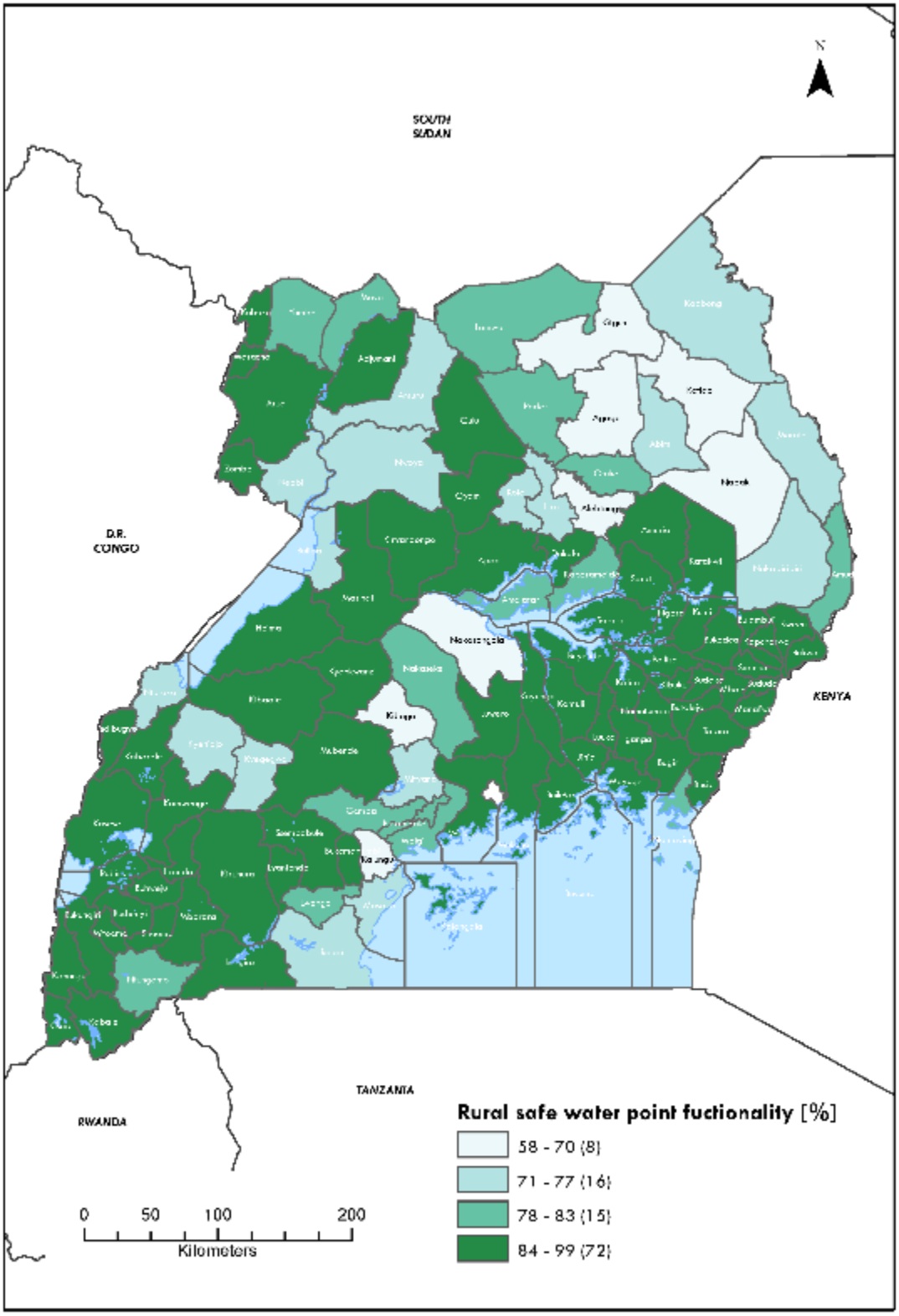


Figure 4.3 Functionality of safe sources by district (June, 2016)

Table 4.4 Main challenges to CBMS operation and maintenance systems and their causes.

S/N	Main Challenge	Cause
1	More and more water users lose trust in WSC	Embezzlement of water fees by WSC members. Illegal intervention by politicians
2.	Water users come to expect that water is free	Water users whose distrust has grown, refuse to pay water fees and WSC cannot collect water fees on a regular basis
3.	Care taker retires, and no one is left to take over	WSC, which cannot collect water fees on a regular basis refuse to enumerate caretakers
4.	Hand pump parts gradually suffer wear and tear and pump discharge begins to decrease	The absence of caretakers means that the hand pump cannot be managed and preventive maintenance cannot be done.
5.	Hand pumps breaks and cannot be fixed promptly because WSC have not saved for repairs	Hand pumps cannot be promptly repaired when they are broken because WSC with no regular collection of water fees have not saved for maintenance expenses. WSC lack sufficient funds for maintenance because hand pumps break frequently.
6.	Hand pumps remain out of use for long periods of time and water users trust in WSCs plummets dramatically	Water user's trust in water supply projects deteriorates due to hand pumps breaking frequently or being out of use frequently or for long periods.
7.	Governments have little financial power and cannot respond to all requests for repairs from WSC	Repairs become expensive because there is no choice but to use private entities to perform them. Very few conditional subsidies (DWSSCG) are granted.
8.	Hand pumps cannot be managed and preventive maintenance cannot be done because water fees are not being collected regularly	Caretakers to manage hand pumps cannot be hired because WSC is unable to collet water fees on a regular basis. WSC do not understand the importance of preventive maintenance because broken hand pumps can be used again if they are repaired with government support.

The failure of O&M systems relatively soon after WSCs are established is mainly due to a limited budgets from Government and user fees. The water users are only provided with education (about ownership, benefits of safe water, correlation of safe water to sanitation) for one or two days. Sub-counties only monitor initially for three to four months after construction is complete. As time passes, illicit behaviour such as embezzlement of collected water user fee by WSC members and illegal intervention by politicians occurs.

This results in users losing trust in WSC and withholding payment of water fees. Analysis of repairs versus broken down facilities in the four districts of **Mubende, Mpigi, Butambala and Kiboga** as indicated in table below shows that less than 50% of the sources that broke down last financial year were repaired. This serves as an example that, when the broken facility is unusable for a long time because of limited budget, a cyclic process of loss of trust from users, WSCs become non-functional, and the non-collection of user fees is set into motion. The entire O&M system then breaks down.

Table 4.5 Sources repaired out of the broken down in JICA baseline survey Report for O&M

S/N	District	No. Broken Down (FY 2014/15)	No. Repaired (FY 2014/15)	% Repaired
1	Mubende	60	20	33%
2	Mpigi	32	7	21.8%
3	Butambala	25	10	40%
4	Kiboga	28	3	10.7%

Technical breakdowns are the reasons for non-functionality of water sources. Technical breakdowns include pipes wearing out and dropping in the wells, and wearing out of other pump parts which are beyond communities' affordability to repair. The conditions of hand pump parts include shaking handles, unusual noise and difficulty of operation the handle. Many of the problems of the above ground parts components can be solved easily by preventive maintenance or minor repair.

4.3.3 Golden Indicator No 3: Per Capita Investment Cost

The golden indicator for per capita investment cost for rural water supplies is calculated as the "*total MWE and District Local Governments expenditure divided by the total of new people served*". It is estimated that, a total of 850,192 people have been served by MWE and DLGs with new water supplies in 2015/16 (i.e. **579,922** by the DWSDCG and **270,270** by MWE).

A total of UGX bn 94.28 was used to serve 850,192 persons with new improved water supplies. The overall per capita cost for rural water supplies is thus **UGX 110,887,** less than **UGX 116,897 for 2014/2015.** A total of 12 billion was expended on multi-year projects of Bukwo, Nyarwodho, Bududa, Butebo and solar-powered mini-piped water schemes.

4.3.4 Golden Indicator No. 7: Equity

For rural water supply, equity is defined as "*the mean sub-county deviation from the district average in persons per water point*". Equity is the sector performance indicator specifically intended to promote provision of equal opportunities for the water supply delivery service and minimise differences between groups of people. A lower numeric value indicates a more even distribution between sub-counties within a district. The equity value per district by June 2016 is shown in Figure 4.4.

For the FY2015/16, the equity value is estimated at **142**, down from 162 during FY2014/15. The positive impact on the distribution of water sources between sub-counties is attributed to the discovery of 3,512 sources through the WATSUP II, which were not in the database. The trend over the past four years indicates that interventions in rural areas with the current level of funding have not truly created a positive impact on the distribution of water sources among sub-counties, because district local governments can only implement low cost water supply technologies in those areas where they are feasible, leaving out the water-stressed areas. Political interference in the allocation of new safe water sources at DLG level also greatly undermines the performance of the equity indicator.

MWE is to continue with the process of updating the Water Supply Database management information system (MIS) to cover all districts with emphasis on training of district local governments in handling management information. With an improved MIS, the practice of concentrating infrastructure development in particular communities and localities while neglecting other parts of the DLGs can be minimised.

In a bid to support DLGs in addressing the water supply needs in the water stressed areas, MIS is to construct 10 large piped water schemes that cut across local government boundaries in the next four years. The proposed systems are based on surface water resources with transmission and distribution in areas of water scarcity. In order to drastically improve the equity, it is necessary to provide water and sanitation facilities in water-stressed areas with low coverage. This can only be achieved through higher service level investment with higher per capita costs.

Lastly, as an interim measure, MWE continues to promote appropriate technologies, i.e. scaling up of rainwater harvesting using the revolving fund approach in areas where groundwater potential is low or the water quality is poor.

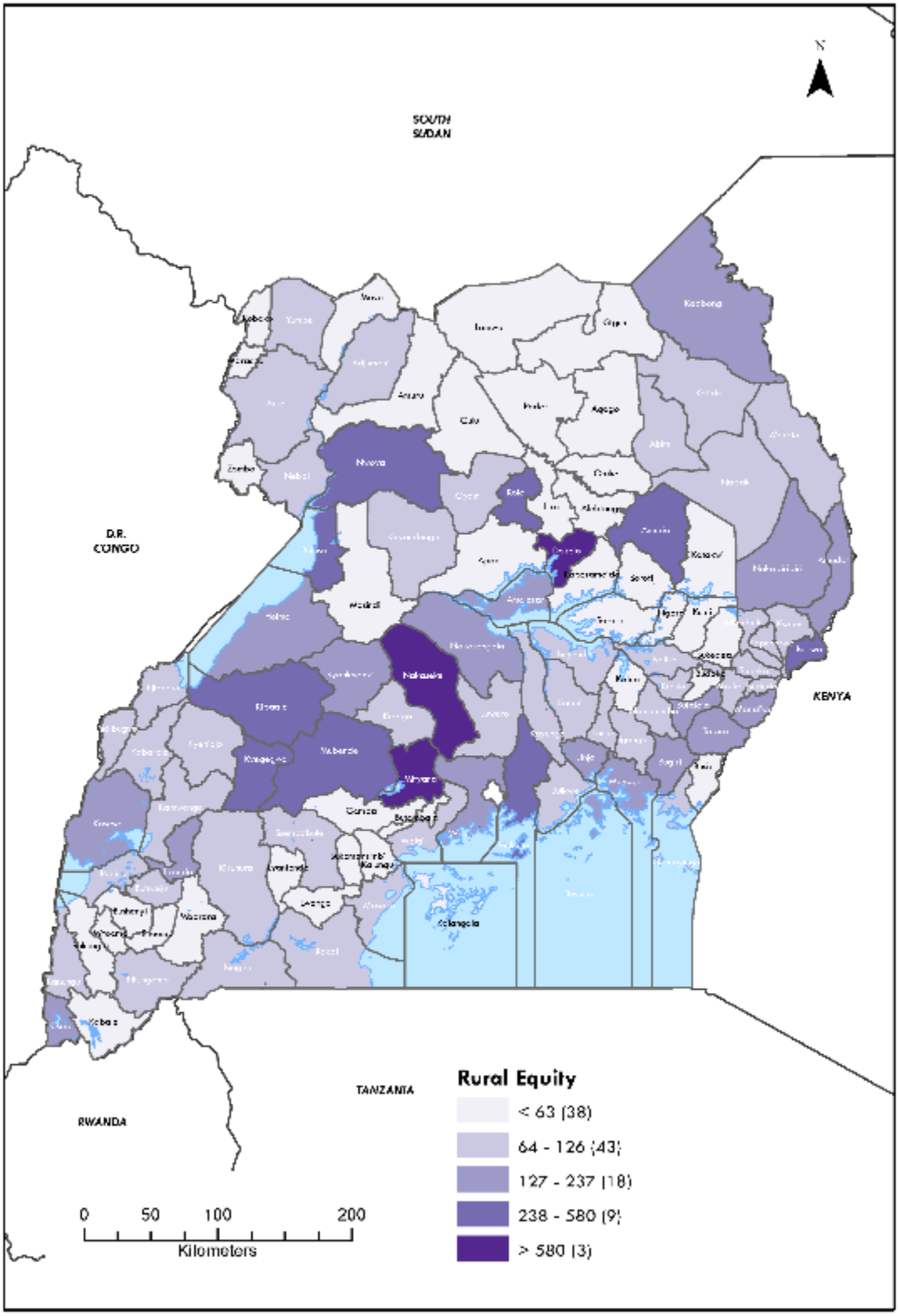


Figure 4.4 Equity in distribution of safe water sources by district (June, 2016)

4.3.5 Golden Indicator No. 9: Community Management

The Community-Based Management System (CBMS), as applied in water supply and sanitation is generally concerned with questions of maintenance, participation of women, and in-kind contributions, all of which involve community participation and therefore, promotes sustainability. The concept of CBMS involves all issues pertaining to responsibility, decision making, authority, and control over water and sanitation facilities and their operations. The golden indicator on community management refers to the *"% of Water sources with functional Water and Sanitation Committees*". A functional WSC is one that holds regular meetings, undertakes minor repairs, collects O&M funds regularly with good record keeping, and maintains adequate sanitation around the water source.

Data from the Water Atlas Update 2016 (WATSUP 2016) from 111 districts indicates that functionality of WSCs has increased to **87%**, up from 77% in the FY 2014/2015, and 71% in FY 2013/14. The relative jump in the year FY2013/14 is attributed to a change in calculation of the indicator; since that year, the functionality of WSCs is determined from functioning boreholes and protected springs, whereas before that, it was based on all safe water sources, even when the sources were not functional. The increase in the reporting period is mainly attributed to three factors: (i) Watsup II data update which incorporated an additional 3,512 water sources with functional structures in 40 districts; (ii) Before this reporting period, a number of districts namely; Arua, Amuru, Isingiro, Jinja, Kamuli, Kamwenge, Kasese, Otuke, Rakai and Zombo, of which the management indicator data were considered to be outliers have been supported to acquire more accurate data; and (iii) continuous sensitization/training of extension workers by the TSUs with emphasis on accurate data acquisition and re-activation of Water and Sanitation Committees .

4.4 Challenges and Recommendations

There is insufficient funding to accelerate water supply and sanitation coverage in the water-stressed areas due to high investment requirements.

Community demands for more connections and additional supply areas after the construction of large gravity flow schemes has resulted in an increased demands for expansion of services to other areas.

There is an increasing overlap between water developments for the rural, and for the urban population. This puts a burden on the already strained budget for rural water development, whereas the set tariffs are sometimes not affordable for the poor in rural areas. Investments in the development of large gravity flow schemes primarily for rural communities (Kanyampanga, Bukwo) are now being stretched to cover urban areas. In the large gravity flow systems taken over by NWSC, there is increasing pressure for the rural communities to be considered for lower tariffs compared to those in urban settings.

As a result of budget cuts, MWE's rural water supply department had to carry forward payment arrears to service providers from 2015/16FY amounting to UGX **15bn** (equivalent to one-third of the budget of RWSD) in the FY2016/17, which will inevitably distort implementation of work plan for 2016/17FY.

There are capacity gaps within the district local governments (DLGs) leading to underutilisation of the Rural Water Development Grant. The capacity gaps are a result of high staff turnovers in the DLGs.

There was insufficient time for MWE and District Local Government staff to internalise the changes in the new DWSCDG implementation guidelines.

To address these challenges, the following recommendations are made:

- There should be continued technical Support (through TSUs) to the district local governments to minimise the capacity gaps in planning, budgeting, procurement, implementation and O&M of water facilities.
- In line with Vision 2040 and the Sustainable Development Goals, the rural water subsector should increasingly invest more resources in higher level technologies with the aim of supplying over

50% of population through piped water schemes by 2030. The rural water department strategy on improving water supply to the water-stressed areas needs be operationalized. The use of multiple approaches to ensure a water source per village through large gravity flow schemes, solar powered mini-piped water schemes, boreholes, rainwater harvesting and self-supply should be emphasized. It should be borne in mind that this approach will lead to a higher per capita cost, and therefore needs more financial resources.

- A national programme needs to be developed at all levels involving all sector players including NGOs to rehabilitate rural water supply infrastructure to enhance water facilities' capacity and improve reliability, followed by an enhanced O&M structure both at the source and by district local governments.

5 URBAN WATER SUPPLY

5.1 Introduction and Background

Uganda's National Development Plan (NDP II) aims to increase access to safe water in urban areas to 95% (100% in NWSC towns) by 2020[14]. According to Vision 2040, all Ugandans shall have access to safe piped water, taking into account the government's urbanisation strategy that promotes concentration of people in planned settlements to ease delivery of services including piped water supply.

This approach is in line with the international Sustainable Development Goals, where SDG Goal No. 6 considers people to be fully served if they have access to safely managed drinking water services, with a water source that is located on premises, available when needed and free of contamination.

For the Urban Water sub-sector this provides clear guidance but is extremely ambitious, given the current status of service delivery (see section 5.2.2).

5.1.1 Urban Population and Urbanisation

This sector performance report uses the current Uganda Bureau of Statistics (UBOS) definition for the term "urban". UBOS' National Population and Housing Census (NPHC) 2014[15] defined urban centres to include "all areas gazetted as City, Municipality, Town Council or Town Board as of March 2016." Administrative changes that occurred between March and July 2016 are taken into consideration to the extent possible for the analyses below.

According to latest administrative information provided by UBOS (as of July 2016), Uganda has a total of 274 urban centres with a population of 8.3 million, as shown in Table 5.1. With 23% of the population living in urban centres the rate of urbanisation is still moderate but rapidly increasing.

Table 5.1: Population of urban centres by administrative status

Urban Centre	Nat. Population & Housing Census 2014		Projection 2016[16]	
	No.	Population	No.	Population
Capital City	1	1,507,114	1	1,568,900
Municipalities	22	1,731,024	41	3,697,000
Town Councils		3,879,618	174	2,763,600
Town Boards	174	308,142	58	307,400
	62			
Total Urban	**259**	**7,425,898**	**274**	**8,336,900**
Total Uganda		34,634,650 (21% urban)		36,744,000 (23% urban)

Note that the population of town councils has decreased significantly as very populous town councils around Kampala (Wakiso District) were gazetted as municipalities in 2015.

Since 2002, Uganda's urban population has almost tripled from 3.0 million to 8.3 million. This is partly due to the gazetting of new urban areas, which however reflects real urbanisation processes: in 2002, 12% of the population was living in urban areas, whereas by 2016, the population living in urban areas has increased to 23%.

The urban water supply sub-sector needs to plan for further rapid urbanisation, which is an explicit strategic goal: Vision 2040 aims for a level of urbanisation of 60% by 2040. It is the water sector's

[14] Second National Development Plan (NDPII), June 2015, page 203

[15] The National Population and Housing Census 2014 – Main Report, Uganda Bureau of Statistics 2016

[16] based on administrative information provided by UBOS and population projections in UBOS Statistical Abstract 2015

responsibility to ensure 100% water supply coverage not only for the large urban centres but also for the growing number of smaller urban centres and rural growth centres.

5.1.2 Status of Access to Safe Water Supply in Urban Areas

According to the recent National Population and Housing Census (2014, data published in 2016), 86%[17] of Uganda's urban population use a "protected"[18] source of water supply. However, this figure does not include Town Boards, which are also considered as urban by the sector; it does not take distance into consideration, whereas the sector considers 200 meters as the maximum acceptable distance in urban areas; and it includes improved point water sources, such as boreholes, which are often not free of contamination and hence not safe water in urban areas.

By combining the NPHC information with other recent household surveys and the Ministry's own information on piped water infrastructure, the situation of service coverage and service levels can be characterised as in Table 5.2:

Table 5.2 Access to Safe Water Supply in Urban Areas

		Using a protected source	Having access to piped water (infrastructure based)	Having piped water on premises	Having access to a protected source within 200 m
Source of data:		*NPHC 2014*	*MWE/DWD*	*NSDS 2015*[19]	*UNHS 2012-13*[20]
Large Towns	CC, Municipalities	90%	83%	26%	44%[21]
Small Towns	Town Councils	78%	52%		
	Town Boards	n/a	21%		
Urban		86%	71%		

It can be concluded that less than 50% of Uganda's urban population have access to safe piped water within 200 meters of their dwellings (see rightmost column in the above table). Very significant efforts and investments will therefore be required to achieve the NDP II and Vision 2040 targets.

For sustainable service delivery, the necessary investments in new infrastructure will also have to go hand in hand with increased efforts to strengthen management models, regulation, and the maintenance and renewal of existing infrastructure.

5.1.3 Management Responsibilities in Urban Water Supply

Of the 274 gazetted urban centres, 112 are currently being managed by the National Water and Sewerage Corporation (NWSC), leaving 162 under the direct responsibility of MWE's UWSD. Of the latter, 60 do not yet have a piped water supply system, including 3 that are currently under construction. The remaining 102 schemes are managed by Town Councils / Town Boards with support from Umbrella Organisations. Of these, 36 schemes are currently being operated by a Private Operator (i.e. a company working under a management contract).

[17] Figure calculated from the individual Sub-county Reports (Central, Eastern, Northern and Western Region), UBOS 2016; Data are provided at the sub-county level, it was therefore not possible to extract data for Town Boards (parish level).

[18] Protected water sources, according to the NPHC Sub-county Reports, include piped water, boreholes, protected wells and springs

[19] National Service Delivery Survey 2015 Report, UBOS 2016

[20] Uganda National Household Survey 2012/13, Final Report, UBOS 2014. The more recent NSDS does not provide figures for a distance of up to 200 meters but the percentage given for up to 500 meters (NSDS 2015: 75%) is very close to the one given in UNHS 2012-13 (77%)

[21] 44% were obtained by multiplying the percentage using an improved water source (87.3%) with the percentage having their main water source at a distance of less than 200 meters (50.4%).

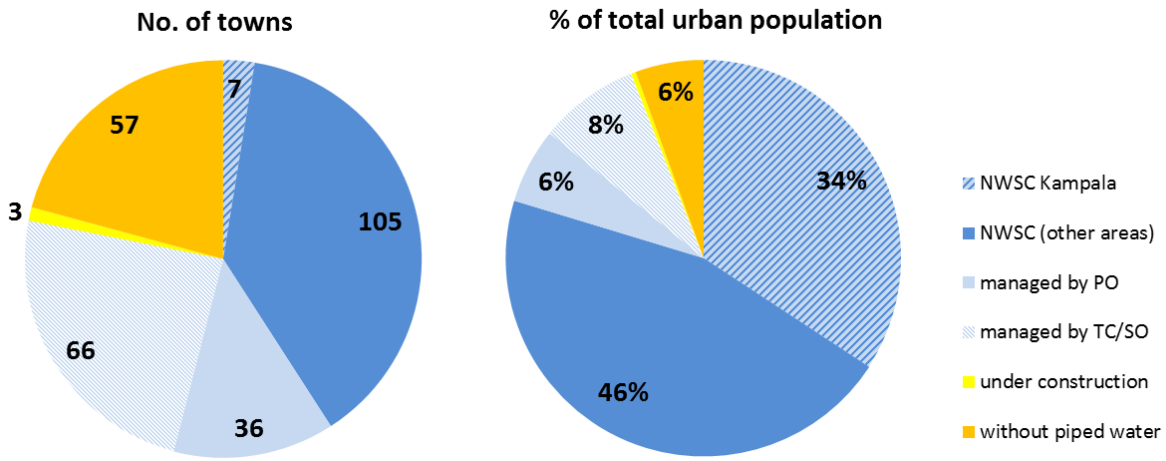


Figure 5.1 No. and population of urban centres by type of management

The figure above visualises the relative shares of these management types (PO – Private Operator; TC – Town Council; SO – Scheme Operator). Please note that the percentages of the population in the right diagram represent the total population of the respective towns, including those that do not have access to the piped water system.

The towns managed by NWSC represent about 80% of the total urban population. One third of the urban population lives in the area served by Kampala Water alone.

The above figures do not include piped water supply systems outside the gazetted urban areas. There are approximately 900 piped water systems serving rural areas, of which less than 50 are being managed by NWSC. The number of such schemes is continuously increasing as more and more rural growth centres are being supplied with piped water.

20 additional piped water schemes are currently under construction by WSDFs, or by projects under UWSD, plus many others being constructed by the Rural Water and Sanitation Department or Local Governments.

5.2 Water Supply in Small Towns and Rural Growth Centres

The Urban Water and Sewerage Department (UWSD) is divided into three Divisions: (i) Planning and Development, (ii) Support to Utility Management, and (iii) Sewerage Services. Performance in the first two domains is described in the following sections, whereas achievements of UWSD in sanitation are presented in Section 8.2.

5.2.1 Key Projects

The regional **Water and Sanitation Development Facilities** (WSDFs) remain the UWSD´s main implementation mechanism for water and sanitation interventions in small towns (STs) and rural growth centres (RGCs).

Support to all four WSDFs is being channelled through the Joint Partnership Fund (JPF), a basket fund within the framework of the Joint Water and Environment Sector Support Programme (JWESSP, 2013-2018). However, only support to WSDF-C will be extended beyond 2016/16 so that three of the four WSDFs (North, East and South-West) are without secured funding as of now. An “Urban Project Development Team” was created and is engaged in preparing proposals, with limited consultancy support to identify potentially interested donors and funding mechanisms.

Complementary interventions were carried out through **stand-alone projects** implemented through MWE:

(i) Lake Victoria Water & Sanitation (LV WATSAN) Project Phase II, since November 2011, was extended to 2018 while the preparation of documentation for LV WATSAN III is in progress.
(ii) Water Management & Development Project (WMDP), from June 2012 to December 2018
(iii) Energy for Rural Transformation (ERT) Phase II, from April 2009 to June 2016, which has been extended to December 2017 for completion of the assignment. ERT III was started to implement schemes that were not realised under ERT II.

Physical performance: Under **WSDF implementation**, 20 new piped water supply and sanitation systems were constructed to completion and technically commissioned during FY 2015/16. Approximately 227,000 people benefitted from the completion of these works, which were designed for a projected population of 406,000 people. As the beneficiaries live partly in gazetted towns and partly in rural areas, this contributes to both urban and rural water supply coverage. Table 5.3 provides a breakdown. Construction is on-going in 17 other WSDF towns[22], and 26 detailed designs were completed during FY 2015/16.

Under the **LVWATSAN** project two schemes (in Ntungamo and Buwama-Kayabwe) were constructed to completion and technically commissioned, serving 42,443 beneficiaries through 32 kiosks and 1314 yard tap connections. The **Water Management Development Programme (WMDP)** completed designing water supply and sanitation systems for 14 towns[23] during FY 2015/16. Construction of 3 systems commenced during the financial year for the towns of Kaboko, Rukungiri and Katwe-Kabatoro. The **Energy for Rural Transformation (ERT II)** Project has completed hybrid extensions in 32 towns (14 in Northern Uganda, 12 in the West Nile Region and 6 in the Eastern and Karamoja Region).

In total 67 water kiosks, 221 institutional connections and 6,954 domestic connections were constructed. The construction of kiosks and public stand posts is the main strategy to serve the poor living in the targeted towns.

Table 5.3 Performance 2015/16 – Development of Piped Water Infrastructure

WSDF / Project		No. of schemes				Population served		Per capita investment (US$)
		Completed in 2015/16		Under construction (July 2016)	Designs completed in 2015/16	current	design	
		achieved	planned					
WSDF-C		3	4	7	6	25,259	40,957	81.2
WSDF-E		4	8	4	9	44,060	75,489	79.6
WSDF-N		8	12	2	3	109,397	227,891	47.2
WSDF-SW		5	10	4	8	47,898	61,736	63.2
LVWATSAN		2				42,443	63,307	91.6
WMDP				3	14			
Total		**22**	**34**	**20**	**40**	**269,057**	**469,380**	**65.5**
of which new schemes:	Urban	312		10		39,774	63,087	66.8
	Rural			10		127,567	245,525	

Details on the names and characteristics of the completed schemes are provided in Annex 8.2.

[22] Katuugo, Kakooge, Ssunga, Buvuma, Kiboga, Migyera, Nyamarunda, Kalongo, Amach, Nyahuka, Kaliiro, Kasagama, Sanga, Nakapiripirit, Kyere, Ocapa, and Kagoma

[23] Koboko, Rukungiri, Katwe-Kabatoro, Busia, Pallisa, Kumi, Ngora, Nyero, Butalejja, Busolwe, Budaka, Kadama, Tirinyi and Kibuku

The number of completed schemes is lower than planned, while 20 schemes – more than planned – are still under construction. Performance was strongly affected by the non-disbursement of JPF funds. All in all, the three WSDFs concerned (WSDF-E, WSDF-N and WSDF-SW) received only 33.1 bn UGX instead of 52.6 bn budgeted, i.e. 63% of the amount budgeted in the annual work plan.

In addition to the schemes under construction, 62 STs/RGCs are ready for implementation. They have detailed designs and tender documents available and approved (or ready for approval) by the DWD Design Review Committee. These construction works are only awaiting disbursement of funds or additional financial commitments to commence construction.

5.2.2 Status and trends of key indicators

Golden Indicator No. 1: Access to an Improved Water Source

The terms access and coverage refer to the percentage of people with access to an improved water source. The golden indicator is *"% of people within 200m of an improved water source*".

Access to an Improved Water Source is estimated at 71% for urban areas. This is less than the value of the previous year (73%), not because of an actual deterioration of service coverage but because of administrative changes and methodological problems that will be discussed below. The absolute number of people served is increasing.

Table 5.3 provides a breakdown of service coverage by large and small towns (small towns being defined as Town Councils and Town Boards) and the total numbers of connections, which were used to estimate coverage town by town. Details on the individual towns are provided in Annex 8.3.

Table 5.4 Details on Golden Indicator No. 1 - Access to an Improved Water Source (Urban)

	Population 2016	Pop. served by piped water	Service coverage (piped water)	% using an improved water source (NPHC 2014)	Towns without piped water	Towns managed by NWSC	Connections PSP/ Kiosk	Connections Total
Large Towns (42)	5,265,900	4,385,168	83%	90%	0	39	7,818	348,877
Small Towns (232)	3,071,000	1,508,175	49%	78%	60	73	2,038	106,103
Total Urban Centres (274)	**8,336,900**	**5,893,343**	**71%**	**86%**	**60**	**112**[24]	9,856	**454,980**

Coverage was calculated based on the numbers of connections in each town (infrastructure based), as in previous years, but using the results of the National Population and Housing Census 2014, which were published during FY 2015/16, for an improved estimate25. For NWSC towns the numbers of connections used are as provided by NWSC. Low coverage in small towns is due to the fact that only piped water was considered. This is in general justified as point water sources in urban areas are often contaminated and usually not at a distance of less than 200 meters.

[24] Gazetted urban areas (TCs and TBs) only; NWSC also supplies a number of RGCs/Sub-counties that are not included in this figure.

[25] Current coverage was estimated as follows, on a town-by-town basis:
1. Assume 6 people served per domestic connection, 200 per public standpost/kiosk and 500 per institutional connection
2. Divide the result by the total population 2016 (UBOS projection according to Statistical Abstract 2015)
3. Compare with the percentage of people using an improved water source as per National Population and Housing Census 2014; if this figure is lower than the coverage calculated from connections, retain this lower value.

Determination of urban coverage remains unreliable and comparisons with previous years are therefore difficult. The main issues are the following:

1. Administrative changes: The number of urban areas, as per UBOS definition, is increasing. This is hence a moving target. New Town Councils often include large areas with a rural character. In these areas rural standards of service deliveries might still be acceptable. On the other hand, some of the larger "small towns" have become municipalities and are now considered as large towns. It is not surprising that coverage in the remaining small towns is therefore decreasing.

2. Urban-rural distinction: Until last year, no distinction was made between urban and rural areas served by NWSC. This led to an overestimation of urban coverage as the connections outside the urban boundaries were also counted as urban. A similar problem existed at the level of WSDF reporting. All people served by new WSDF schemes were considered as contributing to urban coverage, even though many of the schemes actually serve rural growth centres. These problems have now been addressed, but make comparisons with the coverage figures of previous years difficult.

3. Piped water vs. point water sources: Clarity is needed to which extent improved point water sources can be considered as contributing to coverage in urban areas.

4. Distance: For urban areas, the Golden Indicator No. 1 for access is defined as *"% of people within 200m of an improved water source*". In practice this definition was never viable for operational monitoring, as data on distance from an improved water source are not available. Household surveys indicate that access to safe water *within 200 meters* is actually below 50% (see also section 5.1.2).

Comparisons with previous years are problematic for all these reasons. Therefore Table 5.5 needs to be read with caution.

Table 5.5 Trend of access to improved water supply in urban areas - 2011 to 2016

Reporting Period		10/11	11/12	12/13	13/14	14/15	15/16	Comment
NWSC Towns	Total Population (mn)	3.24	3.38	3.84	4.42	4.90	6.64	New UBOS data
	Population served (mn)	2.43	2.61	2.99	3.38	3.72	5.44	*No official figure by NWSC; coverage calculation to be refined in 2016/17
	% Coverage	75%	77%	78%	77%	76%	82%*	
MWE/ DWD Towns	Total Population (mn)	2.38	2.49	2.61	2.23	2.07	1.69	Decreasing population due to handover of towns to NWSC
	Population served (mn)	1.28	1.42	1.52	1.46	1.38	0.45	2015/16: Piped water and gazetted urban areas only. Difficult to compare with previous years (see discussion above).
	% Coverage	54%	57%	58%	65%	67%	27%	Including 60 towns that do not have piped water
Total Urban	Total Population (mn)	5.62	5.87	6.45	6.65	6.97	8.34	New UBOS data
	Population served (mn)	3.71	4.04	4.51	4.84	5.11	5.89	
	% Coverage	66%	69%	70%	73%	73%	71%	

Note: This table is based on "NWSC towns" vs. "MWE/DWD towns" to keep it comparable with the data from previous years. Coverage figures for 2015/16 are therefore somewhat different from the ones in Table 5.4 which was based on "Large Towns" (CC/MC) vs. "Small Towns" (TC/TB). The larger Town Councils that were handed over to NWSC are counted as "NWSC towns" here, but as "Small Towns" in Table 5.4.

Using the number of beneficiaries of new urban schemes completed, it is estimated that urban coverage has increased by approximately 1 percent point in FY 2015/16. The beneficiaries of new urban schemes only (39,774, see Table 5.3) account for 0.5%. In addition to this, a part of the 101,716 urban beneficiaries of major scheme rehabilitations also gained access to safe water through the intervention as the new schemes were expanded to serve more people.

Further efforts will be made during FY 2016/17 to improve the methodology for establishing urban coverage. NWSC is planning to carry out a baseline survey to establish service coverage during 2016/17, including a clear distinction between urban and rural areas served. The information on non-NWSC schemes will become considerably more reliable with the completion of baseline data collection for the new Utility Performance Management and Information System (UPMIS).

Golden Indicator No. 3: per capita investment cost

The golden indicator for per capita cost for urban water supply is "*the average cost per beneficiary of new water and sanitation schemes*".

Per capita costs depend on many factors, including the settlement structure, the topography, availability of water resources, the definition of the supply area, and the type of technology used. The per capita cost indicator can only be analysed in conjunction with the reasons for an increase or reduction in per capita costs, and should never be used as a standalone indicator to assess the effectiveness of planning and construction procedures.

The average per capita investment cost for 18 of the completed 22 towns (figures for the most recently completed towns are not yet available) was **US$ 65.5** in FY 2015/16, compared to US$ 45 for FY 2014/15. The new figure is still well below the target per capita investment cost of US$ 85 (see also Figure 5.2).

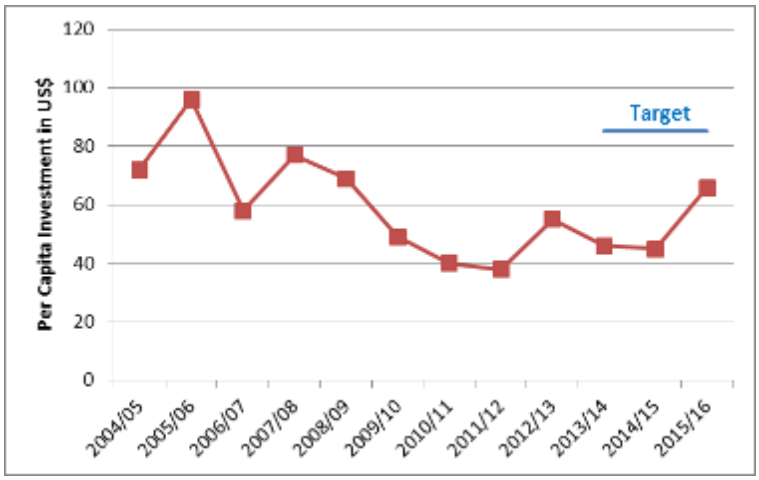


Figure 5.2 Trend in per capita investment costs for STs and RGCs

In the past years, low capita investment costs were partly due to including extensions within the existing scheme capacity in the calculations. This cannot be directly compared with the cost of supplying people through an entirely new scheme. However, in FY 2015/16, the per capita investment cost for new schemes is almost the same (US$66.8) as for all schemes, major rehabilitations/expansions included (US$65.5).

The calculation of per capita costs needs to be further refined. Difficulties arise from the need to include costs that are not related to the main construction contracts[26]. These are sometimes difficult to define and separate from the other projects implemented by the same WSDF.

Golden Indicator No. 9: Management

The golden indicator for management for urban water supply is *"% of water points with actively functioning Water and Sanitation Boards*". The underlying data could not be updated for FY 2015/16 as there is no regular reporting mechanism on the level of activity of Water Boards. The indicator can be assumed to be improving due to the ongoing efforts of WSDFs and Umbrella Organisations to form and train Water Boards for both new and existing schemes. Reliable data will become available in FY 2016/17 as a comprehensive baseline survey for UPMIS is currently being carried out.

Golden indicator No. 10: Gender Mainstreaming

The golden indicator reflects the participation of women in water management. For urban water supply it is defined as "% of Water Boards with women holding key positions". In 2015/16 data on the composition of Water Boards were available for 69 urban non-NWSC piped water schemes. Of these **67%** (46) had at least one woman in a key position. This is the same percentage as in 2014/15. WSDFs and Umbrella Organisations continue to advocate for a gender-balanced composition whenever new Water Boards are formed or existing ones are revitalised or retrained.

5.2.3 Support to Utility Management

The Urban Water Supply and Sewerage Department, through its Support to Utility Management Division, supports the provision of piped water and sanitation services outside the jurisdiction of NWSC. This support is not limited to gazetted urban areas, but also includes piped water schemes in rural growth centres. The six Umbrella Organizations[27] are the "extended arm" of the Division for providing this support on a regional basis.

Umbrella Organisations provide O&M support to the local Water Authorities, Water Boards and scheme operators. Formally, the water supply and sanitation infrastructure is handed over to Local Governments to "hold assets in trust" and manage the operation and maintenance of the scheme. In reality, the local technical, managerial and financial capacities are not sufficient, in most cases, to ensure effective asset management, sufficient revenue collection and sustainable service delivery. This is where the Umbrella Organisations step in. They provide technical advice and support, help to restore functionality in emergency situations, help to plan and implement scheme extensions, provide training to local Water Boards, promote preventive maintenance and payment for water services (water metering), conduct advisory financial audits, and monitor drinking water quality through regular sampling. UOs also help overcoming financial constraints by providing expensive equipment (such as pumps and generators) on credit, running credit & savings schemes for their members or channelling earmarked government subsidies (conditional grants) for infrastructure investments. UOs provide their services free of charge, using public GoU and JPF funding, but do not subsidise the direct costs of day-to-day O&M, which are financed by the schemes' locally collected revenue.

In the future, Umbrellas will also take on O&M tasks in **faecal sludge management**. This is currently being piloted by the Central Umbrella.

[26] Examples of costs that are not easily attributable include mobilisation or other contracts that cover several schemes, in-house work done by WSDF staff and separate contracts for toilet construction.

[27] Central Umbrella for Water and Sanitation (cUws), based in Wakiso; Mid-Western Umbrella (mwUws), based in Kyenjojo; South Western Umbrella (swUws), based in Kabale; Northern Umbrella (nUws), based in Lira; Eastern Umbrella (eUws), based in Mbale; and Karamoja Umbrella (kUws), based in Moroto.

Towards the end of FY 2015/16, all permanent Umbrella staff were appointed as **government staff**. Umbrella Organisations are thus becoming similar deconcentrated government units as the WSDFs. However, the existing bottom-up elements of Umbrella Organisations with their elected statutory bodies (General Assembly, Executive Committee) will also continue to exist as associations, acting as a regional Board or Steering Committee. Details are still to be worked out.

The role of **private operators** has significantly decreased with the transfer of many of the larger towns[28] to NWSC. Currently, there are about 50 small piped water schemes operated by Private Operators (about 15 different companies), of which 36 are serving gazetted urban areas.

For the very small schemes, the Umbrellas are promoting a "Scheme Operator" model, which aims at introducing good maintenance and commercial practices under the responsibly of a locally recruited and trained individual with backup support by the Umbrellas.

Recently, alternative utility management models are being considered in the context of the ongoing Reorganisation Study[29], which also looked into options for the management of the small pipe water schemes. Emerging stakeholder consensus favours gradual institutional changes, with further strengthening of the Umbrellas' role in utility management.

5.2.4 O&M Challenges and Resource Limitations

Currently, the six Umbrella Organisations are supporting **464 piped water schemes**, plus 73 designated member schemes that are still under construction or design[30]. This number continues to increase as Umbrellas were instructed to extend their services to all schemes in their area of intervention. However, the transport, financial and human resources of Umbrellas will have to be strengthened significantly to make this support realistic in practice. At present, there are 943 known piped water schemes that are not managed by NWSC, and every year more than 20 schemes are added to this number by new construction[31]. Many of the existing schemes are ageing and functionality problems increase as system components reach the end of their design life. Many of the rural schemes are not yet metered and do not have adequate management structures and revenue collection, even though the rural sub-sector is now promoting the same management arrangements as for small towns.

These challenges cannot be met by the Umbrellas with their **current resources**. A typical UO has 6 to 7 professional staff, one single vehicle to be shared, and funding of approximately 50 million UGX per month (14,500 USD, GoU and donor funding combined). This includes the UO's owns operational costs (salaries, transport etc.) as well as the funds available to support the 100+ piped schemes in their area of intervention. A significant capital maintenance and infrastructure renewal fund would be needed to maintain the long-term functionality of existing piped water schemes.

During FY 2015/16, **Undertaking No. 6** was instituted to improve the sustainability of small piped water supply schemes by a combination of improvements in the areas of financial management / revenue collection, scheme management ("Improved Scheme Operator Model"), preventive maintenance and monitoring. The Utility Performance Monitoring and Information System (UPMIS),

[28] In total, over 100 towns were transferred during the last three years, including new small town schemes that were directly gazetted for management by NWSC.

[29] Reorganisation of Water Supply and Sewerage Service Areas in the Urban Water and Sanitation Sub-Sector in Uganda, Discussion Paper – Phase 1, June 2016.

[30] Umbrella Organizations are involved by the WSDFs right from the design and implementation phase of new water supply systems, in order to ensure building of adequate O&M structures from the beginning.

[31] This includes schemes constructed under the Rural Water and Sanitation Department, which is increasingly developing piped water systems, including large systems covering several administrative areas.

to become operational during FY 2016/17, is expected to become a key tool for better planning, decision making and monitoring.

Even with the expected improvements of revenue collection, including the planned introduction of non-cash payment, small piped water schemes will continue to need financial support. The socially acceptable tariffs cover day-to-day O&M and minor repairs only, but not major asset replacements or refurbishments. User tariffs were never meant to cover asset depreciation. In this context the Directorate of Water Development considers setting up a dedicated **revolving facility** to finance much-needed investments in existing schemes, such as asset renewal, metering of unmetered schemes, major repairs that cannot be paid from user fees, scheme extensions, and investments to improve water source protection.

Currently, the main source of funding of Umbrellas for scheme improvements are the O&M Conditional Grants, which amounted to UGX 360 million to UGX 390 million per Umbrella (except Karamoja: 220 million) for FY 2015/16. 100% of the released funds was spent but no substantial investments can be made from these funds.

The demand for financial support is increasing as many of the larger, commercially more viable systems were transferred to NWSC whereas the newly recruited schemes (often constructed by local government or by NGOs many years ago) require urgent investments to bring them up to standards (e.g. metering, fixing of problems due to deferred maintenance, source protection).

5.2.5 Performance of Umbrella Organisation 2015/16

Of the existing 464 Umbrella schemes, 434 (94%) were functional at the time of reporting. The only functionality rates below 90% are found in the North and in Karamoja, where a significant number of schemes (mostly former Internally Displaced People schemes) have been vandalised. Rehabilitating these non-functional schemes is beyond the capacity of the Umbrella Organisations.

However, many of the functional schemes – that is, schemes where water is flowing – suffer from functionality problems such insufficient water quantity, frequent breakdowns, management issues or – less frequently – water quality issues. Fixing these issues would often require investments that are beyond the current Umbrella capacities.

Table 5.6: Overview of Performance of Umbrella Organisations in FY 2015/16

	All Umbrellas	Central	Eastern	Karamoja	Mid-Western	Northern	South-Western	Comments
Total no. of operational member schemes	**434**	97	94	33	69	100	71	Up from 380 schemes in 2014/15
% functional schemes	**94%**	99%	98%	85%	97%	80%	100%	NUWS has taken care of additional 10 non-functional schemes during FY 2015/16
No. of non-functional schemes repaired	**66**	14	1	2	16	18	15	Major repairs, replace-ment of components
Total amount of credits granted [m UGX]	**87.5**	44	n/a	n/a	10.5	32	1	Decrease from 193m UGX in FY2014/15 due to insufficient funds to respond to the demand
Backstopping /supervision visits	**63%**	90%	30%	80%	44%	100%	35%	Average % of schemes visited per quarter

	All Umbrellas	Central	Eastern	Karamoja	Mid-Western	Northern	South-Western	Comments
Water quality monitoring coverage	**62%**	80%	40%	70%	35%	70%	76%	Average % of schemes sampled per quarter
No. of WSSBs trained	**192**	57	75	22	13	18	7	
No. of advisory financial management audits	**149**	12	13	0	66	32	26	
Network extensions constructed [km]	**67**	20.7	5	0	11.3	9	21	
No. of water meters provided	**2,333**	809	410	0	403	570	141	
Volume of Faecal Sludge emptied and deposited (m^3)	**80**	80	n/a	n/a	n/a	n/a	n/a	Cesspool emptier only operating in Central region

Source: Quarterly performance reports submitted by Umbrella Organisations, summarised in JWESSP progress reports.

5.2.6 Water Source Protection

WSDFs made good progress towards implementation of the DWRM Framework and Guideline for Water Source Protection (2013). All respective WSDF activities were implemented in conjunction with the Water Management Zone team in the area. Water Source Protection has been implemented in all the 22 water supply systems completed in 2015/16 through advocacy, sensitization, tree planting, and restriction of activities at water sources. Water safety plans were developed for 12 towns, to be implemented as pilots with support from the Umbrella Organisations.

Within the inner Water Protection Zone 1, the land is acquired and fenced off to ensure the highest level of protection by excluding all human and animal activities within. A minimum size of 50x50 metres was adopted as a rule for all schemes. Following a participatory approach trees and green cover was planted and communities were trained on the importance and benefits of water source protection.

The status of water source protection for existing schemes is being established during the baseline data collection for the new UPMIS system, and will be continuously monitored through this system in the future.

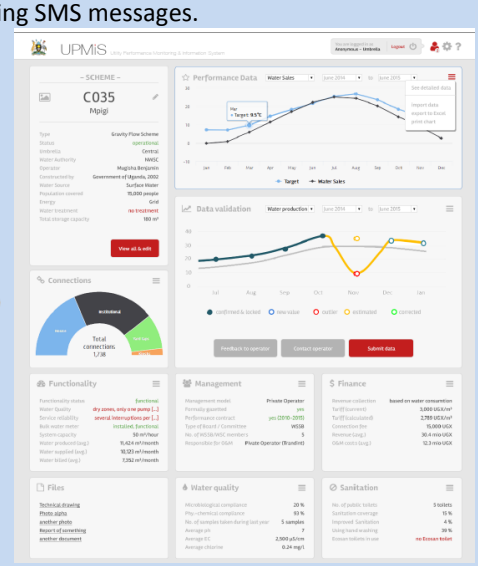
5.2.7 Challenges

The key challenges of the Urban Water sub-sector are currently related to funding, both to finance the investments that are needed to achieve the ambitious urban water goals (100% coverage) and to ensure an adequate investment level in existing piped water systems. A discussion on how to address the funding to reach the NDP II and Sustainable Development Goals, and maintain the existing water supplies for the urban population, is discussed in the last chapter of this Sector Performance Report, where critical issues that require sector dialogue are discussed.

Box 5.1 Utility Performance Monitoring and Information System (UPMIS)

UPMiS Development of the web-based Utility Performance Monitoring & Information System (UPMIS) was near completion at the end of FY 2015/16, and will be introduced gradually during 2016/17 after a phase of piloting and user training. The system will hold information on functionality, management, the financial situation, key assets, water sources and drinking water quality data for each of Uganda's small piped water systems, plus monthly performance data to be submitted by the scheme operators. Key information on sanitation in each town is also included. Those who do not have a computer or internet access will be able to upload key data by sending SMS messages.

SMS data entry



The system responds at the same time to the needs of O&M support – to be used by Umbrella Organisations in day-to-day support operations – and of the Water Utility Regulation Department, where it will replace the current paper-based reporting system. If fully adopted by the stakeholders, it will create a better basis for regulation (benchmarking, compliance monitoring) as well as for technical, managerial and financial support, investment planning and asset management.

UPMIS was developed based on Open Source software and involving Ugandan programmers to ensure that it can be maintained and further developed in the future. The existing monthly performance information was already uploaded to the new database, and the Umbrellas are making good progress in establishing the baseline for all schemes in their area of intervention.

5.3 Water Supply in Towns Managed by National Water and Sewerage Corporation

The NWSC services have expanded/increased from 110 town Areas as at 30th June 2015 to 170 town Areas[32] as at 30th June 2016, which is an addition of 60 Areas. This translates into a target population within the municipal boundaries of approximately 7.6 million people, as compared to 6.0 million the previous financial year (UBOS population survey for 2014). The increase in geographical coverage and the stretch beyond the municipal boundaries requires effective planning, management and control. As a result, the NWSC is in the process of hiring a consultant to carry out a baseline survey to establish the effect of increased geographical coverage on the overall service coverage.

5.3.1 NWSC Tariff Structure

NWSC implements a uniform tariff structure across all its towns to ensure equity in pricing. Table 5.7 shows the NWSC tariff implemented for the various consumer categories during the financial year

[32] NWSC supplies 112 gazetted urban areas (TCs and TBs) and in addition also supplies a number of RGCs/Sub-counties.

2015/16. However, the tariff structure depicts a subsidy across the different towns and the various consumer categories in the NWSC towns or areas.

Table 5.7 NWSC Tariff Structure FY 2015/16 (Without VAT)

Customer Category	Water Tariff 2013/14	Water Tariff 2014/15	Water Tariff 2015/16	Tariff per 20 Litre Jerrycan 2015/16	Sewerage Tariff* 2014/15	Sewerage Tariff 2015/16
			[UGX/m3]			
Public Standpipe	1,236	1,323	**1,533**	**30.7**	n/a	**n/a**
Domestic	1,912	2,046	**2,490**	**49.8**	1,535	**1,743**
Institutions / Government	2,353	2,518	**3,065**	**61.3**	2,518	**3,065**
Commercial <500 m^3/month	2,887	3,089	**3,760**	**75.2**	3,089	**3,760**
Commercial >500-1500 m^3/month	2,887	3,089	**3,760**	**75.2**	3,089	**3,760**
Commercial >1500 m^3/month	2,307	2,468	**3,005**	**60.1**	2,468	**3,005**
Average Commercial	2,462	2,634	**3,508**	**70.2**	-	
Average Water Tariff	2,115	2,263	**2,668**	**53.4**	-	
Sewer tariff is 75% of the water tariff for domestic use and 100% of the water tariff for other categories of customers. Sewerage is not billed in isolation; it is based on volume of water consumed.						

Figure 5.3 shows the trend in tariff of water provided by NWSC over the last 3 years. The tariff increased on average by **18%**, whereas the average commercial tariff increased by 33%, and the tariff for a public standpipe by 16%.

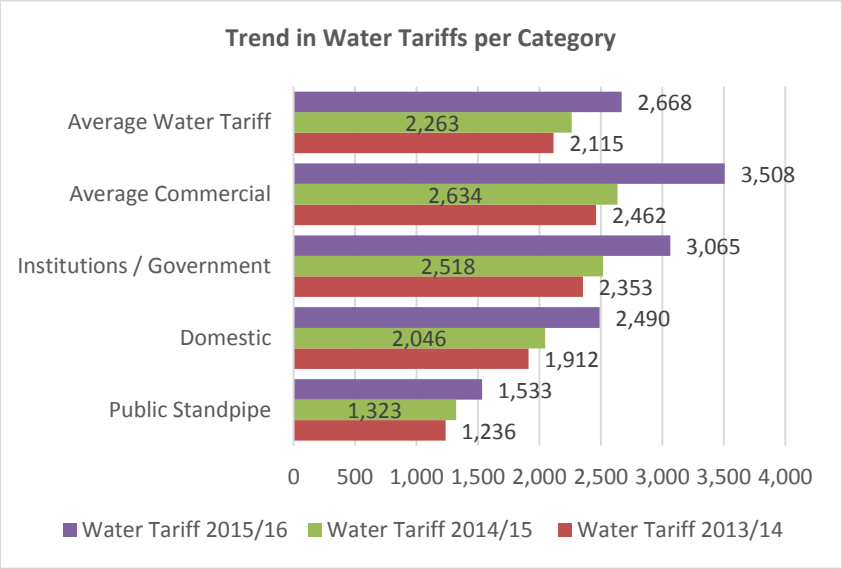


Figure 5.3 Trend in NWSC water tariff per category over the last three financial years

5.3.2 Unit costs of production for FY 2015/16

The unit cost of production increased by **4%**, from UGX 1,820 in June 2015 to UGX 1,887 per m^3 as at June 2016. The increase in per unit cost is mainly attributed to the high cost of operation in some of the new towns taken over during 2015/16FY and the then prevailing macroeconomic situation such as inflation and depreciation of the UGX which increased the costs of mechanical –electrical equipment, power, chemicals and other operational costs.

5.3.3 NWSC Internal Strategies

During the financial year 2015/16, the management of the NWSC implemented various strategic activities aimed at improving the Corporation's performance, including amongst others:

i. **Infrastructure Service Delivery Programme (ISDP)**: During the period July 2015-June 2016, the Corporation continued with the extension of water and sewer mains under ISDP in which it planned to lay **846.2 Km** of water mains and **26.7 Km** of sewer mains. As at 30th June 2016, **887.6 Km** of water mains and **18.46 Km** of sewer mains had been laid translating into an achievement of **105%** and **69%** of the annual water and sewer mains target respectively.

ii. **Water Loss Prevention Program (WALOP)**: This aims at curbing the growing water losses through enhanced monitoring and partnership with different stakeholders including the communities and the Police. During the period July 2015-June 2016, significant progress was realised in apprehending illegal users, and a number of culprits were tried in courts of law. Similar programmes were implemented in other Areas such as Jinja which has registered tremendous achievements in form of reduction of NRW from **39.9%** (June 2015) to **28%** (July 2016). As a result of these initiatives, there has been a marked improvement in billings and collections registered during the period.

iii. **Pro-poor Interventions:** The NWSC has undertaken several pro-poor initiatives aimed at improving the lives of people living in urban settlements. Some of the initiatives include; construction of Public Stand Posts (PSPs)/ Kiosks, installation of pre-paid meter systems and yard taps, and toilet construction whose tariff are affordable. During the review period, a total of **1,093 PSPs** were installed which accounts for **121%** of the annual target of **900 PSPs**. The total number of PSPs as at 30th June 2016 was **10,841**.

5.3.4 Projects implemented by NWSC

The following section gives the status of development projects implemented by the NWSC (as of 30th June 2016):

i. **Lake Victoria Protection Project Stage 2 (LVP2): Nakivubo Waste Water Treatment Plant**. The project is part of the Kampala Sanitation Programme. It consists of inlet pump station, screens & Aerated grit chambers, primary sedimentation tank, aerated trickling filter unit, clarifiers, sludge storage tank, digesters, biogas holding tanks, bio-filters, and all the associated fittings and electro-mechanicals. As at June 2016, Laboratory, Ablution Block, Canteen Buildings and Workshop Building were at roof level while Temporary container storage area and workshop yard was completed.

ii. **Lake Victoria Protection Project Stage 2: Nakivubo and Kinawataka Sewer project.** The Sewers Project is part of the LVP2, it involves laying trunk sewer line of length 11km in central business district of Kampala and trunk sewer line of length 13km in the eastern parts of Kampala. The project includes construction of feeders to trunk sewer of total length 5.8km. By 30th June 2016, **10.3km** out of 30.1kmof Sewer mains had been laid. Additionally Compaction testing, Closed-Circuit Television (CCTV) sewer inspections, sewer leakage tests and manhole exfiltration tests were conducted in various sections where pipe laying has been done.

iii. **Lake Victoria Protection Project Stage 2: Kinawataka Lifting Station and Pumping Mains.** The Kinawataka Lifting Station and Conveyance Mains project is part of LVP2, the scope involves a Pre-treatment and Pumping Station as well as Pumping Mains from Kinawataka Sewerage System to Nakivubo Sewerage System. As at 30th June 2016, both AfDB and Contracts Committee approvals for procurement of Pre-treatment Plant were secured.

iv. **Kampala Water Lake Victoria WatSan Project: Rehabilitation of Gaba I & II treatment Plants and New Transmission Mains from Gaba to Namasuba (Packages 1 & 3).** The key project objectives include improving water supply reliability through rehabilitation of Gaba I & II

treatment works, restructuring of the Kampala water distribution network, construction of a new treatment plant, construction of satellite reservoirs, and non-revenue water reduction. As at 30th June 2016, Water tightness testing for Namasuba tanks 1 & 2 was complete, internal water proofing for Namasuba tank 4 was completed. At the same time, pressure tests for the 9.6km DI 700mm Gaba-Namasuba transmission mains were in progress.

v. **New Soroti Intake Project,** this project was developed to replace the old intake for Soroti Water supply system that was washed away by floods in 2010. Construction of Intake Structure is 40% complete, the delay was due to the need to re-do tunnelling for the inlet pipe while Earthworks related to the access road were commenced.

vi. **Water Management and Development Project (WMDP),** the project entails infrastructure development in **Arua, Bushenyi, Mbale** and **Gulu towns**. A considerable distance of both sewer and water network was extended by the end of the financial year 2015/16.

vii. **Buloba Water Supply Project,** the project aims at extending and improving water supply to Buloba and the neighbouring areas. As of June 2016, monitoring system performance was complete and there were no defects observed.

viii. **Kapeeka Water Supply Project** The project is aimed at developing new water supply system for Kapeeka town. Construction of the water system is in progress.

ix. **Package Sewage Treatment Plants for Fort Portal & Kisoro Towns:** The project is aimed at addressing wastewater disposal challenges in towns of Kisoro and Fort Portal. Procurement of contracts for supply and installation of the treatment is still on-going.

5.3.5 Financial Performance

The NWSC's total turn-over for FY 2015/2016 was UGX bn **276.1**, less operating expenditure of UGX bn **215.8** resulting in an operating profit before depreciation of UGX bn **60.2** (which is higher than the UGX 33.5 billion for 2014/15FY).

The profit will be ploughed back in form of investment projects, extending/improving the pipe network and electromechanical equipment etc.

5.3.6 NWSC Performance based on the Key Performance Contract 2015/2016 indicators

During 2015/16FY, the NWSC achieved most of the key performance targets set by the government under the performance contract PC5 save for the relative operating cost and the sewerage standard compliance that were still below the set targets. Comparing the performance against the target in Table 5.8 below brings out the picture clearly.

Table 5.8 NWSC's Performance against targets for PC5 - 2015/2016

#	Key Performance Indicator	Weight %	2015/16 Target	2015/16 Actual	% Performance
Te. TECHNICAL					
Te.01	**Non-Revenue Water (%)**	**20%**			
	Kampala Water	**10%**	33.00%	31.79%	**104%**
	Central Region	**4%**	33.10%	22.00%	**134%**
	Northern & Eastern Region	**3%**	23.00%	18.66%	**119%**
	Western & South-western Region	**3%**	22.00%	21.97%	**100%**
Te.02	System Input Metering Coverage (%)	**5%**	64%	70%	**109%**
Te.03	New Water Connections (No.)	**5%**	28,000	38,836	**139%**
Te.04	New Sewerage Connections (No.)	**5%**	250	388	**155%**
Te.05	Capex Budget Implemented (%)	**5%**	80%	150%	**188%**
Co. COMMERCIAL					
Co.01	Water Sales Volume Growth (m3 million)	**15%**	65.5	74	**113%**
Co.02	Collection/Billing Ratio (%)	**10%**	95%	97%	**102%**
Co.03	Average Days Receivables (days)	**5%**	85	78	**109%**

#	Key Performance Indicator	Weight %	2015/16 Target	2015/16 Actual	% Performance
Fi. FINANCIAL					
Fi.01	Return On Capital Employed (%)	**5%**	1.0%	3.0%	**300%**
Fi.02	Operating Cost/Revenue (Work Ratio) (%)	**4%**	85.0%	78.2%	**92%**
Qu. QUALITY OF SERVICE AND ENVIRONMENT					
Qu.01	Compliance to Drinking Water Standards (%)	**4%**	98.0%	98.2%	**100%**
Qu.02	Compliance to Sewerage Standards (%)	**4%**	50.0%	45.3%	**91%**
Pp.01 PRO-POOR ORIENTATION					
Pp.01	Pro-Poor Connections Growth	**5%**	500	1,129	**226%**
Tg. TRANSPARANCE AND GOVERNANCE					
Tg.01	Audit Recommendations implemented (%)	**4%**	80.0%	91.5%	**114%**
Cu. CUSTOMER FOCUS AND CARE					
Cu.01	Customer Satisfaction Index (%)	**4%**	70.0%	88.0%	**126%**

5.3.7 Status of Water Connections and Extensions

As at 30th June 2016, the total NWSC customer base was **472,193** customers of which 91% were active connections.

Table 5.10 sets out the comparative connection status per financial year since FY 2013/2014.

Table 5.9 Tracking the status of total water connections (2013/14 - 2015/16)

Financial Year	2013/14	2014/15	2015/2016
Total No of Accounts	366,330	418,031	472,193
Number of Active Accounts	326,381	372,189	427,795
Number of Inactive Accounts	39,949	45,842	44,398
Percentage Inactive	10.9%	11%	9%
Number of Metered Accounts	364,637	416,380	470,240
Meter Coverage (%)	99.5	99.6	99.6

Table 5.10 NWSC New Water Connections (FY2013/14 - FY2015/16)

Financial Year	FY 2013/14	FY 2014/15	FY 2015/16
Kampala	15,324	14,982	18,951
Central Region	6,132	7,630	8,253
Northern	3,315	5,026	4,796
Western	3,297	6,344	6,836

During the FY2015/16, the average number of new connections was 3,236 per month totalling to 38,836 over the financial year. This reflects a percentage annual increase of 14.3% from 2014/15FY monthly average of 2,832 new connections.

In line with the planned mains extensions, 887.6km were extended during the FY 2015/2016 against the annual target of 846.2km. Compared to 1,448 km extended in the previous financial year which represents decline of 39%. The decline is attributed to the late release of funds from government and other development partners which slowed down project implementation including network expansion.

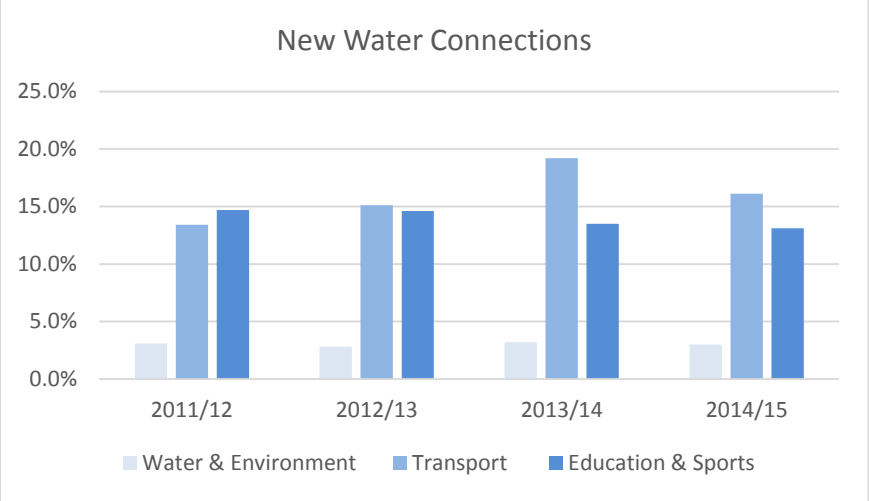


Figure 5.4 Trend in number of new water connections over the last three years for each Region

5.3.8 Cross-cutting Issues

Gender in Staffing

The Corporation gives due credence to gender issues when recruiting staff. By the end of the FY2015/16, the Corporation had seven Directorates, and four of these were headed by Ladies. Overall, 28% of staff in the Corporation are female, the same as last year. In summary, as at the end of June 2016, NWSC had total staff of 2,860 across all its areas of jurisdiction.

Pro-poor activities and outcomes in Small and Large Towns

The NWSC undertakes pro-poor strategies aimed at improving the lives of the people living in informal settlements in the urban areas served by NWSC. One way of reaching out to such people is through installation of public stand posts (PSPs) with a subsidized and affordable tariff.

In the previous financial year, NWSC installed 1,129 pro-poor connections in form of public standpipes. The trend for pro-poor connections was increasing because of NWSC's ongoing efforts to improve the livelihood of the poor in larger operational areas. The project is aimed at addressing the sanitation challenges of the urban poor residing in the informal settlements of Kampala and other urban centers of Uganda. The trend in number and status of PSPs/kiosks per area is shown in Figure 5.5.

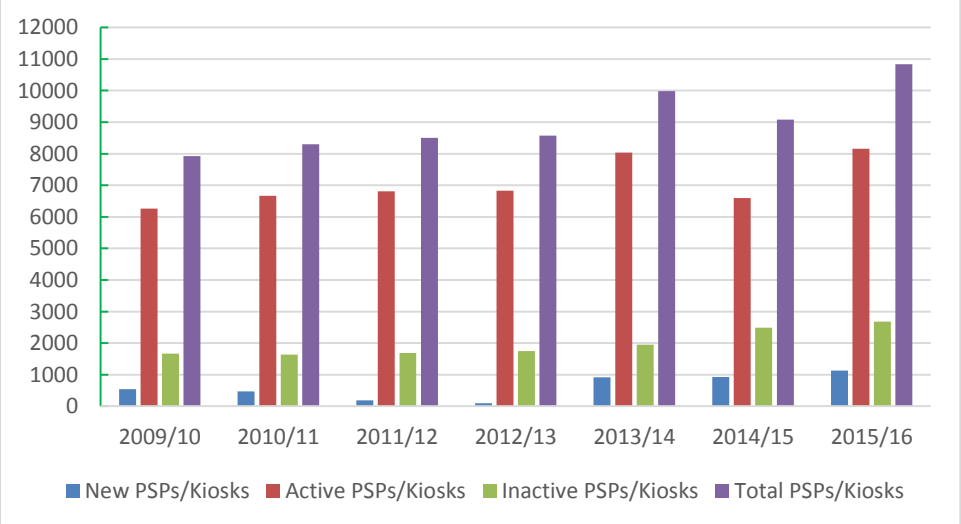


Figure 5.5 Trend in status of PSPs/kiosks between FY 2009/10 and FY2015/16

5.3.9 Status and Trends of Golden Indicators

Golden Indicator No 1: Access to safe water

The terms access and coverage refer to the percentage of people with access to an improved water source. The golden indicator is *"% of people within 200m of an improved water source"*.

Currently, National Water and Sewerage Corporation is serving 170 supply areas and is in the process of engaging a consultant to carry out a baseline survey on NWSC coverage and also redefining the boundaries to include and gazette all areas served by Corporation.

Table 5.11 Trend in access to water in Areas supplied by NWSC

Financial Year	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Target Population	3,108,339	3,239,370	3,377,240	3,838,004	4,439,084	6,068,473	7,697,392
Population Served	2,285,193	2,426,502	2,614,090	2,986,773	3,382,050	4,636,750	Not determined
% access to safe water, i.e. (% Population Served)	73.50%	74.90%	77.40%	77.80%	76.19%	76.40%	Not determined
Number of Service Areas	20	20	20	28	66	110	170

Table 5.12 summarises the NWSC operational and financial performance relating to increased coverage between FY2009/10 and FY2015/16.

Table 5.12 NWSC Targets and achievements for urban water supply and sanitation FY2009/10-2015/16

Financial Year	09/10	10/11	11/12	12/13	13/14	14/15	15/16	Target 2015/16	Variance 2015/16
Service Coverage	74	75	76	78	77	76	-	79	-
New Connections (number)	22,412	23,992	23,313	21,637	28,068	33982	38,836	35,000	3,836
Total Connections (number)	246,259	272,160	296,206	317,292	368,313	417,938	472,193	457,938	14,255
Meter Coverage	99.0	99.0	99.7	99.9	99.5	99.9	99.6	100	(0.4)
Mains Extensions	144.8	161.7	102.2	85.8	470.3	1448	887.6	846.20	41.4
Water Production (m3 millions)	72.15	74.53	81.60	87.30	94.00	99.6	106	104.62	1.38
Non-Revenue	34.8	33.8	32.8	33.6	33.7	31.2	28	29.7	(1.7)
NRW (%) Kampala	39.4	39.2	38.5	38.0	37.0	33.3	31.8	32.30	(0.5)
NRW (%) Rest	18.3	16.7	16.7	23.0	26.2	26.9	21.2	25.00	(3.8)
Staff per 1,000	6	6	6	6	5	6	6	6	6
Turnover UGX	111.1	133.9	154.7	170.4	183.4	211.8	276.06	285.0	(8.94)
Collections / Billing Ratio(%)	100.2	99.0	95.0	96.0	96.0	105	97%	103%	(6%)

Golden Indicator Number 5: Water quality – drinking water

The golden indicator for monitoring drinking water quality is defined as "*the percentage of water samples taken at the point of water collection that comply with National Standards for Drinking (Potable) Water (2008)*". During the financial year ending 30th June 2016, **99.4%** of the water samples from all NWSC towns/areas complied with the national standards for potable water with regard to bacteriological quality, exceeding the WHO standard of 97%. On average, the overall compliance of both physio-chemical and bacteriological parameters to the national standards was 98.2%, meeting the national target (98%) as per the new performance contract with Government (see Table 5.13).

Golden Indicator Number 5: Water quality – waste water

The golden indicator for monitoring waste water quality is defined as "*the percentage of water samples taken at the waste water discharge point that comply with (Waste) Effluent Discharge Standards (1999)*".

With regard to wastewater, while continuous improvements have been achieved through better maintenance of the wastewater systems, the compliance of wastewater was **45.3%**, falling below the target of 50%. There is therefore need for better effluent compliance and a number of strategies will be implemented in the current financial year to improve performance; routine de-sludging of ponds and random sampling of trucks will be done to minimize hazardous wastes dumping at stabilization ponds, among others.

Table 5.13 Water and Sewerage Quality Performance as at June 2016

Water Quality	Calculated as	Indicator	Actual Performance
Drinking water quality			
Compliance with National Standards for Drinking (potable) water 2008	No. of samples passing national standards / total samples tested) x 100	Bacteriological Quality (%)	99.4
		Colour (%)	93.2
		Turbidity (%)	98.0
		Chlorine residual (%)	95.2
		PH (%)	100.0
		Electrical Conductivity (%)	100.0
		Alkalinity: Total (%)	100.0
		Hardness: Total (%)	100.0
		Average (%)	98.2
Quality of Waste Water Effluent			
Compliance with all 54 effluent discharge Parameters	No. of samples passing National Effluent Discharge Standards / total samples tested) x100	BOD (%)	45.9
		Total Suspended Solids (%)	44.7
		Average (%)	45.3

A number of strategies were implemented that improved the quality of drinking water in the NWSC towns. These included: installation of chlorine dozers in all Areas, use of a newly developed chlorine chart readers for all Areas to ensure sufficient chlorine dosing on the network, adequate quality control and monitoring, adherence to O&M regimes, and training of the relevant staff.

The challenges faced include:

- Inadequate funding for sewerage and sewage treatment.
- Encroachment on wastewater treatment plants in most parts of the NWSC areas.
- Storm water flows into sewers and stabilisation ponds negatively impacting on treatment efficiency.
- Illegal dumping of industrial effluents (with heavy metals and chemical pollutants) into sewers and treatment plants.
- Vandalism of sewer components, like manhole covers, allowing in storm water.

To address the above challenges, NWSC has made budgetary provisions for restoration of wetlands to filter the sewage effluents, and to sensitise local leaders and industrialists on the effects of illegal dumping of untreated industrial effluents into sewers, treatment plants and wetlands.

5.3.10 NWSC Challenges

The following were the challenges encountered during the FY2015/16:

Accumulation of arrears in accounts receivable: Table 5.14 reflects the arrears status as at 30th June 2016 indicating 18.8% increase in arrears from UGX bn 53.2 in FY 2014/2015, to UGX bn 63.2 in 2015/16FY. Despite efforts to pay, the government arrears are still high due to inadequate budgetary provisions. This high level of arrears has resulted into substantial revenue losses to the Corporation affecting NWSC's operations through reduced cash flow. Remedial measures include the deployment of pre-paid meters for slow-paying customers most especially institutional and government accounts.

Table 5.14 Accounts receivable in UGX (billions) FY2014/2015 and FY2015/2016

Indicator	2014/15	2015/2016
Arrears absolute (GoU)	22.3	24.1
Arrears absolute (Non GoU)	30.975	39.2
Average Receivables	2.8	2.6
Average Receivables (Gov't)	10.86	8.9
Average Receivables (Net	1.8	1.7
Absolute arrears (Overall)	53.5	63.3

Non-Revenue Water (NRW)

The corporation is still faced with high levels of NRW currently at **28%**. This is attributed to old/aged network (especially in Kampala), high rates of water theft, illegal connections, and bursts and leakages mainly due to construction works along the pipe network. The current network is also under pressure from increasing urbanization and high population.

Dry zones

The dry zones are still a challenge in most areas especially in Kampala where pressure problems continue to manifest themselves as a result of the hilly terrain and an aged pipe infrastructure. The areas most affected include Kawempe-Mbogo, Mpererwe, Kira-Namugongo, and Namugongo-Kyaliwajara, some parts of Lubowa on Entebbe road, Kajjansi, and Matugga, among others. The dry zones are mainly caused by low pressure caused by the old and poor network system and the geographical topographical challenges of areas at high altitudes. It is envisaged that the problem will be managed better after the completion of the Kampala Water Lake Victoria WATSAN Project and continuous management effort through implementation of the Water Supply Stabilisation Programme under the ISDP.

Infrastructural limitations

The ever increasing demand for water required by the fast growing construction industry creates a need for extensions beyond the NWSC's mandated service boundaries. Whereas this demand presents the NWSC with an opportunity to grow business, the existing infrastructure cannot adequately support it.

Human and climate change factors

In western Uganda, rains have affected the NWSC water sources in some towns such as Kasese, Gulu and Mbarara due to flooding, drying up of rivers as well as dams. Human factors are also due to higher population growth that has led to the encroachment on the catchment areas.

Unreliable and Intermittent Power supply that affected water production and supply in some Areas. This also increases operational costs especially in cases where the corporation is forced to use alternative energy sources.

Inadequate Infrastructure to meet the increasing demand. The rising demand for water supply is as a result of the growing construction industry and increased urban population. Whereas this demand presents an opportunity to grow our business, the existing infrastructure cannot adequately support it. This coupled with poor urban planning in some towns has complicated the operations of the Corporation.

5.3.11 Way Forward

In line with the NWSC Strategic Direction 2013–2018 and Corporate Plan 2015-2018, the Corporation is to focus on the following key areas, in line with the 4 Strategic Priority Areas (SPAs) described in the Corporate Plan 2015-2018.

Infrastructure Growth: The focus will be infrastructural growth, posterity of existing assets, efficiency in the management of the NWSC processes, and expansion in water and sewerage service delivery. In line with infrastructure growth, the corporation will focus on the following undertakings:

- **Intensification of water and sewer mains extensions under the infrastructure Service Delivery Programme (ISDP),** mainly in the new towns. In addition, in order to strengthen water production and supply, the Corporation shall fast-track the implementation of the Water Supply Stabilisation Programme (WSSP) with emphasis on the upstream quick win infrastructure interventions to meet the growing demand in water and sewerage services.
- **Project Implementation**: Focus will be on fast-tracking implementation of Kampala Sanitation Project (KSP), Kampala Water Lake Victoria WatSan Project (KW WatSan), and Uganda Water Management Development Bank (Arua, Mbale, Bushenyi and Gulu), funded by World Bank. For internally financed projects, focus will be on:
  (i) **Kanyanya project**, which aims at stabilizing water supply along Gayaza road and the surrounding areas through construction of a 1 million reservoir tank. The project was successfully commissioned by the Minister of Water and Environment.
  (ii) **Naguru Project** to enhance water supply to the Naguru reservoir and thereby ensuring adequate and sufficient water supply to the major hinterlands served. The projected is expected to be commissioned in the current FY 2015/16.
  (iii) **Kapeeka** aimed at ensuring sustainable supply to surroundings of Ssemuto, Kapeeka and Nakaseke.
  (iv) **Soroti project**- to restore the water intake at Awoja which was washed away in 2010 and thereby restore its production capacity of 8000 cum/day.
  (v) **Namasuba** that entail the laying of 29.8 kms of DN 300 to cover the areas of Ndejje, Lubowa, Bunamwaya, Nalumunye, Mutundwe, Sseguku, Kabojja, Kyengera and Kinawataka. The projected is expected to be commissioned in the current FY 2015/2016.
  (vi) **Implementation of the pro-poor interventions** through installation of Public Stand Posts (PSPs) especially in the rural based towns to ensure that the less privileged are catered for.

Financial Growth and Sustainability: This aims at ensuring sustainability of NWSC services through enhancing viability of all NWSC towns, undertaking of prudent investments, and cost efficiency in the different processes. Specific focus shall be on enhancing financial viability of NWSC operational towns that will entail among others expansion of the customer base through increased connectivity especially in the virgin Areas where new water mains have been extended under the Infrastructure Service Delivery Program (ISDP). This will enable new towns to quickly break even through the increased Customer base.

In regard to investment financing, management shall continue sourcing for additional funds for Kampala Water and Sanitation Infrastructure Development, Albertine Graben Cluster North (Masindi

and Hoima), Albertine Graben Cluster South (Kasese and Fort Portal) and critical projects for Lira, Soroti, Kitgum, Bugiri and Amuria. In addition, the Corporation shall explore the option of market financing and also carry out cost reduction initiatives such as implementation of energy cost optimisation plans in the various NWSC areas to raise the required resources to meet the growing infrastructure financing needs.

In the spirit of income diversification, the Corporation will continue with innovation and capacity building through intensification of its external services exploits with sister utilities in the world in order to enhance capacity and foster partnerships in scientific research. The Corporation will continue offering advisory and technical services to utilities in the region, and internal support services, and maximize utilization of the International Resource Centre by external clients.

Customer and stakeholder engagement: The Corporation shall ensure continued recognition of the importance and the role customers and other stakeholders play in ensuring sustainable service delivery. In line with this, the Corporation shall continue with stakeholder engagement through various platforms including the social media platform, water Barazas, School Water and Sanitation (SWAS) clubs, Water Community Communication Clubs (WACOCO). In addition, the Corporation shall implement staff welfare and incentive schemes and carry out staff satisfaction surveys aimed at motivation and empowerment of staff for better service delivery.

To enhance surveillance on water quality, the Corporation shall intensify water quality monitoring through creation and operationalization of regional laboratories. In addition, the Corporation shall continue carrying out training and capacity building of area based staff in effective water quality monitoring.

Productivity and Capacity Development: The Corporation shall continue with capacity enhancement programs across all levels. Much emphasis will be put on vocational skills among the relevant staff. To increase staff productivity, the Corporation will secure mobile office solutions and review and strengthen staff welfare schemes through occupational health and safety, staff retention schemes and long service awards.

5.4 Regulation of Water Supply and Sanitation Services outside NWSC areas

5.4.1 Piped Water Supply Management by Water Authorities in Small Towns

The Minister of Water and Environment has a Performance Contract with Water Authorities that legally assume the responsibility of managing water supply systems. These performance contracts are managed by MWE's Water Utilities Regulation Department (WURD). The number of gazetted local water authorities with water schemes reduced from 116 (in FY 2014/15) to 77 (in FY 2015/16), following the transfer management of some of the schemes to National Water and Sewerage Corporation (NWSC). In FY 2015/16, a total of 50 new Urban Councils were gazetted as water authorities in addition to the existing 77 gazetted water authorities. In the same period the number of Small Towns under Private Water Operator management stood at 34, while there were 30 schemes with Scheme Operators, and 12 water supply schemes remained under the management of local governments[33].

[33] Private Water Operators are firms procured to provide water supply management and operations services, whereas Scheme Operators are individual operators or small teams put together to operate the said services.

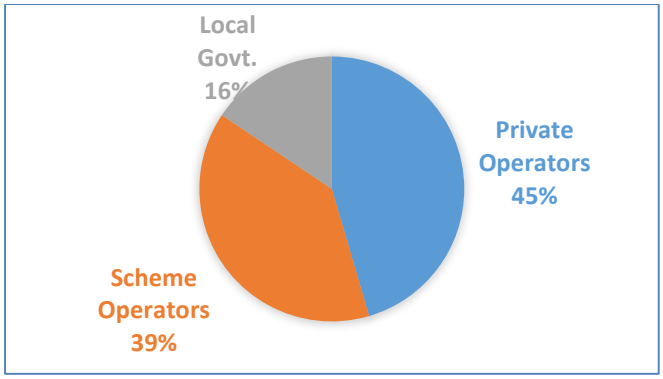


Figure 5.6 Management models of Small Towns

5.4.2 Performance of Gazetted Small Towns

Of the 924 expected monthly reports from 77 gazetted towns, 262 were received (28% report submission performance) from 34 towns reporting directly to WURD and have been used for analysis of the performance of water supply services in the small towns. The analysis from the received reports only represents the average (and not actual) performance indicators due to the data gaps that exist in the reports submitted. It should be noted that other gazetted water authorities and other towns and RGCs report directly to the regional Umbrella organizations which have in turn started to provide first consolidated performance reports to WURD.

In the following sections, graphs will be presented showing the difference in indicator values for Small Towns' water supplies over the years. It should be noted that the trends represent preliminary indications only, in view of the differences in sample size over the years, and the low percentage of reporting.

Table 5.15 Performance of Small Towns' Water Supply Systems over the last six financial years

Performance Indicators	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16
1. No. of gazetted Water Authorities with water schemes under WURD	95	107	110	116	116	77
2. No. of Water Authorities reporting to the Regulation Department	88	83	79	73	67	34[34]
3. Weighted average Unit Cost of producing water [UGX / m^3 sold]*	1,245	1,329	1,186	1,233	1,453	1,683
4. Arithmetic average Unit Cost of producing water [UGX / m^3 sold] **	1,784	2,316	1,977	1,769	2,012	2,576
5. Non-revenue water (NRW) [%]	26	24	22	26	28	35
6. Water supplied [million m^3]	3.942	3.459	3.512	2.953	2.520	1.322
7. Water sold [milion m^3]	2.937	2.637	2.746	2.195	1.815	0.854
8. Percentage funded by revenue	130	110	127	135	132	123
9. Pipe extensions [km]	118	43	41	46	26	11
10. Total service connections [No]	41,130	45,858	54,404	46,082	33,502	17,876
11. Collection effidency [%]	92	91	90	89	92	93
12. Functionality [%]***	87	84	87	89	92	94

* calculated as total operation cost in all towns / total volume of water sold in all towns

[34]The figures of the performance indicators are based on the 34 received reports, no extrapolations for missing reports considered.

** calculated as sum of all unit cost in all towns / number of towns

*** calculated as number of days with water supply / total number of days

Golden Indicator No 2: Functionality

The golden indicator has been defined in terms of continuity of supply of water in small towns. In essence, this refers to the effective duration of water service defined as "*the ratio of the actual hours of water supply from the system to the required hours of supply expressed as a percentage*." Data for FY 2015/16 indicates that the average functionality is **94%**, up from 92% in FY 2014/15.

The functionality has gradually improved since 2011/12 due to the effort put in by the Umbrella Organisations of Water and Sanitation for operation and maintenance, such as replacing stolen/damaged pumps, and quicker response to system failures and breakdowns.

Average unit cost of producing water

Data shows that there has been an increase in the average unit cost of producing water from UGX 1,453 to 1,683 per m^3 in FY 2015/16. This is due to the increased cost of doing business, coupled with aged infrastructure, many water leakages resulting from road construction/expansion works and increased NRW.

Dokolo had the highest unit cost of water production of UGX 5,589 per m3 due to its aged infrastructure and many water leakages. As Dokolo water supply system is under rehabilitation, this will be addressed.

Annual volume of water supplied

Since FY2010/11, the reported annual volume of water supplied by small town water supplies is gradually reducing. The follow up by deconcentrated regulation units and the operationalization of the web-based reporting tool for small town water supplies (UPMIS) will help improve the reporting from the towns.

Non-Revenue Water

There was an increase in Non-Revenue water from 28% in FY 2014/15 to 35% in FY 2015/16.

This is partially attributed to the town water supplies of Sipi, Nakasongola, Kapchorwa and Rakai that had a percentage NRW of 65%, 53%, 66% and 58%, respectively. Rakai water supply system is aged with many leakages and therefore needs rehabilitation, while Sipi and Kapchorwa water supply systems have many unmetered connections, many cases of meter tampering by the water consumers as well as illegal connections. The transfer of towns to NWSC has also affected the average reported level of NRW, as many towns with low levels of NRW were transferred.

Collection efficiency

Collection efficiency stands at 93% in FY 2015/16. This is mainly attributed to the increased vigilance of Private Operators managing the small towns. The towns of Kiboga and Masafu are among the best performers in collection efficiency.

Operational viability

The operational viability of water supply schemes is attained when the revenues collected meet the operating costs (excluding major repairs).

The towns' aggregate percentage of operating costs funded by revenue dropped to 123% this financial year. Since FY2006/07, this aggregate value has risen quite steadily to 135% in 2013/14. This depicts the broad picture for small towns for a relatively small sample. Since the town systems are managed independently with no formal cross-subsidies between them, the viability of the systems, i.e. whether the systems can sustain themselves through paid revenues, is best assessed on a system by system basis.

The towns that attained operational viability were 24 out of the 34 for FY 2015/16. The towns with the lowest operational viability are Dokolo and Rakai, with 21% and 55%, respectively. This is because Dokolo and Rakai water supplies have an aged infrastructure, so they keep spending on major and minor repairs and hence the towns cannot break even. These two town water supplies are being rehabilitated, so their operational viability is expected to improve next year.

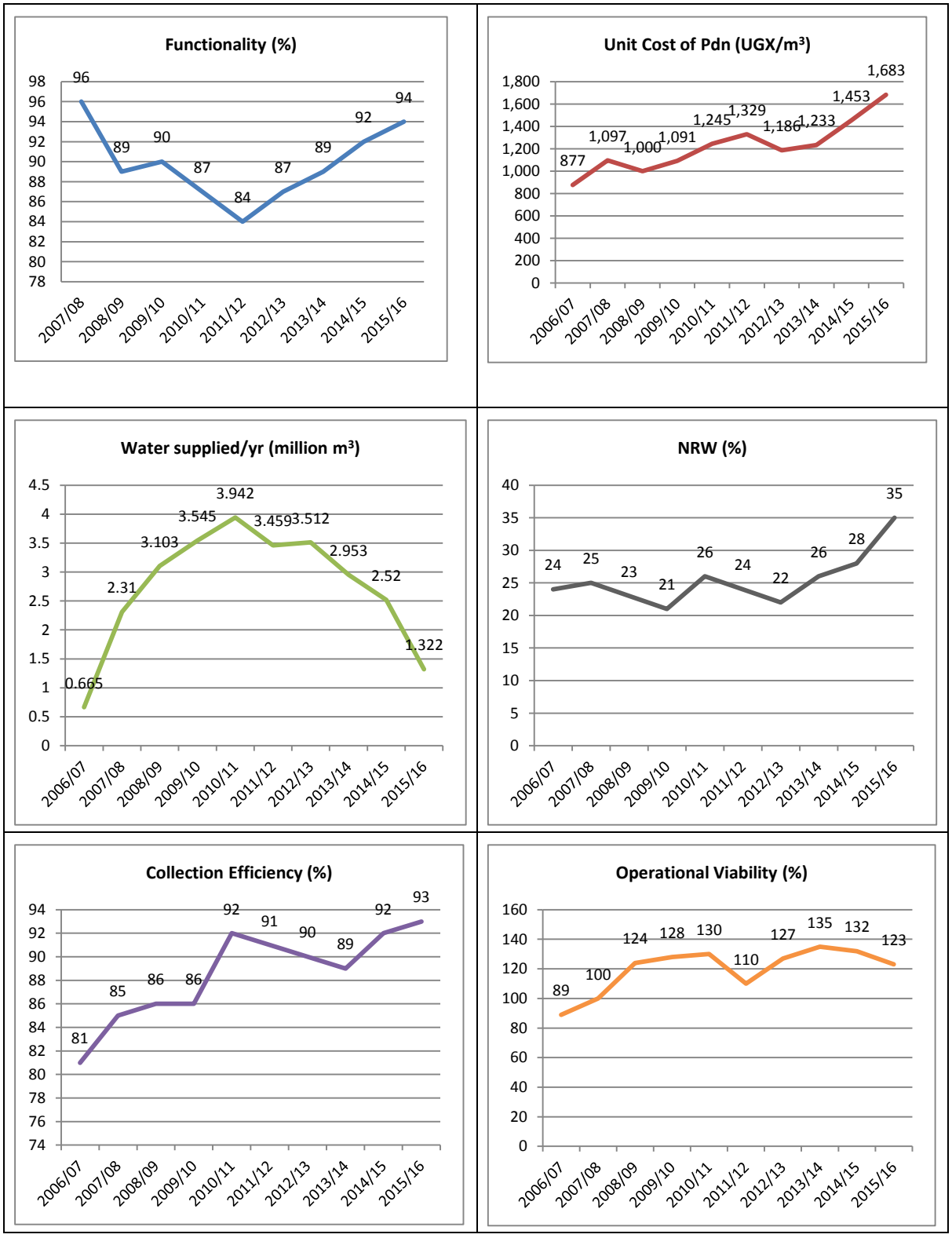


Figure 5.7 Trends in performance of water supply in Small Towns over the last 9 years

5.4.3 Tariffs in Small Towns and Rural Growth Centers

An analysis of the tariffs charged in small towns and rural growth centres carried out during the FY 2015/16 revealed an upward trend in the price charged per unit of water. The average tariff in the small towns in FY 2015/16 was UGX 2,317/m^3 compared to 2,139 UGX/m^3 in 2014/2015, indicating an 8% increment in the average tariff. The upward trend is attributed to rising energy costs, unstable economic situations that resulted in inflation of inputs for example chemicals, and depreciation of the water assets.

5.4.4 Urban Water O&M Conditional Grant for FY2015/16

The Government of Uganda has over the years been supporting Water Authorities and Umbrella Organisations by providing subsidies in form of Conditional Grants to specifically subsidise costs for energy and new connections, while addressing challenges faced by systems with particular operational problems. Operational problems include poor quality of water, cumbersome water treatment processes as well as old systems in dismal condition with excessive pipe-work leakages and faulty pumping stations. These subsidies are supposed to target the un-served, so the priority is usually on extending services and making new connections, an act which itself leads to an increase in the customer base and improvements in the financial sustainability for the systems. Some of the water authorities are supported directly, but most of the subsidy (87%) is channelled through Umbrella Organisations that provide backstopping support to over 300 member schemes.

The Urban Water O&M Grant for FY 2015/16 amounted to a total of UGX bn 2.5. A total amount of UGX 184 million was transferred to nine Small Towns[35], while some towns served by NWSC[36]were also supported with a total of UGX 140 million to specifically offset energy arrears that were left behind by their respective Private Operators at their time of transfer; the balance (87% which represents an O&M subsidy of UGX 2,176,000,000) was transferred to six umbrella organizations, to enable them support their struggling member schemes.

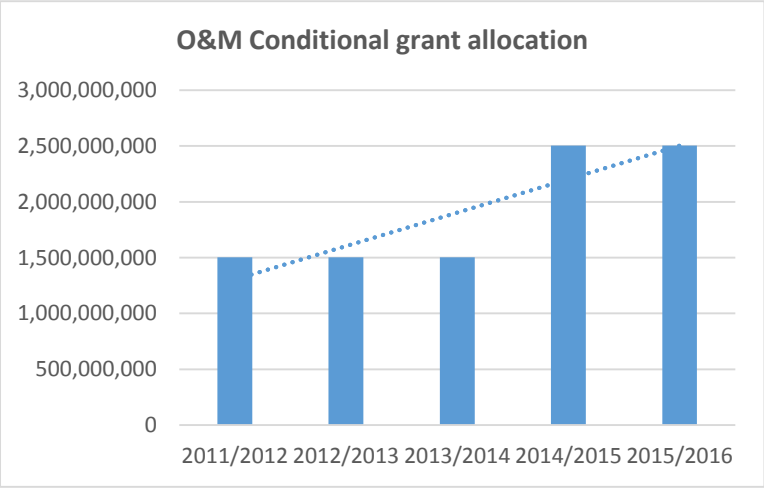


Figure 5.8 Trend in overall allocation of the Urban Water O&M Grant

The major challenge of urban water authorities remains timely reporting; without effective and timely reporting, it is difficult to fully assess and capture the extent of effective utilisation of the Conditional Grant. In Section 14.2.4 under good governance, the results of a study to establish the efficiency and effectiveness of the urban water and sanitation grant is reported. Part of the conclusions is that Water Authorities' and Umbrella Organisations' capacity in technical and financial reporting and use of the

[35] Pakwach, Buliisa, Kalangala, Kotido, Koboko, Kasambya, Kyazanga, Sembabule, and Lwengo

[36] Kalisizo, Bombo, Apac, Bugiri and Lyantonde

Business Planning Tool needs to be increased, that reporting support tools, computers and appropriate and standardized billing software needs to be provided to WAs, and that UOs need to be provided with a standard reporting format and Grant accounting system / software. An action plan will be developed to map the implementation of the study results

5.4.5 Pro-poor activities in Small Towns

The 2006 Pro-Poor Strategy set out several guiding principles for implementation. The main principles that guide the pro-poor initiatives by the WURD/MWE are subsidising tariffs and connection fees for the poor, introduction and promotion of various types of public stand points (PSPs), and expansion and intensification of piped scheme networks in low-income settlements. During the FY 2015/16, MWE supported the implementation of a total of 759 new connections and 11.3 km of extensions in small towns and RGCs that report directly to MWE. Out of the total number of new connections, 90 (12%) were public stand points particularly targeting the poor. The 51% decrease from the previous year may be attributed to the transfer of towns to NWSC.

Preliminary assessments by the WURD/MWE in FY 2015/16 regarding the tariff regime in small towns revealed that the average tariff charged at PSPs is UGX 150 per jerrycan which translates to 7,500/= per m^3., more than three times that of the average tariff charged for domestic/ house connections (UGX 2,317 per m^3). MWE will attempt to address this issue in the coming financial year to ensure that the poor are not exploited. In order to ensure that connections are made more affordable in the small towns, MWE verified and approved the allocation of 3,800 water meters to support new connections, install meters at previously unmetered connections and replace meters.

WURD/MWE has hired a consultant with support from GIZ to review the Pro-poor strategy developed in 2006 and come up with key recommendations to inform the current challenges in its implementation specifically for the urban sub-sector. The consultancy has already commenced with field study visits to inform the key recommendations.

In 2015, MWE also carried out a study to review the Pro-poor Strategy; this study came up with key recommendations that can inform the current study, as listed in Box 5.2.

Box 5.2 Pro-Poor Strategy Review in Uganda

A study of how and to what extent the practices outlined in that strategy have helped to provide safe water and improved sanitation to Uganda's poor and economically disadvantaged was carried out with support from the World Bank in 2015. The findings for the urban sub-sector are listed in this box. The principal urban pro-poor practices in the 2006 Pro-Poor Strategy are to: (1) subsidize tariffs; (2) reduce connection fees; (3) introduce and promote various types of public water points (PWPs); and (4) densify and expand piped scheme networks in low-income settlements.

Tariff Subsidy: Studies in Uganda have found that any type of subsidized tariff for piped schemes benefits primarily wealthier households (Tsimpo and Wodon 2014a). This is in line with previous findings from a World Bank global study on tariffs. Tariff subsidies in Uganda benefit the wealthy mostly because many more of them use piped schemes as their principal source of drinking water.

Promote new types of PWPs--Kampala: Less than 20% of the beneficiaries from the Affordable Connections Policy were served through PWPs. Of the new PWPs brought online due to the pro-poor policy, 53% of them were subsequently disconnected for non-payment. NWSC has piloted 300 prepayment meters for PWPs to deal with this problem. Although numerous challenges were uncovered during the pilot, it was sufficiently successful that NWSC, with funding from the Global Programme on Output-Based Aid, installed 1,131 prepaid PWPs by 2014.

Promote new types of PWPs—Small Towns: The number of PWPs is not a reliable indicator of reaching the poor and economically disadvantaged in small towns. Good engineering practice and DWD design guidelines dictate that the number of house connections be reduced, and the number of PWPs and yard connections increased, as a way to keep scheme costs affordable. However, serving the poor and Bottom 40% generally

requires that a scheme supply more, not less, water. In any case, there are few data on the experience with various types of PWPs in small towns. A pilot experiment with prepaid meters concluded that these are not appropriate at present for small towns.

Expand and Densify Pipelines in low-income neighbourhoods: Concessional funding has allowed NWSC to expand and densify the Kampala network, which is one reason that the number of PWPs increased (see PWPs-Kampala above). However, production capacity has constrained network expansion and the number of new connections. In small towns, scheme costs need to be kept affordable, and laying pipelines to serve the entire town would be prohibitively expensive. Therefore the schemes generally serve the more densely populated town centers. The poor and economically disadvantaged are not necessarily concentrated here. Also, the focus on providing piped schemes tends to reduce District Water Office (DWO) construction and maintenance of small town boreholes, which likely serve the poorer segments of the town population.

In summary, the benefits from urban pro-poor practices in Kampala have mostly been captured by consumers throughout the city who can afford domestic connections. In small towns, urban pro-poor practices have not been widely applied, nor does it make economic and engineering sense to do so in many cases, because **piped schemes are often not a cost effective way to deliver improved water in low density areas.**

The following **recommendations** are made regarding the content of the new strategy: (1) Reduce piped scheme tariff subsidies; (2) Assist local Water Authorities and local private operators and individuals to integrate the management of hand pumped supplies and piped schemes; and (3) Develop targeted programs to improve access and other aspects of improved water services to both the poor and the Bottom 40%.

5.4.6 Billing Software for Small Towns

During the FY 2015/16, MWE's Water Utility Regulation Department piloted billing software in 16 towns. The Quik Water billing software is a complete invoicing and management system for tracking water usage and collection of accounts on a given water system. It is aimed at improving billing efficiency in the small towns. This billing software is easy to use, easy to generate reports especially for small systems and is freeware.

The initial pilot faced several challenges including frequent power interruptions, low computer literacy levels and limited access to computers. It is noteworthy that some Private Water Operators[37] have developed their tailor-made billing software to support their operations. The department however plans to promote a standardised software to be used in all the towns.

5.4.7 Customer Care Survey

During 2015/16FY, the MWE carried out a rapid assessment to establish the level of customer satisfaction in 66 small towns and RGCs[38].The areas of focus were water quality, reliability of service, tariff, and complaint handling. Views were gathered from a total of 321 respondents on the level of contentment with the level of water supply services (see Table 5.16).

[37] such as Trandint, Kagulu Multiple Services and Amazing Enterprises

[38] The towns visited during the rapid assessment of customer satisfaction: Anaka TC, Purongo, Opit, Pakele, Ovujo, Adwari, Kati, Koboko, Kubala, Kuru, Omugo, Palabek Kal, Palabek Ogili, Moyo, Yumbe, Nakifuma, Najjembe, Ciforo, Agweng, Dzaipi, Iceme, Itura, Kamdini, Lagoro, Laropi, Lefori, Kayunga, Maracha, Alebtong, Kakumiro, Kyamulibwa, Bukomansimbi, Dokolo TC, Bata, Abako, Alangi, Amolatar TC, Amugo, Apala, Awere, Awoo, Abia, Alero, Barr, Mucwini, Ogur, Lalogi, Lamwo/ Lukung, Madiopei, Namukora, Nyapea, Parabong, Palenga, Pabbo, Padibe, Oyam, Otwal, Anyomolyech, Rakai, Mpigi, Kyenjojo, Nakifuma, Najjembe, Kalangala, and Kiboga.

Table 5.16 Results of customer care survey in Small Towns and Rural Growth Centers, FY201516

Variable	Level of Satisfaction	Remarks
Water quality	86%	General satisfaction on quality of water supplied.
Reliability of service	67%	Power outages reducing the hours of service.
Tariff	41%	General view that tariff is high and continues to rise.
Complaint handling	57%	Complaints are generally not managed in a timely and expeditious manner.
Overall Satisfaction Level	**63%**	**The greatest dissatisfaction stemmed from the tariff that's being charged in the small towns.**

In the FY 2016/17, the WURD will carry out further customer satisfaction assessments (rapid and detailed) to establish the level satisfaction.

5.4.8 Deconcentration of Regional Regulation Units

One of the major challenges that the water and sanitation sub-sector has been facing is the inadequate framework for effectively regulating the sub-sector to improve service delivery, while protecting the interests of consumers as well as those of the public and private parties. Areas of weakness that have been identified include, but are not limited to contract management/compliance, performance monitoring and evaluation, water quality monitoring, penalties, sanctions and rewards systems, dispute resolution mechanism, increasing transparency and accountability in the sector, pro-poor interventions, assets and investments management and tariff setting and adjustments.

In order to address some of the above challenges, a decision has been taken by the Ministry to establish regional Regulation Units to be based in the various regions where other deconcentrated structures are operating, to specifically focus on executing regulatory functions in the entire Water and Sanitation sub-sector. These Units will in the medium to long term be transformed into an established structure within the regions, or form the starting point for an Independent Regulatory Body or part of one, depending on the final and long term decisions on the mode of regulation.

The Regional Regulation Unit offices are to be located in Lira, Mbale, Mbarara and Wakiso districts where the WSDF braches also reside. These locations will allow units to share existing facilities with the WSDFs and other de-concentrated units. To-date, the positions have been partially filled for the Northern and Western regions. For a start, three staff members are to be placed in each region so as to streamline the monitoring and reporting of water authorities to the centre. The staff for Northern and Western region have already been recruited and interviews have also been conducted for the staff of the remaining regions i.e. Eastern and Central regions.

5.4.9 Challenges and Recommendations

Staffing challenges have continued to stifle the full operationalization of the department to the required levels. The current approved structure is only 21% filled due to limitations imposed by the wage ceiling for the ministry under the government budget. The staff being recruited above are on contract to be paid under the development budget.

The reports received from the towns have continued to come in late and at times with erroneous or missing data. This stifles the ability of MWE to generate the required synthesis from reports. During the FY 2015/16, a tremendous effort was made to ensuring that reporting based on a web-based platform is introduced. This Utility Performance Management and Information System (UPMIS) database is at a piloting stage and, when implemented country-wide, is expected to greatly improve operators' reporting, both qualitatively and quantitatively, by ease of web-based reporting and due to quick follow up and analysis of reporting by WURD.

6 WATER FOR PRODUCTION

6.1 Background

Water for Production (WfP) refers to development and utilisation of water resources for productive use in crop irrigation, livestock, aquaculture, rural industries and other commercial uses. Globally, Water for Production accounts to over 70% of water withdrawn for use. However in Uganda, less than 2% of water is used in production and there is a sharp increase in demand primarily due to climate change, degradation of natural resources, and the use of Force Account[39] for service delivery which reduces the costs of construction borne by the farmers. The roles for construction and use of WfP facilities in Uganda are shared between the Ministry of Water and Environment (MWE), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Ministry of Energy and Mineral Development (MoEMD), Ministry of Tourism & Wild Life, and the Ministry of Trade, Industry & Cooperatives (MoTIC). More detailed information on the roles of the various line ministries for WfP is given in Annex 2.

6.2 Programmes and Projects

6.2.1 De-concentration of WfP Activities

The MWE is undertaking several programmes to provide WfP facilities in order to improve the livelihoods of the people in rural areas. It is constructing and rehabilitating earth dams and valley tanks mainly in the cattle corridor, which stretches from Isingiro in the South-West to Karamoja in the North-East. The bulk water transfer programme aims to supply adequate amounts and quality of water all year round for multi-purpose use by conveying large quantities from places of plenty to places of scarcity. MWE is constructing irrigation schemes under the Farm Income Enhancement and Forestry Conservation- Phase II (FIEFOC-II) programme. MWE also operates and manages equipment for construction of valley tanks, which is hired out to individual farmers at subsidised rates. Table 6.1 presents a summary of WfP construction works undertaken by the MWE in FY2015/16. The MWE also provides technical support to district local governments and other line ministries, such as MAAIF.

To bring services nearer to the communities, the MWE has deconcentrated some of its activities to regional levels. With effect from July 2016, Water for Production has de-concentrated some of its operations to the regional centres with their offices within the established Water and Sanitation Development Facilities' offices in Mbale for Eastern and Karamoja Sub-region, Lira for Northern, West Nile and Upper-Central Region, and Mbarara for Lower-Central, and Western Uganda.

6.2.2 Water for Oil and Gas Developments

MWE constituted a task team (composed of different members from the Energy and Water & Environment Sectors) to prepare a comprehensive plan for the provision of water and sanitation services for oil and gas development in the Albertine Graven Region (AGR). The task team established the following water requirements for the three frontline investors[40] and the proposed oil refinery:

[39] Force account is a type of approach applied by the MWE for awareness raising, informing, selecting, leveraging contributions and implementing construction of Valley Tanks (VTs) using equipment owned by the government. The approach has five steps which can be described as follows: 1 Advocacy meetings on the approach for district leadership; 2 Dissemination of the concept through councillors; 3 Advocacy meetings in each sub-county; 4 Registration with the sub-county and payment of contributions by farmers (between 30% and 40% of total costs); 5 Construction of the VT upon presentation by the farmer of a receipt of deposit of contribution and fuel for the earth-moving machinery. The machinery used for the construction of the VTs is owned by the MWE. The contributions by the farmers are used for regular O&M of the machinery, moving the machinery to new sites and other common costs (SaafConsult B.V., 2011).

[40] CNOOC, Tullow Oil and Total

- Kingfisher Development Area (KfDA) by CNOOC will set up a Central Processing Facility (CPF) 1 at about 3 km from Lake Albert to handle 40,000 barrels of oil per day (bbl/d) that will need 45,000 barrels of water per day[41] to inject in the wells to balance pressure.
- Kaiso-Tonya Development Area (KTDA) by Tullow Oil is to pump 20,000 bbl/d to CPF 1 and will need 25,000 barrels of water per day to inject in the wells to balance pressure.
- The Buliisa Development Area (BDA) by Total E&P and Tullow Oil is to set up a Central Processing Facility (CPF) 2 at 13 kms from Lake Albert to handle 180,000 bbl/d per day and will need 190,000 barrels of water per day to inject in the wells to balance pressure.
- The refinery, to be located at Kabale, at 36 km from Lake Albert, will process 60,000 bbl/d, which will need 65,000 barrels of water for cooling and other processes.

Table 6.1 Water for Production Achievements during FY 2015/16

Planned output	Achieved Output	Remarks
1. Sustainable management systems (29 No.) established at completed WfP sites	29 management systems have been established	In the districts of Ntungamo, Kabale, Kiruhura, Isingiro, Lyantonde, Sheema, Gomba, Sembabule, Nebbi, Abim, Kaabong, Moroto, Napak and Nakapiripirit.
2. Construction of Ongole Dam in Katakwi District (95% progress)	Ongole dam construction works is at 95%.	Construction of all the major components of the works completed.
3. Construction of Andibo Dam in Nebbi district (100% cumulative progress)	Construction of Andibo Dam in Nebbi district was completed.	The project was technically commissioned in Nebbi district
4. Construction of valley tanks under OPM MoU in Karamoja region	Constructed 10 valley tanks in Kaabong, Abim and Nakapiripirit Districts.	Commissioned
5. Construction of WfP facilities countrywide using Ministry WfP equipment	Constructed 148 valley tanks	47 in Kiruhura District, 10 in Lyantonde District, 16 in Sembabule (Mbarara) Districts, 29 in Nakaseke District, 8 in Kibaale District, 21 in Kiboga District, 8 in Bukomansimbi District, 4 in Kyankwanzi District, 1 in Rakai District and 4 in Gomba District using Ministry WfP equipment.
6. Designs of Kenwa Dam in Kiruhura District, Nabitanga and Buteraniro Dams in Sembabule District	100% completed	Construction works slated to begin FY 2016/17.
7. Construction of 15 valley tanks in 6 districts under the GCCA Programme	Construction of 15 valley tanks at 80% completion.	In Mubende, Nakasongola, Kiboga, Sembabule, Nakaseke and Luweero Districts.
8. Olweny Irrigation Scheme (80% completion) of civil works constructed, under FIEFOC Project	Construction works progress is at 68%.	Planned progress affected by untimely release of funds affecting the contractors' cash flow
Construction of Kyabal Valley Tank in Sheema District	Construction works at 65% progress.	Earth works completed, fencing, installation of an abstraction system and construction of cattle troughs ongoing

[41] One oil barrel per day = 158.987 litres / day. 45,000 oil barrels of water per day is equivalent to 7,145 m^3/day of water.

6.2.3 Operation & Maintenance of WfP Facilities

To ensure sustainability of WfP facilities, a number of activities have been carried out including:

Mobilisation and sensitisation activities in 14 districts[42] to sensitise beneficiaries on the importance of providing land and access routes to the facility, participatory involvement during implementation of WfP projects, effective utilisation of WfP facilities, and proper hygiene and sanitation.

Capacity Building - A three tier training approach to build capacity is used; this includes training of trainers (district and sub-county extension officers), training of the management committees/associations and training of the end-users/community members.

In FY 2015/16, MWE carried out training of different stakeholders in fourteen (14) districts as above to enhance capacity, raise awareness of all stakeholders at District and Sub-County level as well as formation of management committees for the water users. It focused on roles and responsibilities, formation of by-laws, gender aspects, and features of WfP facilities. Change in sexual behaviour is also included as part of the training to try and reduce the spread of HIV/AIDS.

Establishment of appropriate management structures for WfP facilities: The status of the different management structures for WfP facilities varies. For most facilities constructed with funding from Central government or District Local Governments, a Community Based Management System (CBMS) is implemented where Water User Committees/water boards are formed. MWE has disseminated a number of tools to improve O & M of the facilities. MWE uses participatory Information, Education and Communication (IEC) materials, posters, brochures and the developed Water for Production drama to mobilise, sensitise and build stakeholders' capacity on operation and maintenance of WfP facilities.

6.3 Status and trends of key indicators

6.3.1 Golden Indicator No. 2: Functionality

Functionality of water for production facilities is defined as "the percentage of facilities with fully functioning abstraction systems that are not silted, with active water user management committees and active bylaws".

Functionality was assessed for all facilities constructed between 2000 – 2016 in all 112 districts, now covered in the WfP database, where data sets have been fully assessed. The results are shown in Table 6.2. This year's functionality rate for WfP facilities is 84.4% (including the newly constructed facilities in FY2015/2016), up from 74.9% in FY2014/15. The data is based on a total of 1,043 valley tanks and 33 dams.

Table 6.2 Functionality of earth dams and valley tanks as at June 30th, 2016

Functionality Level	Description	Total
Fully Functional	100% functional, i.e. without any damage	84.4%
Partially Functional	Operational but with reduced functionality due to siltation, pump breakdown or other problems	14.7%
Non-Functional	Not operational at all	0.9%

Source: Data for valley tanks and dams constructed from 2000 – 2016 covered in WfP Database – MWE

[42] Ntungamo, Kabale, Kiruhura, Isingiro, Lyantonde, Sheema, Gomba, Sembabule, Nebbi, Abim, Kaabong, Moroto, Napak and Nakapiripirit

Table 6.3 Functionality status per facility type as at June 30th, 2016

Functionality Status	Valley tanks		Dams		Total	
	No.	%	No	%	No.	%
Fully Functional	886	84.9	22	66.7	908	84.4
Partially Functional	149	14.3	9	27.3	158	14.7
Non-Functional	8	0.8	2	6	10	0.9
Total	1,043	100	33	100	1,076	100

Source: Data for 1076 valley tanks and dams constructed from 2000 - 2016 (WfP Database – MWE)

During FY2015/16, MWE worked towards improving functionality status for the partially functional facilities. These facilities serve the beneficiaries but with reduced functionality due to pump breakdown, siltation, inactive water user management committee and inactive by-laws. MWE has continued to put an effort in installation of abstraction systems, formation and rejuvenation of management committees, by-laws and training of stakeholders, all aiming at improving functionality. The construction of abstraction systems and rejuvenation of the WUCs to improve functionality is still ongoing. Efforts to improve functionality include introduction of Farmer Field Schools; see also Section 6.3.3.

6.3.2 Golden Indicator No. 6: Cumulative WfP Storage Capacity

The golden indicator for water quantity is defined as "*the Cumulative WfP Storage Capacity (in million cubic meters)*". The total volume added through investments by MWE in the FY 2015/16 (including facilities done by the Districts and private farmers using WfP construction equipment) was 5,485,000m^3 compared to only 3,328,000m^3 in the previous year.

Table 6.4 shows the volumes of storage created through construction of various WfP facilities in FY 2015/16.

Table 6.4 WfP volume created by MWE in FY 2015/16

Cumulative Volume Created								
S/n	**Water for Production Facility**		**% Completion as at 30th June 2015**	**% Completion as at 30th June 2016**	**Progress btn 30th June 2015 and 30th June 2016**	**Design Capacity (m3)**	**Volume Created**	
1	Construction of Andibo dam in Nebbi district		80%	100%	90%	3,500,000	3,500,000	
2	Construction of Ongole dam in Katakwi District		65%	95%	95%	1,000,000	1,000,000	
3	Construction of Kyabal and Kabingo valley tanks in Sheema		35%	60%	60%	10,000		10,000
4	Construction of 15 valley tanks in Mubende, Nakasongola, Kiboga, Sembabule, Nakaseke and Luweero districts		0%	90%	90%	10,000		135,000
5	Ministry Equipment	Karamoja Region	0%	100%	**10 no.**	10,000@		100,000
		Western Region	0%	100%	81 no.	5000@		405,000
		Northern Region	0%	100%	29 no.	5000@		145,000
		Central region	0%	100%	38 no.	5000@		190,000
		Sub Total 1					**4,500,000**	**985,000**
		Sub Total 2						5,485,000
	TOTAL VOLUME CREATED (m3)							**5,485,000**

The increase in total storage capacity is due to factors such as facilities constructed by the Office of the Prime Minister in Karamoja Region and construction of private tanks by communities/private farmers. In the FY 2015/16, MWE constructed 10 valley tanks in the districts of Kaabong, Abim and Nakapiripirit of 10,000m3 each, using funds from the Office of the Prime Minister (OPM). This was effected through a Memorandum of Understanding between the MWE, the Office of the Prime

Minister (OPM) and the District Local Governments of Kaabong, Abim & Nakapiripirit. The MWE did the designs and construction was carried out using government-owned WfP equipment. By the end of FY 2015/16, cumulative storage had increased from 31.7 million cubic meters in FY 2014/2015, to 37.185 million cubic meters**.**

6.3.3 Golden Indicator No 9: Management of Water Points

The golden indicator for management of Water for Production facilities is "*the % of facilities with actively functioning Water User Committees*".

Management of the WfP facilities is by both private operators and Community Based Organisations with back-up support from the District Local Governments. Proper management of WfP facilities is a crucial factor for sustainability and functionality of the facilities. Therefore if the facility is not owned by an individual or a private farmer, then the beneficiaries, district local government and/or central government need to ensure that a Water User Committee at each WfP facility is formed.

WfP facilities are managed according to ownership of the facilities. Facilities constructed and owned by the private individual/group are managed under private management arrangement, whereas communal facilities constructed by the Government (and in some cases NGOs) are managed through a community-based maintenance system. The analysis in Table 6.5 only considers those under community management with support from local governments including private facilities constructed with support of Government, representing 299 of the 1,076 facilities, or 28% of all facilities constructed from 2000-2016. Fully private facilities are not included in this analysis.

Using a CBMS approach**,** MWE forms Water User Committees (WUCs) to enhance and promote self-driven approaches for community ownership and sustainability initiatives. Under this approach, MWE supports the Local Government to train the beneficiaries together with the management committees mainly on their roles and responsibilities and establishment of the by-laws to ensure sustainability of the facilities.

The total number of facilities constructed since the year 2016 is 1,076. The functionality of WUCs for FY 2015/16 is **81%** (*based on the reports of 299 facilities under community management*)

Table 6.5 Community Management of WfP facilities constructed between 2000 – 2016 as at June 30th 2016

Facility Type	Total No. of facilities	Under community management		With established WUC		With functioning WUC	
		No.	%	No.	%	No.	%
Valley Tanks	1,043	266	26%	266	100%	218	82%
Dams	33	33	100%	33	100%	23	70%
Total	10,76	299	28%	299	100%	241	81%

Source: MWE WfP Database[43]

Farmer Field Schools

In the FY 2015/16, MWE introduced the Farmer Field Schools (FFS) Approach in Water for Production activities to boost the management of the facilities. The Farmer Field Schools Approach involves formation of farmer groups which are trained on effective sustainable use and community based management of the facilities. The approach, although still at inception phase, is intended to lead to

[43] Valley tanks include those constructed using Ministry WfP equipment

[2]Fish ponds were not included in this years' analysis because the department is not active in fish ponds construction. This has a slight impact on the functionality rate.

the following outcomes : (i) strengthened knowledge and capacities for climate change adaptation, (ii) strengthened skills in operation, maintenance and management of water for production facilities at communal and individual level, (iii) more water for livestock and crops through training in water management, (iv) improved resilience of livestock and crop production systems in the cattle corridor, (vi) strengthened collaboration, monitoring and supervision, and networks among the farmers within FFS.

Public-Private Partnership

MWE has been developing facilities under a Public-Private Partnership (PPP) arrangement with farmers; these farmers take responsibility of managing their facilities. To-date, 964 valley tanks have been constructed under this arrangement since 2008. This FY, a total of 148 valley tanks have been constructed. The increase in number is attributed intensive sensitisation that has brought more farmers on board. Firstly, there is no question of ownership as each facility is privately owned by an individual farmer. All the facilities constructed[44] are fenced and there is no direct watering of animals at the facilities. Mechanisms have been put in place to establish an O&M framework to monitor development and maintenance of these facilities. A coordination committee is established at sub-county level, including sub-county officials, councillors and the Farmers' Coordination Committee together with the sub-county and district technical team who work with private farmers to ensure sustainability of the constructed facilities. This has gone a long way to solving poor O& M and the functionality challenges that are associated with the community-managed facilities.

6.3.4 Golden Indicator No 10: Gender

In terms of gender, both women and men have equal access to the WfP facilities depending on their needs. The men are the major users since they own livestock, the farm land and are more mobile than the women. Equal access by men, women, children and people with disabilities is encouraged through installation of powered pumps at the valley tanks. However, the delivery system of water from dams is now by gravity flow to the watering troughs (instead of using treadle pumps, which were cumbersome for women, people with disabilities and children).

In FY 2015/16, 29 committees were formed and at each formation, women were encouraged to participate in key positions of Chairperson, Vice chairperson, Secretary and Treasurer. For valley tanks, **73%** of the water user management committees have women in key positions and **48%** dams have women in key positions.

6.4 Challenges

The following challenges have affected implementation of water for production activities in Uganda:

(i) Low prioritization of investment in irrigation services. There is over reliance on rain-fed agriculture.
(ii) There are inadequate resources for procurement of construction equipment units, yet there is a very high demand for equipment and water for production facilities, in particular in the water stressed areas covering about 30% of Uganda.
(iii) The existing policy and legal framework in Uganda is inadequate for irrigation services.
(iv) Land acquisition for new irrigation schemes is problematic
(v) There is inadequate coordination between the water and agriculture sectors at all levels.

[44] in Kiruhura, Lyantonde, Sembabule, Nakaseke, Kibaale, Kiboga, Bukomansimbi, Kyankwanzi, Rakai, Kaabong, Napak, Moroto and Gomba Districts

6.5 Recommendations

The Ministry of Finance, Planning and Economic Development (MoFPED) should allocate substantive funds in line with the Cabinet decision, under Minute No 293 (CT 2012), in which Cabinet:

- urged the MoFPED in consultation with the Ministry of Water and Environment, to revisit the Medium Term Expenditure Framework (MTEF) ceilings with a view to increasing allocation to the water sector; and
- agreed that the Minister of Water and Environment should work out modalities of financing water provision under Public Private Partnership arrangement.

There is urgent need to finalize the draft National Irrigation Policy and revision of National Water Policy, Water Act and Water Regulation Bill.

To solve land issues, MWE should acquire land for key project installations during design phase. MWE and local governments should budget early enough for land acquisition and compensation before the start of implementation.

7 WATER RESOURCES MANAGEMENT

7.1 Introduction

The priority interventions for Water Resources Management during the FY 2015/16 were as follows:

- Implementation of **catchment based water resources management** through the four Water Management Zones (WMZs), supporting and facilitating preparation of Catchment Management Plans and establishment of Catchment Management Organizations to promote coordination and collaboration among stakeholders.
- Promotion of the use of **Water Source Protection Guidelines** to secure the quality and quantity of water resources for water related infrastructure projects through piloting preparation of Water Source Protection Plans in some urban areas
- Participation in **transboundary water resources management** programmes under the Nile Basin Initiative, East African Community (EAC)/Lake Victoria Basin Commission and Intergovernmental Authority on Development (IGAD) to ensure that Uganda's interests are safeguarded.
- Implementation of the **National Water Quality Management** Strategy through upgrading of the Entebbe water quality laboratory to a national reference laboratory, establishment and operation of regional laboratories in WMZs and development of water quality guidelines and standards for various emerging issues such as oil drilling and emergency response etc.
- Support to the **Water Policy Committee (WPC)** to enable it to provide policy advice to the Minister of Water and Environment and other government agencies on integrated and sustainable management and development of water resources of Uganda.
- Strengthening the **water resources regulatory framework** through review and amendment of the National Water Policy and Water Act, development of a reservoir regulation and dam safety guidelines, and implementation of the strategy for compliance and enforcement of water laws and water permit conditions.
- Strengthening **water resources monitoring and information services** through establishment of new water resources monitoring stations, operation and maintenance existing monitoring stations, development of a water resources status report and design of a Water Information System.

Detailed progress on the above is presented hereafter under four functional areas Water Resources Management under MWE, (i.e. Water Resources Monitoring & Assessment, Water Quality Management, Water Resources Planning &Regulation, International & Transboundary Water Resources Management), while a final section on cross-cutting water resources management activities.

7.2 Water Resources Monitoring and Assessment

Progress in terms of water resources monitoring and assessment over the period under review is summarised in Table 7.1.

Table 7.1 Water resources monitoring and assessment activities for the financial year 2015/2016

Planned	Achieved	Reason for Variance
112 surface water monitoring stations operated and maintained	91 operated and maintained	11 Stations were interrupted due to infrastructure development (bridges and dams) 3 washed away during flooding and 7 were vandalised of parts
20 new surface water telemetric monitoring stations constructed	3 new stations in Atura, Entebbe and Akokoria	Contract signing delayed.

Planned	Achieved	Reason for Variance
36 groundwater monitoring stations operated	25 stations operated	Lack of consumables which are under procurement.
17 new groundwater stations constructed	None constructed	Contract signing delayed.
5 surface water assessments undertaken to support hydropower development	1 surface water assessment on Lake Victoria outlet for Eskom in Jinja	Based on developers' request
20 surface water assessments for other development projects implemented	4 assessment studies undertaken: 1 for Albert Nile, then 3 irrigations schemes along R. Sironko, Namatala and Atari.	Based on developers' request.
Groundwater assessment for Kiteezi to understand the effect of the landfill on the aquifer system		No release for output
Database platform upgraded to receive real time data from telemetric stations	Software was acquired and work is being carried out to migrate old data and establish an interface between stations and the database	Delayed procurement
State of Water Resources Report 2014/15 produced and widely disseminated	75% done, the report was presented to stakeholders and is under review	Delays in procurements
Annual year book prepared and disseminated	Contract for the annual year book awarded to the consultant (final inception report and software evaluation report submitted).	Delays in procurements
Develop a concept for updating the Quality Assurance System	100% complete	
Maintain and update 3 databases (Surface water, Groundwater and GIS)	100% running	
Data dissemination and generation of Non-Tax Revenue	Data disseminated to 25 clients and 14.2 million amount of money was collected	

7.2.1 Water resources monitoring network

The monitoring network consists of 112 surface water stations and 36 groundwater stations. Various parameters are monitored which include surface water and groundwater levels, discharge, rainfall, humidity and temperature. The status of operation of the network for the reporting period is shown in Figure 7.1. Functionality of the monitoring network remained at 80% for both the groundwater and surface water stations. Non-functionality of stations is attributed to reconstruction works by Uganda National Roads Authority (UNRA); the stations affected are Katonga, Albert Nile at Laropi, Kapir, Muzizi, Mirama, Kibimba, Mpanga Malaba and Manafwa. . MWE is working with UNRA to relocate the stations that ceased operating following reconstruction of roads at the expense of UNRA.

Three stations (Nyamugasani, Kachung and Semliki) were washed away by floods whereas Bududa, Greek, Namatala, Sironko, Busia, automatic weather station was vandalised. It is important that these stations are re-established as soon as possible since they are critical for flood warning and forecasting.

Non-functionality results in data gaps for short periods can be compensated using traditional gap filling techniques with limited effects on data quality. However, for longer periods there is need for extensive modelling and the quality of data generated is not reliable. There have been efforts to minimise down time of stations especially the early warning stations

During the reporting period, six boreholes with groundwater monitoring stations[45] were constructed within the Victoria basin. The station in Majanji will replace the one which was vandalised in Busia.

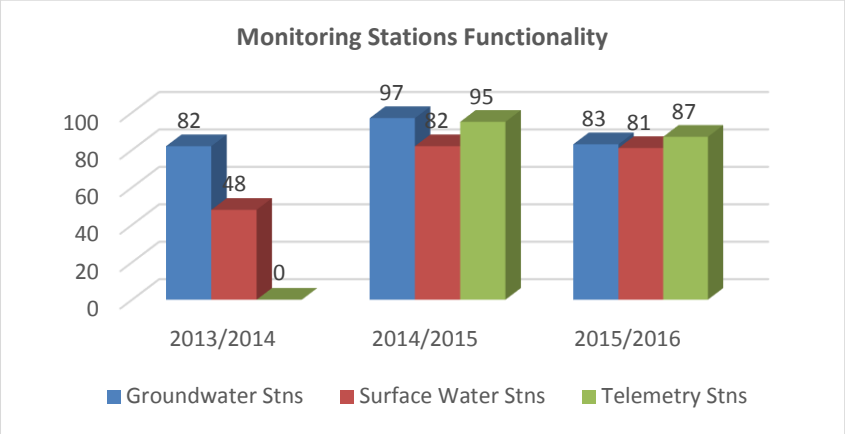


Figure 7.1 Monitoring Network Functionality

7.2.2 Update of the national surface water and groundwater databases

Seasonal variations are observed in the large surface water bodies i.e. the large Equatorial Lakes. These serve as a general indication of the water balance flux exchanges within the region. The dominant component of their hydrology is the inherent balance between evaporation and rainfall over their relatively large surface areas. General trends in their fluctuation of lake levels are indicative of an overall change of lake water storage.

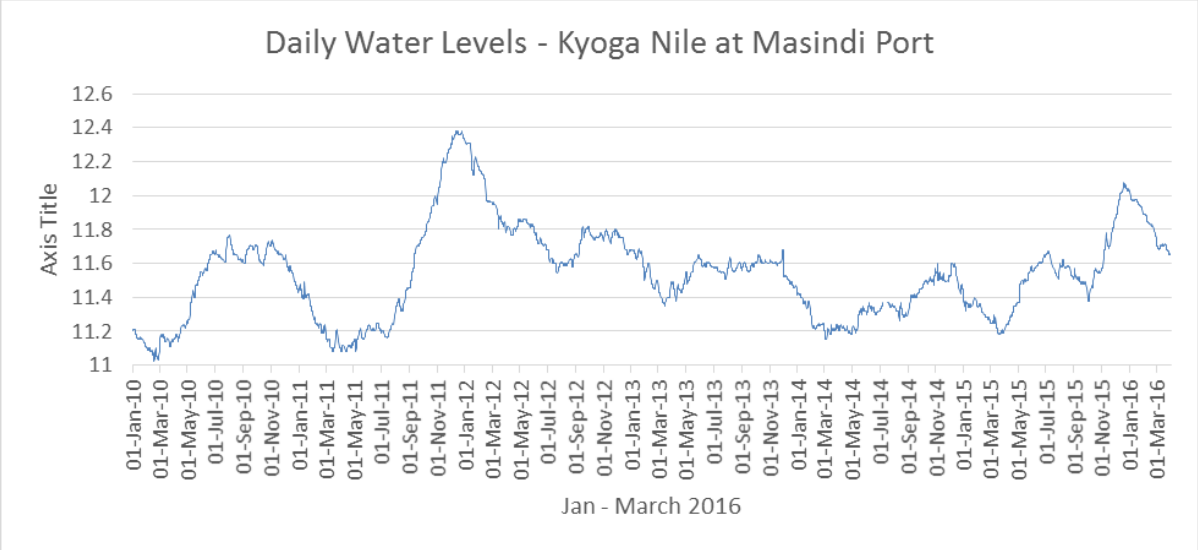
In the case of Lake Victoria, there is a marked increase in water levels to within about 0.5 metres below the historical maximum which is mainly attributed to increased rainfall over the lake as well as regulation of lake outflows.

Figure 7.2 Fluctuation pattern of Lake Victoria from January 2010 to March/April 2016

[45] Jinja town, Katosi landing site, Majanji landing site, Dimo landing site, Bukenge village and Makonge health center

Lake Victoria is the principal reservoir for major hydropower plants in Uganda, namely Nalubaale-Kiira, Bujagali and Isimba, and Karuma, which construction is ongoing. Maintenance of high lake levels and outflows in Lakes Victoria and Kyoga over the period 2010 to date has greatly benefited hydropower generation. Currently, due to the high lake levels, a generation capacity of 280 MW can easily be attained against a discharge flow of 1,400 m^3/s. This represents more than 75% of the installed capacity and with another downstream plant at Bujagali, another 290 MW can be generated and added on to the power grid.

In comparison to Lake Victoria levels, Lake Albert and Lake Kyoga levels have remained relatively constant over the period 2010 – 2016, as is shown in Figure 7.4.



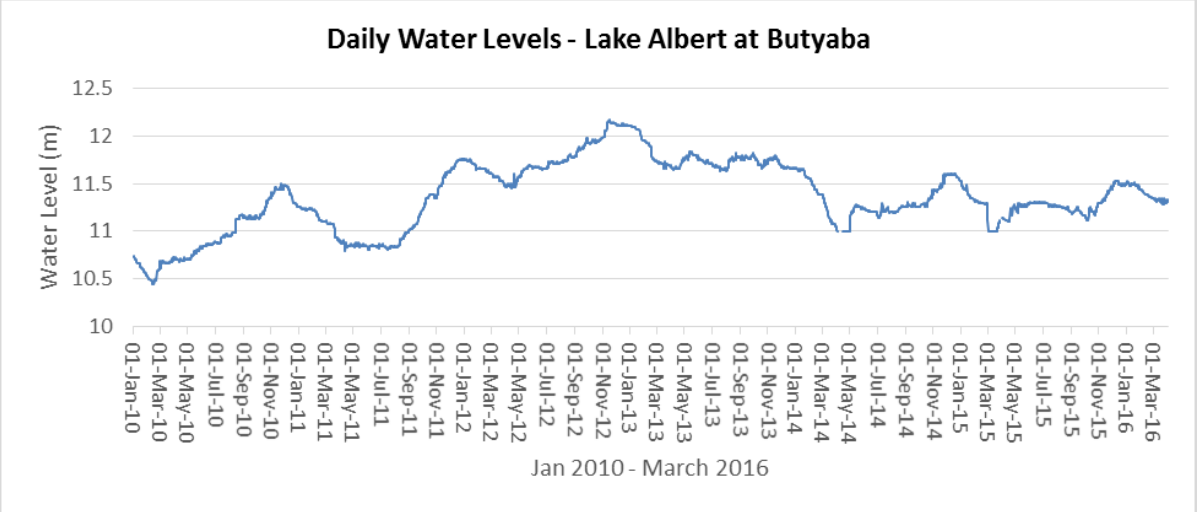


Figure 7.3 Differences in fluctuation pattern, Lake Albert and Lake Kyoga from January 2010 to March/April 2016

The increase in lake levels of Lake Victoria may have also impacted on deep groundwater near the Lake, since water levels in the monitoring well near the lake (at Entebbe groundwater monitoring station) are increasing, as shown in Figure 7.4. Otherwise, the groundwater levels of groundwater monitoring stations show no clear overall increasing or decreasing trend over the last 6 years; the graphs can be found in Annex 15.

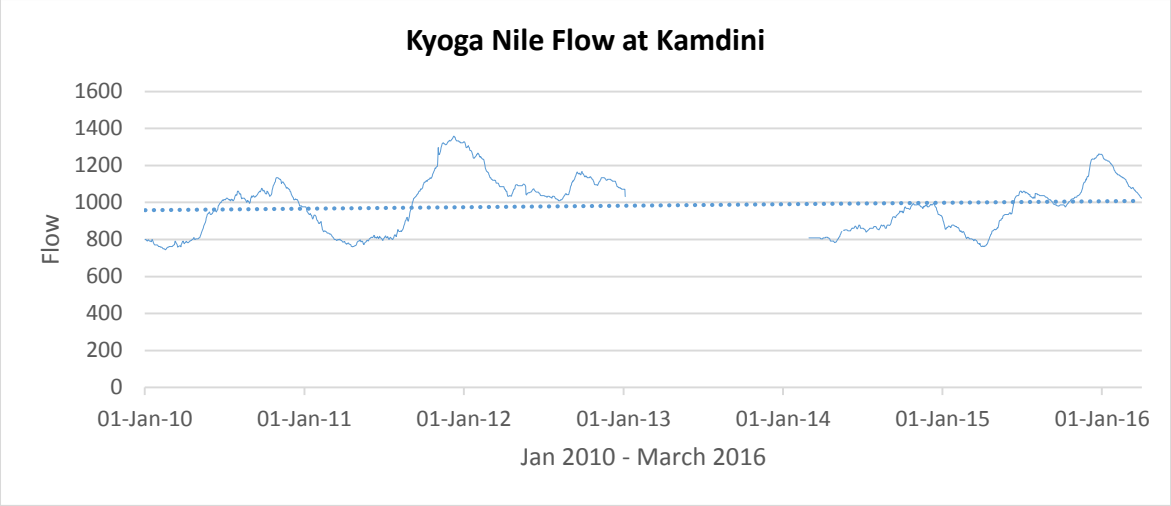


Figure 7.4 Daily discharge for River Nile at Kamdini (upstream Karuma hydropower dam) from 2010 to present

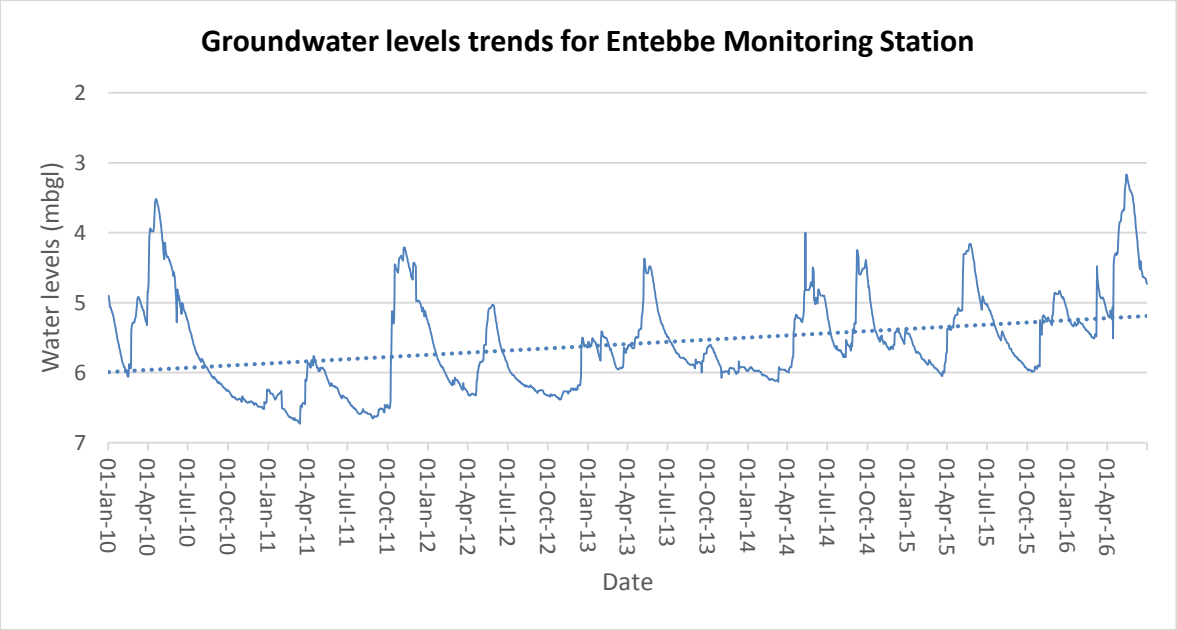


Figure 7.5 Groundwater levels in the groundwater monitoring station in Entebbe

7.2.3 Dissemination of water resources data and information to users

The DWRM/MWE provides water resources data for different uses for a variety of purposes designing and planning including hydropower, water supply, irrigation schemes, design of bridges and road, among others. During the period, data was availed to the Ministry of Works and Transport for preliminary designs of the Standard gauge railway in Uganda (Tororo-Kampala and Tororo – Pakwach sections). Data was also availed to UNRA for the design of a new bridge along River Manafwa, and for the design of Hoima - Masindi road. Data sales raised a Non-Tax Revenue (NTR) of 14.2 million shillings during 2015/16FY.

7.2.4 Provision of advice on water resources development projects

Flow duration curves were prepared to guide on the availability of water at different times for various investment projects along the rivers Anyau, Nyagak, Nyamwrodho, Ora and Oru Atari, Sironko and Namatala. The studies revealed that Rivers Anyau and Oru exhibit unstable flows, probably as a result

of heavy degradation within their catchments. Rivers Ora, Nyamwrodho and Nyagak have relatively stable flows. Catchment restoration activities were recommended for R. Anyau catchment.

7.2.5 Challenges and recommendations

With the upgrade of stations to telemetry stations, communication costs for data transmission have escalated with no corresponding provision under the recurrent budget. Cheaper satellite transmission is being adopted for future stations. Sufficient budget provision should be made for the current telemetry stations.

The increased flooding events are beyond natural conditions; management of floods requires participation of all stakeholders in supporting catchment management strategies. A catchment wide planning and management approach should be adopted in order to mitigate the impacts of floods.

Despite repeated appeals, the remuneration of gauge station observers/meter readers has not been addressed which has resulted in demotivation and low commitment which in turn results in poor quality of data received from the stations. The remuneration of gauge station observers should be planned for under the recurrent budget of the DWRM/MWE.

There are many cases of vandalism at the stations, which render the stations non-operational and lead to data gaps. The use of alternatives or options which are unattractive to thieves for example using the main grid is an alternative to batteries and solar panels.

Hydrological monitoring stations washed away by floods lead to gaps in data collection. Improvements of technology are needed to reduce flood damage.

7.3 Water Resources Planning and Regulation

During the FY 2015/16, key outputs under water resources planning and regulation included:

- Improved planning for allocation and use of water resources in order to guide various water related sectors.
- Regulatory framework for dams and reservoirs to ensure that appropriate dam safety practices are part and partial of all plans and programs for the better management of hydroelectric power generating facilities.
- Improved compliance to regulations and conditions of Water Act, water abstraction and wastewater discharge permits.

The overall progress made in terms of water resources planning and regulation over the last five years can be found in the following paragraphs.

7.3.1 Permits Applications and Assessment

During the reporting period, 335 permits applications were received (192 new and 143 renewal). Of these, 313 permits (including both new permits and renewals) were issued. It is worth noting that there was an increase in the number of permits issued from 203 to 313[46]. More water use permit applications were received from sister institutions such as National Water and Sewerage Corporation and Water Sanitation Development Facilities of the Directorate of Water Development. Figure 7.6 shows the numbers of water permit applications received, assessed, and issued over the last six years. The number of permits issued can also include those assessed in the previous years, as there may be backlogs in the processing; therefore the number of permits issues can exceed the number of applications in a given year.

[46] Note that the numbers of permits issued depend on the applications received and permits that have expired and needs renewal.

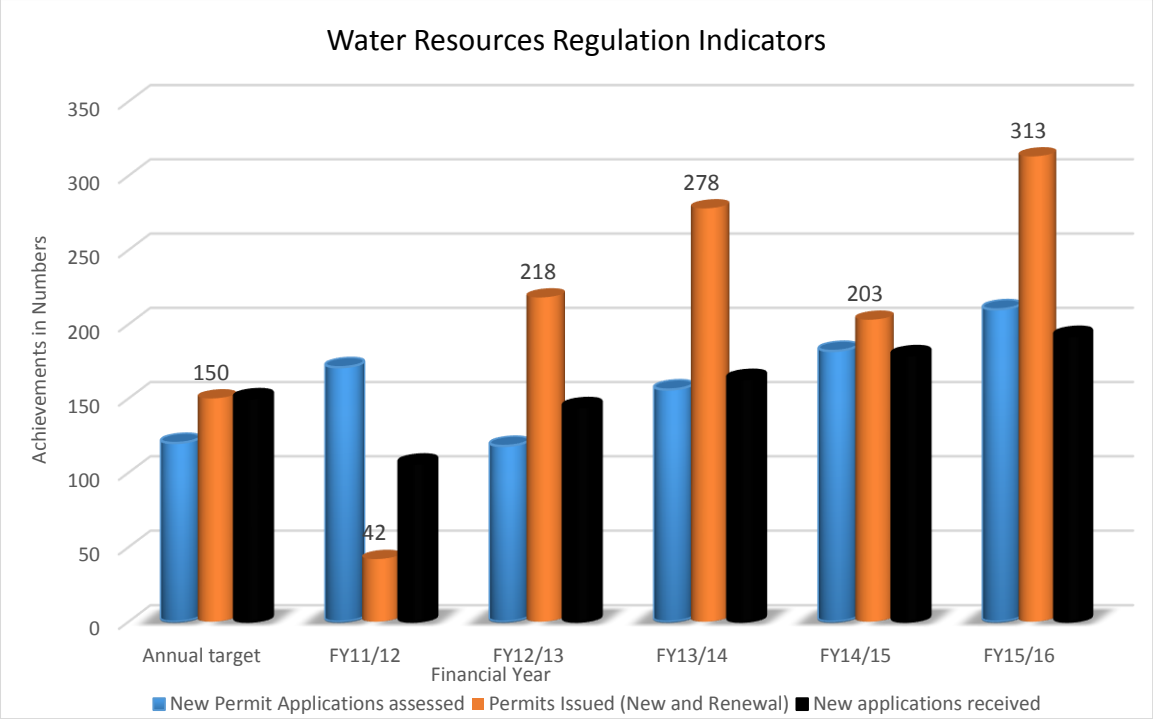


Figure 7.6 Trends of water permit applications received and permits issued over the last five years

Reasons for non-issuance of some water permits were as follows: i) some applicants had drilled many boreholes close to each other in the same aquifer implying that permitting of abstraction from these boreholes would lead to competitive pumping and overexploitation of the groundwater resources in the aquifer, and ii) some boreholes were illegally drilled in gazetted Water Supply Areas and could not be licensed due to lack of no objection letters from the respective water authorities. There is generally a steady increase in the number of permit applications received and assessed since FY2011/12 as a result of increased awareness by water users, continuous inventory and mapping of the water users and waste water dischargers and close follow up of the illegal water users and waste water dischargers through the Water Management Zones.

7.3.2 Non tax revenue (NTR)

Non tax revenue (NTR) collection amounting to UGX 387.48 million was collected during FY2015/16 from permits application processing fees, annual water use fees and annual wastewater discharge fees. This financial year, the non-tax revenue collected was less than the previous 2 years; this is because in the last two years, annual water use fees arrears from permit holders such as National Water and Sewerage Corporation were honoured. Apart from that, there has been a gradual increasing trend in

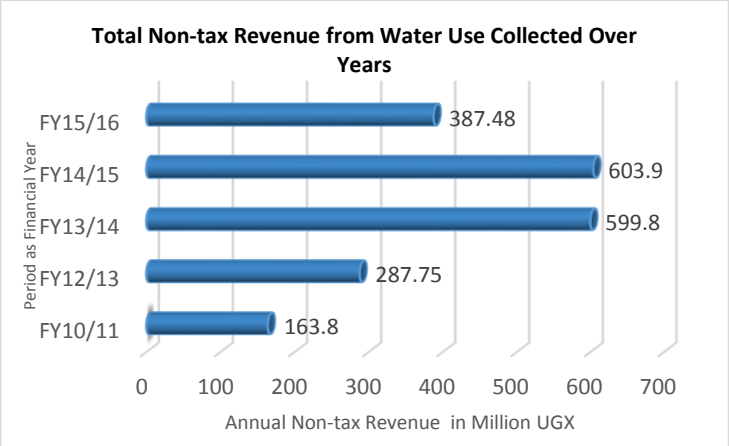


Figure 7.7 Total annual non-tax revenue from water use collected over the last 6 years

collection of NTR water use fees. This is attributed to intensified public awareness raising through newspaper supplements, compliance monitoring visits, scheduled meetings with water use and wastewater discharge permit holders, meetings with drilling permit holders and other non-compliant permit holders in addition to de-concentration of water resources management functions to the WMZs, which has enabled closer follow up of water users and waste water dischargers.

7.3.3 Water Use Planning and Allocation

Mapping of water users and waste water dischargers in Albert Nile, the Sub-catchment of the Upper Nile Water Management Zone, was initiated in the period under review, in order to determine water use at catchment level.

Outputs of water use and demand mapping in Lake Victoria, Lake Albert basins, Lake George, Lake Edward and River Kafu have continued to be used to improve compliance to the Water Act and the water resources regulations, as reflected in the significant increase in the number of new water use permits issued in the country.

7.3.4 Reservoir Regulation

A total of 10 existing reservoirs[47] were monitored for compliance to dam safety and water use permit conditions.

The trend in water levels of Lake Victoria was continuously monitored using data from Entebbe and Jinja Piers. In addition, strategic inspections were done to examine the status of infrastructure around the Owen Falls Complex such as the Jinja pier, source of the Nile and landing sites to ensure that water does not rise above the zero-mark safe level of operation of the Owen Falls Dam Complex.

The development of a Water Allocation Tool for optimizing hydropower generation on the Nile continued with the start of bathymetric surveys and collection of water use data in Uganda and upstream countries for input into the models.

7.3.5 Dam Safety

Work on the establishment of a dam safety regulatory framework continued with the theory of dam breach analysis introduced and initiation of the development of a dam safety database. In addition, 20 new dam construction permit applications were assessed and permits issued with technical advice on the type of hydraulic structures to be installed.

[47] Bujagali, Karuma, Nalubaale, Isimba, Mpanga, Nyamwamba, Mubuku I, Mubuku II, Mubuku III and Ishasha

7.3.6 Golden Indicator no. 11: Compliance monitoring and enforcement

The golden indicator for water resources management compliance is defined as *"% of water abstraction and discharge permits holders complying with permit conditions*". The permit conditions considered are: validity of the drilling permits, possession of wastewater treatment facilities for wastewater discharge, compliance to permitted water abstraction volumes, and quarterly submission of borehole completion reports.

This year, 856 permit holders were monitored for compliance with permit conditions, up from 751 permit holders in last financial year. In general, over the last six years, the trend shows that the number of permit holders monitored for compliance has been increasing as shown in Figure 7.8.

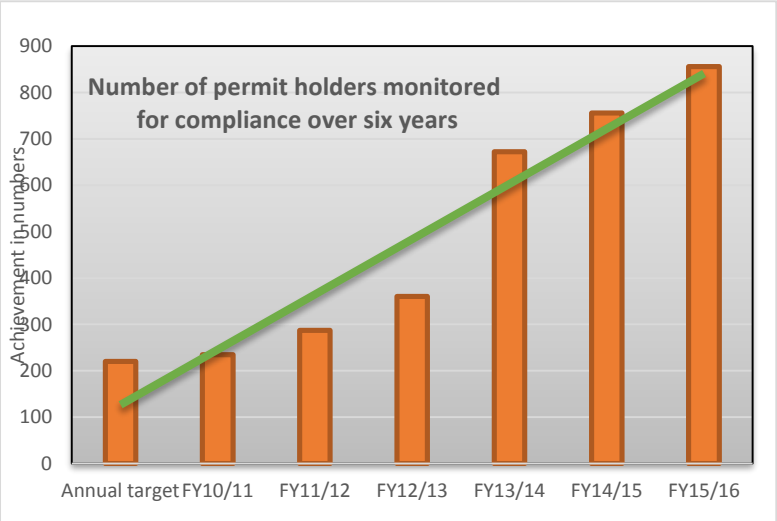


Figure 7.8 Trends of number of permit holders monitored for compliance over the last 6 years

Table 7.2 describes the performance of permit holders with respect to the various permit conditions. A total of 856 of 1320 (65%) water permit holders for waste water discharge, drilling, groundwater and surface water abstraction permits were monitored for compliance to the provisions of Water Act and permit conditions. This percentage was higher than the planned 60%. One major area of improvement in water resources regulation has been in terms of various enforcement measures[48]. Through these efforts, compliance to water laws and permit conditions has continued to improve as can be concluded from the increase in the number of new permit applicants and those applying for renewal as well as the compliance status to water abstraction and waste water discharge permits.

[48] which is being carried out through (i) issuing of letters with permit application forms and procedures of submitting applications and paying for permits to illegal water users and waste water dischargers requesting them to apply for various permits (ii) writing letters to permit holders reminding them about their compliance status and warning them of the implications of non-compliance to permit conditions, (iii) requesting for commitment letters to comply before permits are renewed (iv) instituting financial penalties in cases of pollution above the set standards within the thresholds in the Water (Waste) Discharge Regulations, 1998, (v) signing compliance agreements or formally committing themselves through writing and (vi) popularisation of the de concentrated Water Management Zone offices for ease of submission of application forms, self-monitoring data and accessing of bank Payment advise forms .

Table 7.2 Compliance to permit conditions FY 2015/16

Type of permit	Permit Condition	Total No. of permits monitored	No. of permits complying	(%)
Surface water	Abstracting within permitted amount	213	158	74
Groundwater	Abstracting within permitted amount	442	328	74
Waste water discharge	Effluent discharge	142	80	56
Drilling	Quarterly submission of Borehole Completion Reports	59	53	90
Total		**856**	**619**	**72**

Compliance to waste water discharge permit conditions improved from 52% to 56%. A number of measures were again taken this year to address challenges of wastewater management. These measures include (i) provision of compliance assistance to permit holders in setting up and operating waste water treatment facilities including monitoring effluent quality, (ii) strengthening enforcement by taking stringent actions on non-complaint permit holders such as heavy penalties and legal action, (iii) training staff of DWRM, permit holders and other stakeholders in waste water management, (iv) reviewing the charging system for pollution to ensure that the funds are high enough to deter permit holders from discharging as well as being able to be used to restore the polluted water bodies.

In addition, working together with the multi-sectoral monitoring technical committee on oil and gas exploitation, a number of environmental issues in the Albertine Graben are being followed up in a bid to control pollution, ensure sustainable use of the water resources and increase the coordination amongst government agencies that have a stake in the Albertine Graben. To that effect, MWE participates in the technical committee through joint inspections, sensitization and awareness campaigns, enforcement and conflict resolution.

With respect to water abstraction permits, 158 of the surface water permit holders complied with the condition to abstract within the maximum permitted limits, representing a 3% increase from last year's 71%, to 74% compliance. For groundwater, 328 permit holders abstracted within the permitted amount representing 74% compliance, up from 71% in the previous year. The current average compliance level for water abstraction permits (surface water and groundwater) stands at 74%, up from 67 % in the previous financial year. For drilling permits, 53 permit holders, comprising of only those who are actively involved in drilling activities, have greatly improved on quarterly submission of borehole completion reports, and are currently 90% compliant. The high compliance levels are due to annual meetings held with drillers and groundwater professionals, in addition to publishing in the media of the drillers with valid drilling permits

The average compliance level to surface water, groundwater and waste water discharge permits is 72%, up from 68% in the previous financial year, indicating an increment of 5% corresponding to the annual target of incremental improvement.

MWE, in collaboration with other relevant institutions (NEMA, DEA, NWSC, KCCA, UCPC and UMA[49]) and the private sector, continued to address pollution of the environment in the greater Kampala area through a **Pollution Task Force** carrying out joint inspections, sensitization and awareness campaigns, enforcement and public-private sector dialogue.

[49] In full National Environment Management Authority, Directorate of Water Resources Management, Directorate of Environmental Affairs, National Water and Sewerage Corporation, Kampala Capital City Authority, Uganda Cleaner Production Centre and Uganda Manufacturer's Association

Box 7.1 Achievements of the Pollution Task Force (PTF)

In order to address Kampala's growing challenge of industrial waste disposal and management which has greatly impacted on the environmental quality through increased air pollution, water pollution and wetlands deterioration, a pollution task force was instituted in 2013. The Kampala Pollution Task Force (PTF) composed of key government regulatory agencies such as NEMA, NWSC, KCCA, DWRM with collaboration from Uganda Cleaner Production Center and UMA was instituted with the main objective of increasing institutional coordination to enhance regulation of industrial wastewater pollution in the Greater Kampala area through joint inspections, sensitization awareness campaigns, enforcement and public-private dialogue.

Under this main objective, this year the PTF has realised a number of achievements as follows:

(i) Joint inspections to over 20 industries aimed at environmental compliance assessment have been successfully undertaken with representation from all the key government agencies.

(ii) The PTF team undertook a study tour to Germany to learn from experiences on how to manage wastewater. The capacity of the team was significantly built and knowledge in the latest wastewater and potable water treatment systems was acquired, and exposure to the environmental and water administration and management system of the country were noted and appreciated. As a way of giving incentives and offering compliance assistance, technical participants from two private industries in Kampala (Britania Allied Industries and Fine Spinners Ltd) were included in the study.

(iii) The task force has also launched the Green Industry Campaign aimed at improving industrial compliance to the Environmental Statute by providing a platform for industries to compete for awards. Over 40 industries have shown interest in this campaign.

7.3.7 Environmental Impact Assessments

MWE/DWRM continued to review Environmental and Social Impact Assessment reports submitted through NEMA by various developers of water resources related projects and programs. Related to the review of ESIA reports, MWE also carried out compliance assistance developers during projects planning and implementation through stakeholder consultation meetings.

A total of 74 Environmental Impact Assessment related reports were reviewed (as compared to 146 in the previous reporting period) and 27 compliance assistance meetings were held during the reporting period. Most of the reviewed reports related to hydro-electric power (HEP) development especially in Kasese and Kabarole and in the Mt Elgon region. Other reviews related to the Oil and Gas sector, Water supply and sanitation projects and the road construction sector among others. Because the EIA review process is at the early stage of project planning / implementation, the review process helps in identifying which projects require permits. Through stakeholder consultations, developers were guided on the permit application process. All 27 projects that received compliance assistance have since acquired water abstraction and or construction permits.

7.3.8 Water Laws, Policies and Regulations

The Water Policy Committee (WPC) provided policy advice to the minister in charge of water resources. During the reporting period the committee held an extra ordinary meeting in Kampala in August 2015 and deliberated on issues of inner Murchison bay pollution control, and management of urban water supply by individuals with private water abstraction or treatment plants. The meeting was followed up by a study tour to Ethiopia by the Water Policy Committee in November 2015. The tour provided the WPC members with information to assist the WPC perform its statutory functions.

The review of the National Water policy and Water Act continued, with specific focus on addressing one of the key decisions of the WPC, i.e. that the functions of the Water Regulatory Authority (which is yet to be established) should include rural water supply and water for production, and that it should be named the "*Water Supply and Sewerage Regulatory Authority*". The latest versions of the draft Water Policy and Water Bill have been reviewed internally to include the new regulatory aspects.

7.3.9 Conclusions and Recommendations

Performance of water resources planning and regulation functions has continued to improve compared to previous years as a result of strengthening of the Water Management Zones (WMZs). The de-concentration of some of the water resources management functions to the four WMZs has brought services such as compliance monitoring, compliance assistance and awareness raising closer to the permit holders. This has ultimately improved performance in terms of water permits issuance and compliance monitoring and enforcement. Through the WMZs, awareness about the need for catchment based integrated water resources planning, allocation and regulation of water resources has greatly improved among the stakeholders who have responded through applying for various water permits. The increasing trend of water permits issuance will continue as the capacity WMZs improves through additional staff, facilities and financial resources.

Furthermore, finalisation of the regulatory framework for dams and reservoirs and the wide dissemination and promotion of use of the Water Sector EIA guidelines continues to assist in water resources planning and regulation and hence protection of water resources.

7.4 Water Quality Management

7.4.1 Water Quality Monitoring Networks

The Department of Water Quality Management of the Directorate of Water Resources/MWE operates a network of 119 national and 29 trans-boundary water quality monitoring stations, of which 19 stations are on Lake Victoria. These stations monitor impact of 1) activities in the catchment, 2) effluent discharges from industries and municipal sewage on the quality of water resources and 3) quality of drinking water from point sources in rural areas, and piped water supplies in urban areas. Since July 2011, routine monitoring of the 119 stations has been carried out by the Water Management Zones (WMZs) while assessment studies to address specific national and trans-boundary water quality issues are implemented from the centre.

101 stations out of the 119 monitoring stations were monitored in the financial year under review, representing 85% achievement, a slight drop from last financial year when achievement was at 88%. Overall, there has been continued increase in number of stations monitored since FY2010/11, when only 26% were monitored. This may be attributed to the de-concentration of the monitoring activities and increased funding to WMZs.

Higher targets were set for sample collection after the over-achievement in previous years in terms of number of samples collected. Targets for sample collection were doubled for both WMZs and the National Water Quality Reference Laboratory (NWQRL). Overall performance with respect to sample collection and analysis was 99.6% as shown in Table 7.3.

Table 7.3 Samples planned and actually received for monitoring & assessment in 2015/16

Serial Number	Sample Source	Number of samples		Performance (%)
		Target	Received	
1	Kyoga WMZ	400	328	**82**
2	Victoria WMZ	400	330	**83**
3	Albert WMZ	400	369	**92**
4	Upper Nile WMZ	400	364	**91**
5	NWQRL	2,400	2,593	**108**
6	**Grand Total**	**4,000**	**3,984**	**99.6**

The overall improvement in terms of sample collection in the year under review can be attributed to timely availability of funds for monitoring, stakeholder sensitisation on importance of water quality

testing by the WMZs and establishment of regional laboratories in Lira (Upper Nile WMZ) and Fort Portal (Albert WMZ) in addition to the existing laboratory in Mbale (Kyoga WMZ).

7.4.2 Water and Environment Laboratories

The National Water Quality Management Strategy (NWQMS), 2006 provided for a three –Tier Water and Environment Testing Laboratory System for Uganda. The 3-tier laboratory system comprises a National Water Quality Reference Laboratory (NWQRL) at the centre (Directorate of Water Resources Management/MWE), four regional water quality laboratories in the WMZs and basic laboratories in District Local Governments and at all drinking water treatment facilities. Three of the four regional laboratories have been established in Upper Nile, Albert and Kyoga WMZs to support stakeholders at the lower level and water quality monitoring at the catchment level.

The WQMD received a total of 5,055 samples, including (external and internal clients) samples from the center and zones, which was above the new target of 4,000 samples representing 126% achievement this financial year. The substantial increase in the number of samples (1,011 samples) was a result of a Rapid Assessment of Drinking Water Quality (RADWQ) carried out in 45 districts The breakdown of samples per client is depicted in Figure 7.9.

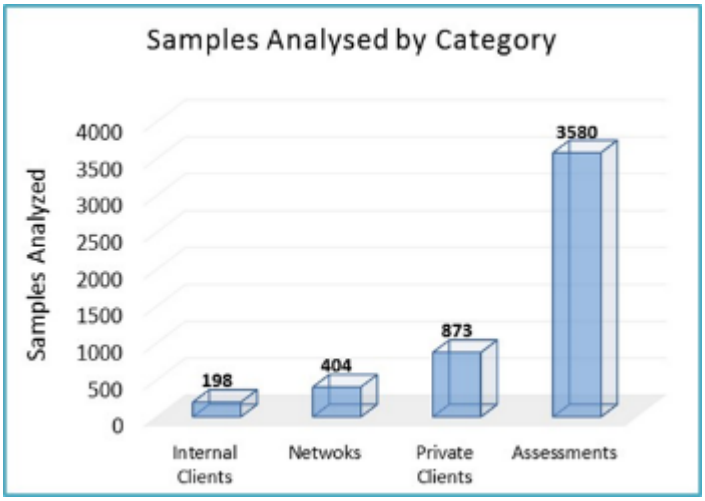


Figure 7.9 Number of samples analysed per client category in FY2015/16

Out of 5,055 samples received in the NWQRL, 3,592 (71%) were analysed within the 7 working days target set by the laboratory quality system (see Figure 7.10). This performance was lower than for last year, which was at 80%. The drop in performance is a result of the relatively large volume of samples the laboratory received, delays in supply of reagents through a framework contract and lack of laboratory operation and maintenance funds to handle emergency breakdown of equipment, failures in electrical and plumbing systems and small emergency purchases.

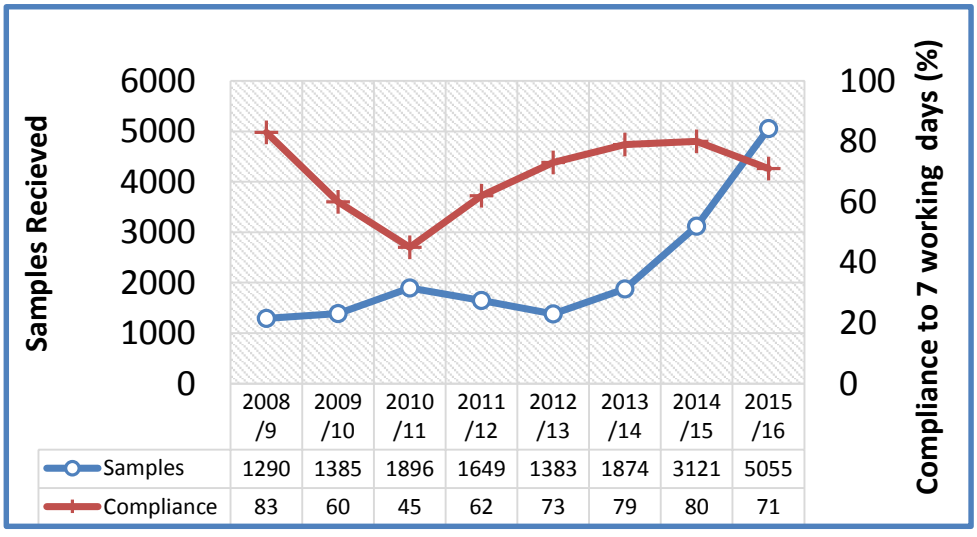


Figure 7.10 Trend in number of samples analysed within a 7-days working period over the last 8 years

The main challenges faced by MWE in its operation of laboratories include:

- Inadequate laboratory space; the laboratory at Entebbe is old and too small
- Inadequate funds for laboratory operation and maintenance
- Lack of in-house capacity to handle minor equipment repairs
- Lack of in-country competent firms for timely repairs of specialized laboratory equipment
- Delays in supply of laboratory chemicals and reagents by local suppliers
- Low staffing levels, and
- Unreliability and spikes in power supply.

The operational challenges are partially being addressed through a framework contract for supply of chemicals and reagents, procurement of service agreements with authorised suppliers of equipment, recruitment of trainees and staff on contract and backup power supplies. The other challenges require strategic interventions.

7.4.3 Laboratory Upgrading

The Entebbe laboratory is being upgraded to a National Water Quality Reference Laboratory. The process involves:

- Improving analytical capacity of the laboratory to handle analysis of heavy metals, pesticide residues and oil and gas waste in addition to basic inorganic parameters. The following advanced pieces of equipment have already been procured: Gas Chromatograph – Mass Spectrometer; Ultra High Performance Liquid Chromatograph, Liquid Chromatograph–Mass Spectrophotometer, Inductively Coupled Plasma and an Automated Discrete analyser.
- Staff capacity development on the optimal use of the new equipment
- Updating the laboratory quality system to meet the requirements of ISO/IEC 17025
- Accreditation of the laboratory, and
- Instituting a local inter-laboratory comparison scheme to quality assure work of water and environment testing laboratories in the country.

The laboratory is in the process of procuring technical assistant to guide processes 2 to 5. The NWQRL is expected to be accredited by December 2018.

7.4.4 Non-Tax Revenue (NTR)

In line with Government of Uganda policy on Non-Tax Revenue (NTR), the NWQRL and Regional Water Quality laboratories collected a total of UGX 89.6 million as NTR for laboratory services offered to private clients against a collection target of UGX 50 million. This represents a performance of 179%. The Mbale Regional Water Quality laboratory (MRWQL) which started operations in FY 2011/12 received 51 samples from private clients and collected a total of UGX 4.7 million. This figure is less than for previous years because operation of the laboratory was interrupted as laboratory was shifted to a new temporary location. Lira Regional Water Quality laboratory (LRWQL) which was opened in FY 2015/16 generated UGX 12 million while the NWQRL generated UGX: 72.8 million.

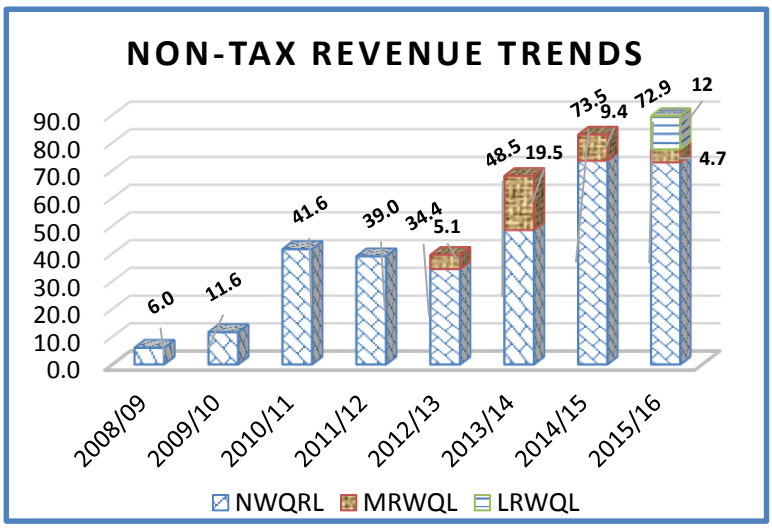


Figure 7.11 Trend in Non-Tax Revenue collection since FY2008/09

Fort portal Water Quality Regional laboratory did not offer services to private clients because it was opened late and there is no regional laboratory in Victoria WMZ. The general trend in non-tax revenue collection shows an overall increase over the years (see Figure 7.11. This is expected as regional laboratories are being established in the WMZs. The increase in performance is attributed to establishment of LRWQL which generated additional NTR.

7.4.5 Actions Taken based on Water Quality Results

Water quality results generated during the year under review have been used for provision of safe water for domestic use during the flood emergency in Ntoroko (see also Box 7.2), advice on appropriate interventions during the cholera outbreaks in Eastern Uganda in the districts of Mbale, Sironko and Busia, design of water supplies in Tororo, Buikwe and Mbale, the issuance of abstraction and waste water permits, monitoring the safety of rural and urban water supplies for drinking, monitoring performance of permit holders, improving design of water treatment technologies (Tiva water, Spout Water), and assessment of bottled mineral water (Saka Spring Natural Water in Kakiri Wakiso and Vine View International Ltd, Mukono).

Box 7.2 Emergency Response to Ntoroko Floods

In May 2016, parts of Ntoroko District was flooded and parts of Bundibugyo district suffered landslides as a result of heavy rains. In a meeting held at the Office of the Prime Minister, DWRM was tasked to make an assessment of the extent of flooding in Ntoroko and provide safe water to the affected communities.

DWRM immediately deployed one of the two emergency water treatment units. One unit has the capacity to treat and supply safe water to the affected communities at a maximum rate of 4,000 liters per hour.

Sector specific findings

Four major sub counties in Ntoroko district namely Rwebisengo, Bweramule, Butungama and Kanara lie in the floodplains of R. Semuliki with some homes located as close as 10 m away from the river bank. These sub-counties will always be flooded when the river bursts its bank. Water and sanitation infrastructure such as water sources and sanitation facilities were destroyed leaving the communities without safe water supplies. The communities were exposed to the risk of water related diseases e.g. Typhoid, cholera, dysentery and increased cases of malaria

A homestead surrounded by flood water in Rwakasenyi village

DWQM Team tests the equipment after assembling

Safe water puts a smile on members of affected community

Recommendation

- Restoration of the bank of River Semuliki using an integrated approach that is not limited to construction of gabions as has been done by some NGOs
- Restoration of degraded catchments
- DWRM to finalise the flood management strategy and establish early flood warning systems in flood prone areas in the country
- Construct reservoirs to hold excess flood waters for use in during dry season
- Procure more emergency water treatment equipment to be deployed in each zone
- Re-locate the communities too close to the R. Semuliki to a safer area

7.4.6 Golden Indicator Number 5: Water quality

This golden indicator for monitoring water quality is defined as "*the percentage of water samples taken at the point of water collection, or waste water discharge point that comply with National Standards for Drinking (Potable) Water (2008) and Water (Waste) Effluent Discharge Standards (1999)*". The following parameters were considered in measuring performance based on this indicator:

- Presence of *Escherichia coli (E. coli)* in drinking water from protected/improved sources in rural areas
- *E. coli* presence in water from treated drinking water supplies in urban towns

- Biological Oxygen Demand (BOD_5) and Total Suspended Solids (TSS) in both municipal and industrial wastewater.

Status of rural water supplies

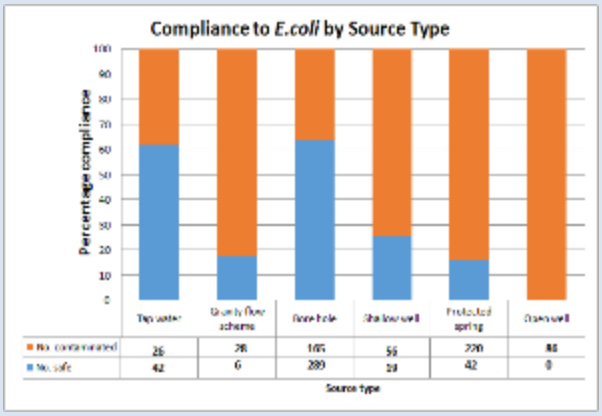
According to a rapid assessment of the quality of drinking water undertaken for rural water supplies in 45 districts in the period under review, **41 %** of rural water samples comply with national standards.

Box 7.3 Rapid assessment of the quality of drinking water of rural water supplies

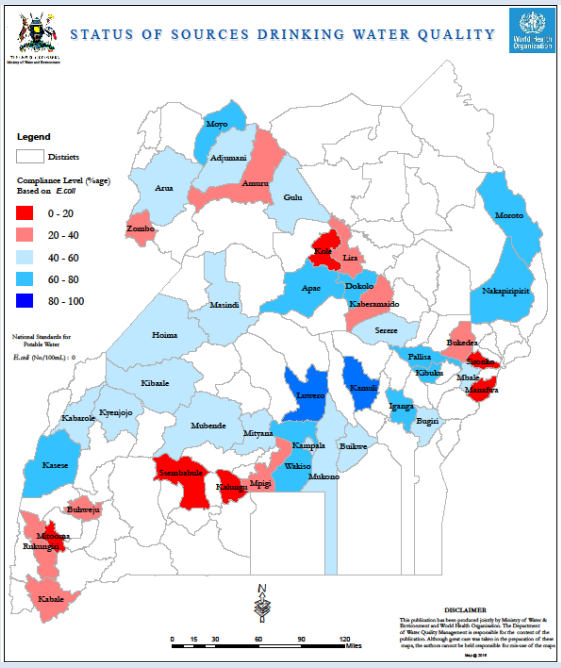
A rapid assessment of the quality of drinking water was undertaken for rural water supplies in 45 districts between August 2015 and February 2016 and 20 villages were sampled in each district. A total of 973 water samples were collected from water sources of different technology types, and homes from both rural areas and rural growth centres. Bacteriological quality (*E.coli*) was used to assess the suitability of water for drinking purposes. The national standard for potable (drinking) water recommends zero *E.coli* in drinking water.

Key Findings

- Only 41% of the sources sampled were found to be safe; 59% were contaminated with *E.coli*
- Only 29% of household samples were safe; 71% were contaminated.
- Water quality disaggregated by technology type indicates that protected springs were most contaminated followed by gravity flow schemes and shallow wells. In all the three types, compliance levels were less than 30%. Tap water and boreholes had comparable compliance levels of about 60%. It was noted that water in the rural growth centres is supplied mainly from production wells without any form of treatment.



The districts where compliance levels were below 60% (e.g. Adjumani, Arua, Isingiro, Mbale, Sironko and Hoima) are among the 15 cholera endemic districts that have been listed by Ministry of Health.



Compliance of *E.coli* in rural water supplies

A red worm (Oligochaeta) from Awoja Protected Spring, Pallisa Town council.

Factors Affecting Drinking water quality
Technology Type

Technologies that supply consistently poor quality water are protected springs and shallow wells (dug and augered). These technology types abstract from shallow aquifers that are easily contaminated from the surface.

Poor storage methods
The common traditional method of storing drinking water in the rural area is using pots. A common scooping cup is then used for drinking. Water may be scooped without hand washing and pots are not regularly washed.

Poor sanitation and Hygiene
Poor sanitation and hygiene in the homes is responsible for quality of drinking water being worse in homes than at the source.

Poor Operation and Maintenance
A poorly maintained protected spring. There is a high possibility of ingress of ponded dirty water mixing with water from spring


A boy fills a jerrycan using a hose pipe at Ogwara protected spring

Poor Siting
Shallow wells are normally sited in valleys where the water table is high. The water from the swamp is what is actually pumped through this well with just improved clarity as a result of filtering by the small soil over-burden.

Poor water quality due to natural factors
Poor water quality due to the geology of the area were common for deep boreholes. Common problems include high iron, saltiness and hardness which lead to abandonment of several boreholes. In Moroto and Nakapiripirit Districts, iron levels of as high as 9.9mg/l led to some boreholes being abandoned.

Recommendations
- A change in policy for water supplies in rural areas to avoid use of technologies that are prone to contamination (e.g. protected springs and shallow wells) should be considered.
- Review the definition of non- functionality to include sources abandoned due to poor water quality.
- Regular monitoring of drinking water supplies by the mandated institutions should be enforced.
- A massive sensitization of communities on good hygiene practices in the home is required
- Tested and approved household water treatment technologies are recommended for use by communities especially where sources have been abandoned due to poor natural quality.
- Source Protection plans should be developed for point water sources as well.

The apparent decline in quality of rural water supplies as seen in the trend Figure 7.12 is attributed to better national coverage and large volumes of data collected during the period under review compared to previous years. For example, while close to 1,000 sets of data were collected from 45 districts during the period FY 2010/11 and 2011/12, only 71 sets of data were collected from only 18 districts.

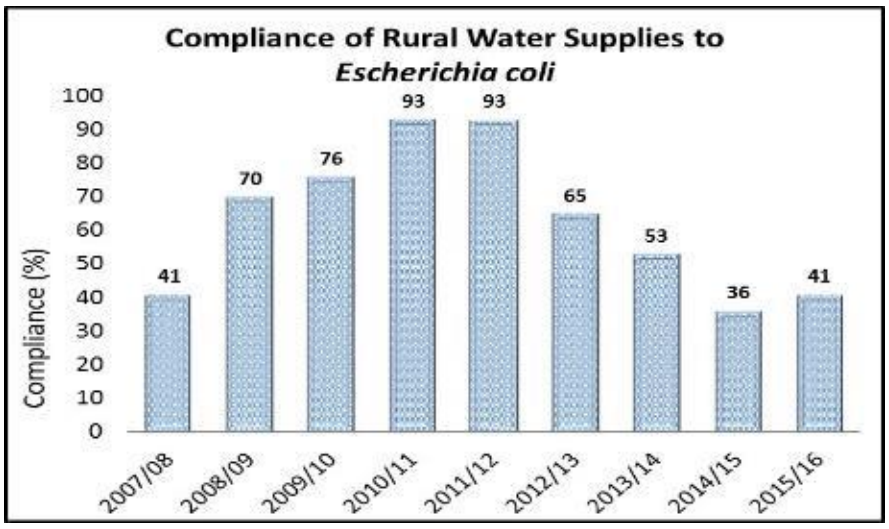


Figure 7.12 Trend in compliance to E.coli in rural drinking water supplies over the last 9 years

Water Quality of Urban Water Supplies

A total of 31 water samples were collected from 9 towns managed by National Water and Sewerage Corporation (NWSC). 74% of samples complied with the standard for drinking water for E. coli. In the previous year, 28 samples were taken and 89% were compliant.

Out of 191 water samples taken from 46 Small Towns, 107 complied with the standard for drinking water, representing a 56% compliance level. This is a comparable compliance level with the previous year, when 59 samples were analysed of which 58% was compliant with the drinking water standard.

In the small towns sampled over the years, water quality has not reached the desired target of 100% compliance level (see Figure 7.13). This is attributed to various factors, including the supply pf water without any treatment from production wells, poor operation and maintenance, lack of skilled manpower for water treatment, seasonal variations in water quality, abstraction of swamp water which is problematic to treat, lack of basic laboratory facilities to guide operations of the water works, lack of risk management and inadequate monitoring and supervision by regulators.

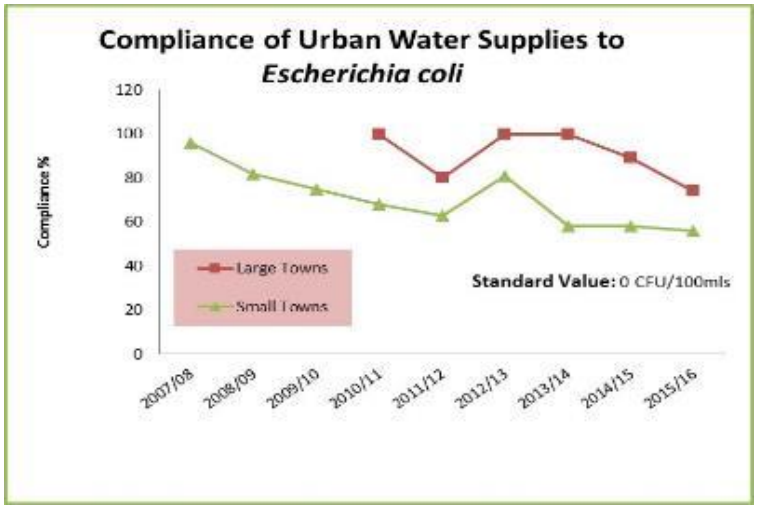


Figure 7.13 Compliance with national drinking water standards - urban drinking water

Quality of Wastewater Discharges

19 wastewater discharge samples were collected from 14 industrial and 5 municipal wastewater discharge points and assessed for compliance to wastewater effluent discharge standards.

Biological Oxygen Demand (BOD5) and Total Suspended Solids (TSS) were measured. With respect to BOD, overall compliance level was 9 out of 19 samples representing 47% compliance, up from the last financial year when it was at 43%. The compliance level was however below the target of 65%. With respect to TSS, 4 out of 19 samples complied with the standards, representing 21% performance, similar to the 22% of last year.

The performance of industries and municipal wastewater effluents in comparison with the National wastewater effluent discharge standards differs. Municipal wastewater effluents had a compliance level of 80% for BOD, and 0% for TSS. Industries however had a compliance level of 43% for BOD and 29% for TSS. This indicates that municipal treatment plants remove organic matter better than the industries but discharge lots of suspended matter. Industries are still inefficient in treating both the organic matter and suspended solids.

The receiving environments of these wastes, including water bodies and wetlands, get polluted by the waste. High organic matter as indicated by high BOD values leads to algal blooms and proliferation of water weeds such as water hyacinth and *Salvinia molesta.* Wastewater with high TSS value causes siltation of water bodies affecting navigation and docking of ships as has been experienced at Port Bell in the Inner Murchison bay.

Figure 7.14 Compliance of Biological Oxygen Demand and Total Suspended Solids to Standards

Low compliance to effluent standard over the years could be attributed to lack of wastewater treatment facilities and inadequate enforcement of laws and regulations. The number of samples (19) used to assess this indicator was rather low. There is therefore a plan to increase the number of samples in the next financial year.

7.4.7 Management of *Salvinia Molesta*

Salvinia molesta, commonly called Kariba-weed, locally known as Nankabirwa weed, originates from Brazil and Argentina, and it grows all year round. Giant Salvinia grows rapidly and produces a dense floating canopy on the surface of ponds, lakes and rivers.

The Kariba-weed was sighted about four years ago in Lake Kyoga. Over the last two years, it has covered large parts of Lake Kyoga and has spread to Lake Edward and River Nile all the way to South Sudan. It has also been reported in valley dams constructed by MWE.

It has affected ferry docking at Masindi port, Namasale and Laropi, and water abstraction, fishing and navigation on Lake Kyoga and River Nile.

Box 7.4 Integrated Management Strategy for Salvinia

Prevention is the most effective way to limit the spread of *S. molesta; c*atchment management and pollution control are therefore most important. Water weeds such as the S.molesta thrive in waters enriched with plants nutrients. Proper management of catchment activities and waste management can improve the quality of water resources and prevent proliferation of aquatic weeds. There are various ways in which *S. molesta* can be managed and controlled

Possible options of **management** of *S. molesta* that may be adopted in Uganda are as follows:

Containment: Floating booms may be installed before physical removal and herbicide treatments; to contain *S. Molesta* that will be stranded, and to separate bio control areas. One permanent boom prevents spread into the main area of open water. This can be applied in rivers and streams which fed open water bodies like Victoria Nile and River Nile.
Small-scale mechanical removal: This method requires the use of mechanical scoop used in all accessible areas to remove the weed and push it into areas that dry out when water levels recede or dry areas where it is dried and burnt or composted and used as manure.
Herbicides: There are a number of herbicides that can be used in areas infested by the weed.
Biological Control: Bio-control is another method that is useful in areas inaccessible to mechanical scoop. Bio-control prevents the weed from establishment beyond vegetated areas. Bio-control makes use of some insects, aquatic grasshopper and weevils.
Manual removal: Small amounts of Salvinia that occur in areas used for swimming, recreation and landing sites areas are easily removed manually..
Monitoring: All the affected rivers and lakes in the country and their surrounding catchments should be monitored regularly.
Public awareness: A Catchment Care Information Kit should be developed and is distributed to stakeholders that include fishing communities, local governments, Uganda National Roads Authority (UNRA) and others to provide information on the dangers of the weed and stop its deliberate propagation as ornamentals etc.

7.4.8 Water Quality Management Challenges

The following challenges impact negatively on water quality management in the country:

- There is inadequate enforcement of environmental laws and regulations that prohibit discharge of untreated effluents into water resources
- Pollution is increasing as a result of pressures on water resources such as population increase, industrialisation, urbanisation and modernisation.
- There is inadequate laboratory infrastructure at all levels of water quality management.
- Monitoring and maintenance of equipment is hampered by inadequate funding (see also Table 3.2), and
- There is inadequate staffing.

7.4.9 Recommendations

To overcome the challenges above, it is recommended to construct a new block for the National Water Quality Reference laboratory as well as more regional water quality laboratories. The National Water Quality Reference Laboratory in DWRM should be upgraded and accredited. Key regulatory agencies should be strengthened to enforce laws and regulations that reduce pollution of the environment, and a National Framework for Water Quality Management and Regulation should be developed and implemented. The vacant positions under the structure of DWRM

More generally, the following recommendations are made:

(i) A policy shift is recommended to move away from technologies for rural water supply that have consistently supplied poor water quality to alternative technologies; (ii) Appropriate low cost technologies should be used for treatment of water from point water sources with naturally poor water quality such as high iron levels; (iii) Implementation of massive awareness campaigns is necessary in the rural areas to improve home sanitation and hygiene; (iv) Water quality feasibility studies should be a mandatory requirement for urban water supply designs; (v) Cleaner Production Technologies should be promoted to minimize waste at source; and (vi) Implementation of catchment and water source protection plans should continue.

7.5 International and Transboundary Water Resources Management

7.5.1 Introduction

The water resources of Uganda are wholly trans-boundary, with 69% of the renewable water resources originating from neighbouring states. International and transboundary water resources issues are being overseen by MWE's newly-established International and Transboundary Water Affairs Department of the Directorate of Water Resources Management.

A number of international and transboundary initiatives, projects and programmes are implemented in Uganda that are coordinated by MWE. During the FY 2015/2016, outputs were achieved in terms of policy reviews to account for national interest in trans-boundary water resources, institutional reviews for improved management of cross-border river basins, and investments and projects in trans-boundary basins and catchments.

7.5.2 Trans-Boundary Agreements, Laws, Policies, Standards

The **Lake Victoria Basin Water Resources Bill** was reviewed through a national consultative process and submitted to Lake Victoria Basin Commission (LVBC) Secretariat for harmonization before final adoption by the East African Community (EAC) Council of Ministers and enactment by the East Africa Legislative Assembly.

The **Water Release and Abstraction Policy for Lake Victoria Basin**, developed by EAC, recommends a new regime to regulate the outflow of water from Lake Victoria through the Nalubaale and Kiira hydropower generation facilities at Jinja and downstream on the Nile. In the period under review, MWE coordinated engagement with other partner states that culminated in formally appealing against the Policy and a request for its review.

The **Regional Standards for Discharge of Industrial and Municipal Effluent** were approved, gazetted, printed and officially circulated to Partner States for implementation.

The Nile Basin Initiative **(NBI) Partner states' Cooperative Framework Agreement (CFA)** for the sustainable management and utilisation of the shared Nile basin water resources was presented to Cabinet for ratification by Uganda.

MWE continued participation in the preparation of the NBI Guidance Document on environmental flows, in the Nile Basin, in short "**Nile E-flows**". In the FY 2015/16, the Nile E-flows framework,

integrating current best practice E-flows management frameworks and E-flows assessment methods for the Nile Basin was completed, as well as its Technical Implementation Manual.

7.5.3 Coordination of, and Support to Trans-boundary/Cross Border Organisations

MWE continued to support a number of trans-boundary organisations through both financial contributions for governance meetings, coordination of participation in activities and / or providing technical guidance, including:

(i) Nile Basin Initiative (NBI): Uganda hosts the NBI Secretariat next to Directorate of Water Resources Management offices in Entebbe. NBI was established in 1999 by 10 countries that share river Nile Basin; NBI has been instrumental in development of tools and projects for equitable use of the common Nile Basin water resources.

(ii) Lake Victoria Basin Commission (LVBC): EAC established the LVBC to coordinate management and sustainable development of the Lake Victoria Basin.

(iii) Global Water Partnership: Apart from the mentioned support, MWE's Trans-Boundary Department mobilized resources for the Climate Change Adaptation Project.

(iv) Intergovernmental Authority on Development (IGAD): Through its Hydrological Cycle Observing System (HYCOS) Project, IGAD supports activities in Uganda targeting strengthening national water resources monitoring network and enhancing data and information management. During this period, the project carried out the capacity building of staff in integrated flood management, hydrological modelling and GIS applications, modern data monitoring, and water resources assessment techniques.

7.5.4 Achievements under the Nile Basin Initiative (NBI)

LEAF II Project

The multinational Lakes Edward & Albert Integrated Fisheries and Water Resources Management Project (LEAFII) covers the Lake Albert and Edward Basin. During the FY 2015/16, the financing agreement was concluded and the project started. The project will be implemented jointly with the Democratic Republic of Congo through the platform of NBI/Nile Equatorial Lakes Subsidiary Action Programme.

Nyimur (Aswa River Basin) Multi-Purpose Water Resources Development & Management Project

The project is supported by NBI/NELSAP and implemented in Uganda and South Sudan in the River Aswa Basin. During the period 2015/16, the project commenced with implementation of the feasibility study, designs and Environment & Social Impact Assessment (ESIA) studies in Lamwo District in Uganda. Meanwhile, the access route was established with the support of the district local government, and assessments were made on the de-mining of the project area with support of the Office of the Prime Minister.

Sio-Malaba-Malakisi River (SMM) Basin Management Project

The Sio-Malaba-Malakisi (SMM) River Basin Management Project identifies and prepares a strategic portfolio of bankable water resources projects that demonstrate benefits of cooperation of Kenya and Uganda within a broader coordinated water-related investment strategy for the region.

In FY2015/16, MWE continued to support the project. The developed catchment management plans for the shared catchments of Sio and Malaba/Malakisi[50] were disseminated for inclusion in the national planning of both Kenya and Uganda. The project carried out identification and pre-feasibility studies for development projects in the shared /transboundary river basins, including:

[50] These include the Lower Sio, Middle Malaba and Lwakhakha Shared Sub-Catchment Management Plans

- The Angololo Irrigation Development and Watershed Management Project, a project area covering Tororo District in Uganda and Teso District in Kenya. The Government of Uganda has officially prioritised the Angololo project and is to receive funding from AfDB for the detailed feasibility studies, detailed designs, independent Environmental, Social Impact Assessment and Resettlement Action plan studies.
- Nyamatunga Irrigation Development and Watershed Management Project in Tororo District.
- Lirima and Sala/Bukhabusi Irrigation Development and Watershed Management Projects in Manafwa District.
- Nyabanja Irrigation Development and Watershed Management Project in Tororo District.
- The proposed Soono Hydro-Electric Development and Watershed Management project, Bumbo Sub-County, Manafwa District.

Kagera Transboundary Integrated Water Resources Management and Development (KTIWRMD) Project

Within the framework of the Kagera Transboundary Integrated Water Resources Management and Development Project, a strategic portfolio of bankable water resources projects is being developed that demonstrate benefits of cooperation to partner states of Burundi, Rwanda, Tanzania and Uganda.

The **Kabuyanda Water Resources Project** in Isingiro District is a multipurpose project that will develop 4,200 ha of irrigation, generate 350 kW of hydropower, provide potable and livestock water supply, as well as enable fish farming. During the period FY2015/16, feasibility studies were carried out in Isingiro District. An Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) for the project were carried out, and preliminary results presented to stakeholders in a workshop.

7.5.5 Achievements under the Lake Victoria Basin Commission (LVBC)

The Lake Victoria Environmental Management Project (LVEMP-II)

The Lake Victoria Environmental Management Project (LVEMP-II) is an East African Community (EAC) initiative coordinated by the Lake Victoria Basin Commission Secretariat and implemented by five EAC Partner States. The objectives of the project are to improve the collaborative management of the trans-boundary natural resources of the LVB, and improve environmental management of targeted pollution hotspots and selected degraded sub-catchments. Major outputs achieved during the period under review are described per project component.

Component 1: Strengthening Institutional Capacity for Managing Shared Water and Fisheries Resources.

The National Fisheries Policy (2004) was reviewed and harmonised with the National Development Plan and the new Agriculture Sector Strategic Plan.

The water hyacinth coverage was monitored; its coverage has steadily decreased for most bays for the period between February and December 2015. This was observed in; i) the Eastern zone (Berkeley Bay to Napoleon Gulf), where it decreased from 45 Ha to 18 Ha; ii) Bunjako Bay, where it decreased from 114 Ha to 55.4 Ha; and iii) Nakiwogo Bay, where it decreased from 0.1 Ha to 0.02 Ha. A policy brief on the management of Kariba weed (*Salvinia molesta*) infestation in Uganda was produced.

Technical reports were produced on fish disease surveillance and control strategies in Uganda, and the socio-economic aspects of fish diseases on the environment in Lake Victoria Basin.

A technical report with geo-referenced maps of 23 fish breeding and nursery grounds that are recommended for gazettement were produced. Ten maps of the identified Fish Breeding Areas (FBAs) were developed and have been included in the draft Fish Breeding Areas Statutory Instrument, which is now ready for legal drafting by the Solicitor General.

Five potential sites suitable for cage culture were surveyed in the districts of Masaka, Kalungu and Mpigi. Draft guidelines on the development, management and monitoring of cage culture on Lake Victoria and associated rivers were prepared.

A report on trends in fishing effort and fish yield for the period 2000-2015 was produced, revealing a drastic decline in the contribution of high value large size species to the commercial catch, i.e. Nile perch (from 40% to 25%) and Tilapia (from 12% to 9%), whereas Mukene's percentage contribution has increased from 44% to 48%. The economic value of Mukene is still very low compared to that of Nile Perch and Tilapia.

A total of 16 schools referred to as "*Friends of Lake Victoria*" were formed in selected Primary and Secondary Schools located in the 4 districts of Masaka, Rakai, Kampala and Wakiso. These schools will create awareness on the importance of Lake Victoria.

Component 2: Point Source Pollution Control and Prevention

Works for the **Kirinya Wastewater Treatment Facility** have commenced.

An assortment of equipment[51] were supplied to the **laboratories** of MWE's Directorate of Water Resources Management (DWRM) in Entebbe and the National Water and Sewerage Corporation (NWSC) in Kampala.

To reduce on the environmental pollution and flood frequency in Kampala, a range of excavators and trucks was provided to Kampala City Council Authority (KCCA) to **collect garbage, and de-silt drainage channels**. Since July 2015, when the equipment was supplied, a total of 324,924 tonnes have been collected, and used as a layer cover to the bad smell at the landfill. In addition Hydrometric equipment for monitoring of water quality and quantity was installed.

The maintenance of Nakivubo channel covering a distance of 8.7 Km is ongoing. Between March 2015 and March 2016, a total of 260,874 metric tonnes of silt were collected from Nakivubo Channel.

Figure 7.15 De-silting of the storm water drains

[51] Liquid chromatography mass spectrometer, Total organic carbon / total nitrogen analysis (TOC/TN), Atomic absorption spectrophotometer – graphite furnace (GASS), High Performance Liquid Chromatography (HPLC) and v) Field sampling, monitoring and mapping equipment

Figure 7.16 Loaders loading silt onto the truck

Figure 7.17 Inspecting drainage channel

Uganda Cleaner Production Centre (UCPC) held bilateral meetings with top management of 13 enterprises where the concept of Resource Efficiency and Cleaner Production (RECP) was promoted.

UCPC also held bilateral meetings with the District Natural Resources officer of Mukono Municipal Council and the Environmental Manager of Kampala Capital City Authority to discuss synergies for promoting implementation of Resource Efficiency and Cleaner Production.

A total 33 enterprises were trained in Resource Efficiency and Cleaner Production (RECP); bringing the cumulative number of industries / enterprises trained to 152 out of a target of 158 (see also Table 7.4).

In-depth assessments were carried out in 7[52] companies in terms of Resource Efficiency and Cleaner Production. In addition, the 7 enterprises are also being provided with technical assistance as they do implementation. In addition, the draft Cleaner Production Best Practice Manual was completed.

Table 7.4 Summary of enterprises trained and assessments completed by June 2016

Key Indicator	Targets	Planned Target	No achieved
No. of enterprises trained	Old target (July 2010)	30	152
	Revised target (2012)	78	152
	Total mapped	158	152
	Total in LVB	607	152
No. of Cleaner Production assessments completed	Old target (July 2010)	27	41
	Revised target (2012)	80	41
	Total mapped	158	41
	Total in LVB	607	41

In order to improve **safety of navigation**, Eleven (11) navigation aids have been installed on the Uganda side of Lake Victoria. The construction of the Maritime Safety and Communication Coordination Centre at the Ministry of Works and Transport in Kampala was completed.

Component 3: Watershed Management

To date, the project has supported 9 districts[53] to facilitate implementation of 46 Community Driven Development sub-projects (in short: CDDs) and 23 strategic interventions. Implementation progress of the sub-projects stands at 78%. Backstopping was provided in the fields of: soil and water

[52] ; Steel and Tube Company Ltd, Shumuk Aluminium Ltd, Haris International Ltd, Mogas Fuel Deposit Ltd, Biyinzika Poultry Feeds Ltd, Red Pepper Publications Ltd and General Moulding Ltd.

[53] Mityana, Mubende, Gomba, Mpigi, Masaka, Rakai, Namayingo, Kalungu and Kalangala.

conservation, water harvesting, catchment afforestation & agro-forestry, energy saving cooking stoves, poultry, goat, piggery & cattle husbandry plus apiary management. Similarly, technical backstopping of CDDs on fish farming communities in various districts was undertaken by National Fisheries Resources Research Institute (NaFIRRI).

An assortment of equipment for the manual removal of the Water Hyacinth were procured and distributed to various communities in 8 districts.

Planning for Resilience in East Africa through Policy, Adaptation, Research and Economic Development (PREPARED) Program

The PREPARED Program is a five years integrated environmental management program of the Lake Victoria Basin Commission (LVBC). During the period under review, the following was conducted:

Component 1 - Climate Change Adaptation: (i) A Community Climate Change Adaptation Assessment was carried out aimed at determining community perceptions of historical climate change, impacts on cropping systems, land use, and livelihoods, as well as the development and adoption of adaptive strategies by communities. The results of the assessment were used to design community projects. (ii) The Lake Victoria Basin Vulnerability, Impacts and Adaptation Assessment was carried out, which will identify key adaptation programs for the region and each Partner State. Ugandans were trained and have been applying a Vulnerability Index Mapping tool to identify key hotspots and vulnerable areas. (iii) The EAC Climate Change Technical Working Group (CCTWG), together with other stakeholders in Uganda, identified adaptation options and projects to be integrated into the Lake Victoria Basin Climate Change Adaptation Strategy and Action Plan (LVBCCASAP). This LVBCCASAP will be used by United Nations Environmental Project (UNEP) to design a proposal for submission to the Green Climate Fund.

Component 2 - Biodiversity Conservation: A management plan for Nabugabo Wetlands was developed for the proposed expanded Ramsar site. (ii) Economists were trained on methodologies for conducting a Total Economic Valuation (TEV) of a conservation area. TEVs were completed for Nabugabo and Sango Bay. (iii) Conservation Investment Plans (CIPs) were completed which will be used by the LVBC Secretariat to identify and solicit funds to implement management plans developed under the PREPARED CIP process.

Component 3 - WASH: The Project, Itron, Inc., and the Uganda National Water and Sewerage Corporation (NWSC) formed a Public Private Partnership (PPP) aimed at reducing Non-revenue water (NRW) levels in Jinja and Iganga, Uganda. During the period under review, NRW reduced from 45% to 28% through a range of activities (more information is provided in Section 5.2).

Feasibility Study for the Lake Victoria Basin Integrated Water Resources Management Programme with High Priority Investments

Lake Victoria Basin Commission (LVBC) signed a Protocol Agreement with the Government of Germany to support the preparation and subsequent implementation of the Lake Victoria Basin – Integrated Water Resources Management (LVB-IWRM). The preliminary LVB-IWRM study included a feasibility study of high priority investments in five cities in Lake Victoria Basin. Some high priority investments projects were identified in Uganda, including the Nakivubo Channel Waste Water Treatment, aimed at controlling pollution from Kampala into Lake Victoria.

The Tanzania - Uganda Joint Cross Border Cooperation Commission

A meeting of technical officials was guided by a letter dated 6th March, 2015 from H.E President Jakaya Kikwete to H.E President Yoweri Kaguta Museveni proposing the appointment of a Joint Cross-border Cooperation Commission to look into all border matters and the outcome of a meeting between the two presidents on 1st March 2016 in Arusha, United Republic of Tanzania, which directed the joint meeting to also address the issue of access to water for humans and livestock. Strategic actions were

developed for further consideration to address the challenges related to water and livestock along the common border between Uganda and Tanzania, as summarized in Table.

Table 7.5 Strategic Actions identified by Uganda Joint Cross Border Cooperation Commission

Expected Outputs	Strategic Action	Performance Indicators	Responsibility
Objective 1: Consider the modalities of providing dedicated corridors for livestock from Uganda to access the waters of River Kagera			
Determine corridors for Ugandans who access the Kagera River to water their livestock	Sensitization of Ugandan pastoralists to use dedicated corridors to access the Kagera River	• Reduction in cases of alleged trespass.	Min. of Local Gov. - Uganda Office of the President - Uganda
Streamlined livestock movement and trade across the borders	Implement a mandatory livestock Identification System along the border to facilitate identification of animals and their owners during trans-boundary crossings. Implement joint animal disease control programs	• Ease in recovery of livestock across border • Branding of livestock • Review and implement the MoU signed between the two countries • Licensing and regulating livestock traders across the borders and constructing livestock border markets	Ministry of Agriculture, Animal Industry & Fisheries
Gazette fees/ fines for trespass to control extortion from persons found illegally grazing in Tanzania	Recognize grazing agreements /permits between Ugandan pastoralists and land owners in Tanzania.	• Streamlined access to grazing land in Tanzania	Min. of Local Gov./ Office of the President (RDCs/Local administration in Rakai / Isingiro D.
Objective 2: Provision of water for human and livestock consumption			
Adequate water available to both human and livestock	Exploring bulk water transfer system from Kagera system	• Identify the sites of the bulk water intake • Carry out feasibility studies and designs • Carry out construction of the bulk water system	MWE – Uganda Ministry of Agriculture, Animal Industry & Fisheries - Uganda
	Construction of large dams and valley tanks	• Identify sites of the large dams and valley tanks • Carry out feasibility studies and designs • Carry out construction	
	Carry out Integrated catchment management/protection	• Enforcement of river bank regulations • Prepare joint framework for protection of the Kagera watershed • Implement the Joint Kagera watershed management framework	Ministry of Water and Environment – Uganda Ministry of Local Government – Uganda Office of the President - Uganda
Objective 3: Generation of hydro power on River Kagera			
Construction of dams at Kikagati/Murongo and Nsongezi for hydro power generation.	Acquisition of land for the construction projects Finalize bilateral agreements		Ministry of Energy & Mineral Development

7.6 Cross-cutting Water Resources Management Initiatives

7.6.1 Operationalisation of the Water Source Protection Guidelines

According to the Water Source Protection Guidelines (2013), each water infrastructure project is expected to prepare a Water Source Protection Plan. Piloting of these guidelines has been undertaken in three Large Towns under National Water and Sewerage Corporation, namely Mbale, Arua and Bushenyi. For each of the towns, Water Source Protection Plans have been prepared and costed. In addition, piloting of these guidelines in eight Small Towns is ongoing. The finalisation of the piloting exercise will provide information needed to update the Water Source Protection Guidelines and issue them as legally binding documents, as well and finalising the strategy for operationalisation of the 3% contribution for water source protection through verification of the kind of activities to be undertaken and the costs for preparing and implementing Water Source Protection Plans.

7.6.2 Implementation of catchment-based water resources management

Implementation of water resources management functions de-concentrated to the four Water Management Zones (WMZs) of Kyoga, Victoria, Albert and Upper Nile continued to be consolidated. Currently, each WMZ has 8 to 10 staff with different backgrounds, and the number continues to increase due to the increased demand for water resources management services at the lower levels.

Status of formation of Catchment Management Organisations

Water resources planning, development and management is being undertaken following a catchment as opposed to administrative boundaries. Each catchment is planned to be managed a Catchment Management Organisation (CMO) consisting of a Stakeholder Forum, Catchment Management Committee (CMC), Catchment Management Technical Committee, and Catchment Management Organisation Secretariat. The CMO is a level where stakeholder-driven integrated water resources management and development is being implemented. Nine catchments have now CMOs[54]; three (Katonga, Mpologoma, and Victoria Nile) were formed during FY 2015/16, and the process of forming 4 more CMOs[55] is ongoing.

Status of preparation of Catchment Management Plans (CMP)

The Catchment Management Planning Guidelines, which came into effect in 2013, are the guiding document for the catchment management planning process. Some of the plans that were developed before the guidelines came into effect are being reviewed to bring them in line with the guidelines. Currently, catchment management planning is ongoing in 15 catchments in the country, with already a number of catchment management plans developed. Six Catchment Management Plans have in the previous years been prepared following the Catchment Management Planning guidelines namely Mpanga, Maziba, Ruhenzyenda, Awoja, Rwizi and Semliki. Four more CMPs are in their final stages of completion, and will be ready October 2016. Two of these plans were finalized during FY 2015/16.The status of the CMP development in the different catchments is outlined in Table 7.6.

Table 7.6 Status of catchment management plan development in the different catchments by end June 2016

WMZ	Catchment	Status of the Plan	When it came or will come into effect
Albert	Mpanga	**Finalised**	2015
	Semliki	**Finalised**	2016
	Ruhenzamyenda	**Finalised**	2015
	Albert	Under development	2017

[54] Rwizi, Mpanga, Aswa, Maziba, Ruhenzyenda, Awoja, Katonga, Mpologoma, and Victoria Nile.

[55] These are Albert Nile, Semliki, Lokok, and Lokere.

WMZ	Catchment	Status of the Plan	When it came or will come into effect
	Kiiha	Under development	2017
Kyoga	Awoja	**Finalised**	2013
	Mpologoma	Under development	2016
	Victoria Nile	Under development	2016
	Lokere	Under development	2017
	Lokok	Under development	2017
Upper Nile	Aswa	Under development	2016
	Albert Nile	Under development	2016
Victoria	Rwizi	**Finalised**	2016
	Maziba	**Finalised**	2015
	Katonga	Under development	2017

Implementation of the Catchment Management Plans

The developed catchment management plans contain priority investment and management measures needed to be implemented to protect and restore the catchment while improving people's livelihoods in the various catchments. Implementation of some of the priority measures in the CMPs is ongoing through either collaboration between various stakeholders and the Water Management Zones or by stakeholders alone. Implementation of some interventions is already ongoing in 10 catchments[56]. Details of implementation of catchment management interventions in the various catchments is elaborated in Annex 10.

7.6.3 Promotion of partnerships with other projects related to water resources management

As a way of creating synergy and partnerships with other programs and projects related to water resources management, discussions were held with a number of partners, including Northern Uganda Social Action Fund (NUSAF), Food and Agricultural Organisation (FAO), GIZ etc. As part of these discussions, an agreement has been reached with NUSAF to closely link with the Water Management Zones to obtain guidance in its efforts to employ a watershed/catchment development model. With FAO, arrangements have been made to promote coordinated water resources development in Karamoja and to this effect a "a Coordinated Water Development Dialogue for Karamoja" was organised and was attended by UN Agencies, international NGOs, government agencies, local governments and private sector operating in Karamoja. Three stewardship arrangements have been created with Coca Cola in Rwizi catchment, with Total in in Nsambye Sub-catchment in Bulisa District, and with Kinyara Sugar in Kiiha Sub-catchment in Masindi and Hoima Districts. These partnerships have been key in bringing the private sector on board, in mobilisation of additional resources of catchment based-IWRM, and promotion of stakeholder collaboration and coordination.

[56] namely Rwizi, Mpanga, Semliki, Aswa, Awoja, Ruhenzamyenda, Katonga, Lokok, Lokere and Mpologoma

8 SANITATION AND HYGIENE

8.1 Introduction

The United Nations 2030 Agenda for Sustainable Development seeks to achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of girls and women, and those in vulnerable situations. It also seeks to improve water quality by reducing pollution, to halve the amount of untreated waste water by 2030, and to substantially increase recycling and safe reuse. Therefore it is no longer enough for a household to have a hygienic toilet, as the faecal sludge should also be discharged of in a safe manner, either by safely burying on site or by safe treatment and reuse or disposal. Access to sanitation and improved hygiene will also be essential to the attainment of other SDG goals, e.g. ending all forms of malnutrition, and ending epidemics of water borne diseases, which ultimately translates to good health, thus reaching Sustainable Development Goal No.3.

Over the period of the National Development Plan (NDP) II, the sector plans to focus on several areas including increasing access to safe sanitation in rural and urban areas, and incorporating gender concerns. By signing the United Nations Declaration, Uganda committed to ensure availability and management of sanitation for all by 2030.

8.2 Urban Sanitation and Hygiene

The annual urbanisation growth rate in Uganda is estimated at 5.9%, which is much higher than that of the Sub-Sahara region, which is at 3.67%.[57] Unfortunately, the infrastructure development does not match the rate of urbanisation and as a result, sanitation challenges are prevalent in urban areas, especially in the urban poor areas. The safe water coverage in urban areas in Uganda has gradually increased over the last 25 years, whereas access to improved sanitation has not increased at the same rate, and there are no plans to manage the waste water. Over 90% of the urban population in Uganda mainly relies on on-site sanitation (latrines or septic tanks), which requires emptying and proper disposal of the faecal sludge.

Faecal sludge management in Uganda is still poorly developed. Less than 10% of the toilet facilities in towns can be emptied, making the demand for faecal sludge removal low. There are no disposal/treatment facilities in most towns, and a lack of cesspool trucks in most small towns; over 80% of the trucks are based in Kampala. Due to the long haulage distances to the sludge disposal facilities, the absence of economies of scale (insufficient sludge volumes for treatment) and the cost of mobilising the cesspool trucks from other towns, the emptying charges are high. This leads to illicit disposal of collected faecal sludge in swamps, quarries and water bodies with negative environmental and public health consequences.

The Sector is therefore paying attention to the proper management of faecal sludge from the on-site facilities, and there have been several interventions to address the sanitation challenges in both large and small towns, which include the whole service chain of faecal sludge management (FSM), including collection, transport and disposal.

8.2.1 Key Initiatives

The following initiatives have been taken in the period under review to address the challenges in urban sanitation and hygiene.

[57] The Growth Challenge; Can Ugandan Cities get to work? Uganda Economic Update 5th Edition; The World Bank, Feb 2015

Institutional Strengthening

The Urban Water and Sewerage Department (UWSD) established a Division of Sewerage and Sanitation services under the MWE's revised structure, which effectively began to function from 1st July 2015. The responsibility of the new Division is to ensure appropriate, efficient and economical provision of viable urban sanitation and sewerage systems for domestic, public, institutional, industrial and commercial use in small and large towns of the Republic of Uganda.

Faecal Sludge Management

In order to address faecal sludge management challenges, the Ministry of Water and Environment (MWE) divided the towns into 50 clusters that could be served by 50 different faecal sludge (FS) treatment facilities, each with a capacity of 1-10 m^3/day. Only 16 FS treatment facilities exist in Uganda at the moment.

All the FS disposal facilities are being managed by NWSC. To improve the demand for faecal sludge services in the clusters, MWE is piloting the integration of the FS service chain (collection, transportation and disposal) within two clusters of Mbale (in Kachumbala, Budaka, Busiu and Ikiki) and Iganga (Busembatia, Namutumba, Kaliro, Bugiri, Idudi and Namungalwe). The emptying trucks are owned and operated by the private sector, while the disposal facilities are operated by NWSC. A Memorandum of Understanding (MOU) was signed between NWSC, private cesspool emptiers and Small Towns (Local Government), stipulating the roles of the different stakeholders.

MWE has also developed an alternative management model for the disposal facilities that are planned for construction in areas / towns outside NWSC jurisdiction. The proposed model involves management of the disposal facilities by the Private Operators managing water supply systems in the respective towns under their supervision).

Transportation of the faecal sludge largely remains the responsibility of the private sector; however in some towns where the MWE procured cesspool emptiers, the emptiers are managed by the Umbrella Organisation. The table below highlights the current status and plans underway for development of FS facilities in selected clusters.

Table 8.1 Status of new FS treatments

Towns	Status	Responsible institution	Operation and Maintenance
Buwama	Construction is complete and is functional	MWE	NWSC
Ntungamo	Construction is complete and is functional	MWE	NWSC
Mayuge	Tendered out	MWE	NWSC
Bukakata- Masaka	Construction is on going	MWE	NWSC
Kyazanga, Sironko, Wobulenzi, Koboko	Designs and feasibility studies to be carried out in FY 16/17	MWE	NWSC
Kayunga	Tendered out awaiting disbursement of funds for construction	WSDF - C	PO
Kamuli	Tendered out awaiting disbursement of funds for construction	WSDF - E	PO
Rakai, Ishongoro	Designs are complete	WSDF - SW	PO
Loro, Apac	Finalizing designs	WSDF - N	PO

Note: WSDF = Water Supply Development Facility, NWSC = National Water & Sewerage Corporation, PO = private operator

Intake point of the FS disposal facility in Buwama, with a caretaker's house

Planted drying beds with constructed wetlands (primary treatment) at the facility in Buwama

Planted drying beds with constructed wetlands (primary treatment) at the facility in Ntungamo

Secondary treatment with Horizontal Rock Filters in Ntungamo

Figure 8.1 Pictures of the constructed FS disposal facilities in Buwama and Ntungamo

Public and Institutional Sanitation in Small Towns

MWE has continued to support increased access to improved sanitation facilities and improved hygiene in small towns and rural growth centers under its jurisdiction. The sanitation and hygiene component has been embedded in all the sub-sector projects, as guided by the urban sanitation implementation manual (June 2015). The MWE, through Urban Water and Sanitation Department has constructed several public and institutional sanitation facilities to improve access to public sanitation in small towns (see Table 8.2).

Table 8.2 Summary of public and institutional sanitation facilities constructed under MWE in FY2015/16

Town/WSDFs	# Public toilets	# Instit. toilets	Status	Responsible institution
Ntungamo	4	4	Completed and functional	MWE
Buwama	1	3	Completed and functional	MWE
Kayabwe	2	2	Completed and functional	MWE
Bukakata	7	3	Completed and functional	MWE
Mayuge	2	3	Completed and functional	MWE
WSDF –E	12		8 completed and functional, 4 still under construction	MWE through WSDF –E
WSDF – C	2	0	Delay in commencement	MWE through WSDF – C
WSDF – N	3	4	completed and functional	MWE through WSDF – N
WSDF – SW	16	0	Completed and functional	MWE through WSDF – SW

In addition to construction, MWE developed the capacity of the beneficiary town councils to take on the operation and maintenance of all the completed public toilet facilities, including financial management, to enhance sustainability of the facilities.

Household Sanitation

During implementation of new water supply and sanitation projects in small towns, WSDFs carry out a baseline survey at commencement stage of the water supply and sanitation project. Based on the outcome of the baseline survey, hygiene and sanitation promotion interventions are planned and implemented throughout the project implementation. A post intervention survey is then carried out before the commissioning of the water supply system. It is at this point that MWE ensures that the project towns improve their sanitation coverage to 100% before commissioning of water supply systems. The sanitation coverage in this case, is defined as access to the toilet facilities at household level. However, it should be noted that some towns fail to achieve 100% sanitation coverage because of various reasons. In this case, analysis of the reasons for failure is done to establish the actual causes, and basing on the findings, a decision is made on whether to go ahead and commission the water supply, given the significant increase in the coverage, or carry out further interventions to improve the coverage or support the beneficiary towns after the commissioning of the water system to ensure more improvements and sustainability of the sanitation status. WSDFs also develop, promote and demonstrate appropriate technologies of sanitation facilities at household level.

Table 8.3 and Table 8.4 provide summaries of the sanitation status of small towns that achieved considerable increase in coverage before commissioning, and of the demonstration facilities constructed by the different WSDFs, respectively.

Table 8.3 Percentage of towns that achieved a considerable increase in sanitation coverage

WSDF	Towns	Baseline average [%]	Post intervention surveys [%]	Remarks
WSDF-C	Kayunga	81	98	Implementation of interventions is still on-going in other towns due to delayed release of funds.
WSDF-E	Abim,	42.8	100	All the project towns achieved 100% at post intervention survey. This was mainly attributed to enforcement of sanitation by the Local Governments in the Eastern Towns.
	Karenga	46		
	Busiu	56		
	Kaabong	20.4		
	Kapchorwa	67		
	Namutumba	63.2		
	Bukedea	63.8		
	Mbulamuti	69		
	Ochero	73		
	Irundu	67		
	Suam	79		
	Kachumbala	77		
	Matany	42		
	Buwuni	-		
WSDF-N	Adjumani	86	94.2	The project towns in the North registered significant increase in sanitation coverage with an average of over 90% achievement from 80%. Failure to achieve 100% was mainly due to heavy rains that led to collapse of sanitation facilities.
	Omugo	97	99.4	
	Paidha	98	96.4	
	Purongo	82.6	83.2	
	Patongo	69.4	69.6	
	Ovujo	81.7	76.1	
	Midigo	65.5	84	
	Kamdini	20	97	
	Ibuje	90.1	95.5	
	Oyam	84	87.1	
	Kalongo	90.9	97.5	
WSDF-SW	Kaliiro RGC	74	92	
	Gasiiza RGC	71	92	

	Nyeihanga RGC	92	100	Project towns in South-Western region also registered significant increase in sanitation coverage after the intervention.
	Bugongi	96	100	
	Kasensero TB	31	87	
	Kinuuka RGC	93	98	
	Kasagama RGC	91	94	
	Sanga TC	94	98	
	Nyahuka TC.	79	84	

Table 8.4 Household sanitation facilities constructed by the different WSDFs

	WSDF-E	WSDF-C	WSDF-N	WSDF-SW
Household demonstration Ecosan toilets	42	0	42	42
Masons trained	20	0	6	31

WSDF Central did not construct any household demonstration facilities due to limited funding, hence prioritising the provision of public sanitation and faecal sludge management services (detailed designs) in the project towns.

Faecal sludge management in Kampala

It is estimated that 99% of the population in Kampala has access to sanitation, but only 54% of the waste is properly treated and disposed of.[58] Kampala City Council Authority (KCCA) carried out a study on on-site sanitation in Kampala. The study showed that the faecal sludge is inefficiently managed; this is because faecal sludge need to be transported over long distances to a centralized treatment plant, and because of unregulated service provision, low access to proper sanitation facilities, and lack of public awareness. These factors have made emptying costs unaffordable (USD 9 /m^3, and USD 60 /m^3 for a cesspool emptier, and gulper[59] respectively) for the majority of the urban poor, whose average daily income is only USD 2. These factors have resulted in abandonment of filled latrines, use of unsanitary manual emptying practices and open defecation. In addition, the cost and scarcity of land has constrained the construction of new lined sanitation facilities that may be emptied. [60]

The current sewer network of Kampala city covers mostly the central division, whereas the rest of the divisions have to depend on on-site sanitation. Therefore, it is important to develop a viable faecal sludge management system for the city. Unfortunately, most of the households use unlined pits which cannot be emptied. An estimated 36 % of the sanitation facilities is lined.[61] It should be noted that the treatment plant and the private emptiers in the city do not only serve the Kampala City, but also neighbouring areas, especially Wakiso district. Of the faecal sludge received at the Lubigi treatment plant in Kampala, an estimated 28% originates from outside Kampala. The demand for emptying services for Kampala and surrounding areas is much higher than the existing capacity of trucks and gulpers, and there is a potential deficit of 56 percent[62] in provision of emptying services. Table 8.5 highlights Kampala's FSM challenges as well as proposed solutions. Furthermore, KCCA has secured funding to address the challenges and is working on institutional strengthening and improved enforcement and regulation of the emptying services. In addition, KCCA is carrying out a detailed sanitation mapping of existing facilities in Kampala City, and has developed standards for recommended technologies to guide development in the City. The City has also embarked on a city-wide social marketing campaign to create demand for improved sanitation.

[58] SFD Promotion Initiative; Eawag/Sandec ; 2016

[59] a low-cost manually driven positive displacement pump

[60] Improving Faecal Sludge Management for Onsite Sanitation in Kampala City, Uganda; KCCA; 2014

[61] Improving Faecal Sludge Management for Onsite Sanitation in Kampala City, Uganda; KCCA; 2014

[62] Improving Faecal Sludge Management for Onsite Sanitation in Kampala City, Uganda; KCCA; 2014

Table 8.5 Kampala's FSM challenges as well as proposed solutions

#	Cross-cutting Challenges	Recommendations
1	Simple (unlined) pit latrines are the predominant (64%) type of sanitation facility used, yet they are difficult or impossible to empty using mechanical means.	• Clustering of congested/informal settlements to provide shared emptyable facilities e.g. shared septic tanks and toilets. • Acquisition of land by KCCA in various congested areas/informal settlements for construction of communal emptyable toilet facilities.
2	Emptyable or lined toilets are unaffordable to most households.	• Loans for constructing sanitation facilities/ improving access to finance
3	Challenge of poor latrine construction e.g. in waterlogged areas, etc.	• Standardizing design & construction of latrines by KCCA as well as improved enforcement
	Households are not sensitized (socio-cultural challenges) about the importance of having toilets or using them correctly which results in solid waste dumping in toilets and high filling rates creating difficulty in emptying. Additionally, facilitation for routine inspections is lacking.	• Sensitization through community leaders • Enforcement of relevant laws to ensure that all households have access to sanitation facilities. • Introduce behaviour change communication
4	Unregulated emptying service resulting in high price variations, unsatisfactory service delivery standards (response time, quality and completeness of service, etc.)	• Regulation of private sector by KCCA through provision of performance standards, etc. • Setting up of decentralized information centre (s) for emptying services • Gazette operational areas for FS collection & transportation to enhance service delivery. • Creation of HH taxes that can take care of FS emptying services (e.g. lumping emptying fee with solid waste collection charges, property tax or a sanitation fee)
5	Illicit disposal of FS by households especially in the rainy season.	• Sensitization through community leaders • Enforcement of relevant laws
6	Access to the toilets is a challenge in unplanned and congested areas.	• KCCA should ensure that the physical planning aspects at both household and city level facilitate proper provision of sanitation services
7	Weak enforcement, e.g. political hindrances, reluctance of some landlords to provide adequate toilet facilities for tenants.	• Provide adequate workforce and budget lines for facilitating enforcement of sanitation standards at local level

8.2.2 Status and Trends of Key Indicators

It was not possible to get representative data from Kampala and from most of the municipalities, so the coverage estimates are based on data for smaller towns.

Golden Indicator No.4: Access to Improved Sanitation

The golden indicator for sanitation is *"the percentage of people with access to improved sanitation"*. Based on the data received, 84.6% of the urban population has access to sanitation. It should be noted that no distinction was made on the quality of toilet facility. According to the 2014 Census, an estimated 63.4 percent of the overall urban population has access to private improved sanitation, while 2.5 percent do not have a toilet facility.

Golden Indicator No.8: Access to Hand Washing

The golden indicator for hand washing is *"the percentage of people with access to hand washing facilities."* According to the data from the towns that reported, an estimated **39.1**% of the urban population has access to hand washing facilities at the toilets, although this is not an indication of use.

It should be noted that there has not been any noticeable effort to improve hand washing in urban areas.

8.2.3 Challenges

MWE is faced with a funding gap for the construction and development of planned FS and already designed facilities. For all designs that will be finalized, construction will depend on availability of funds. Also, funding for sanitation/FSM at household and institutional levels is inadequate. Moreover, there is a low volume of faecal sludge and few emptyable facilities in towns.

8.2.4 Recommendations

In order to address the lack of funding for the construction of new faecal sludge treatment facilities, the sector should continue to lobby for increased resources and to integrate construction of FS treatment facilities as part of water supply projects.

MWE should lobby with the Ministry of Education, Science, Technology and Sports (MoESTS) and local governments to provide funding for the management of faecal sludge in institutions. The local governments could consider a mark-up on the water tariff to offset some of the FSM costs.

In order to increase the volume of faecal sludge, and make the FSM more attractive to the private sector, there should be increased advocacy for lined pits and septic tanks through preparation of town sanitation plans and promotion of bylaws in towns.

8.3 Rural Sanitation

Rural Sanitation and hygiene promotion in Uganda is anchored in the 10 Year Improved Sanitation and Hygiene (ISH) financing strategy that was developed in 2006. The strategy is based on three pillars: improving the enabling environment, creating demand and improving the supply.

Over time, a number of programs and projects have been implemented to achieve the three pillars of the strategy, both nationally by central government and locally by the district local governments and NGOs/CBOs. The next section presents the programs that were carried out in FY 2015/16.

8.3.1 Key Programmes and Projects

Sanitation promotion at household level was done with funding from a number of programmes and projects, which were managed both centrally and at district level. Local governments received two Conditional Grants from Treasury for water and sanitation, i.e. the District Water and Sanitation Development Conditional Grant-(DWSDCG) plus the District Hygiene and Sanitation Conditional Grant (DHSCG). UGX bn 1.4 of the DWSDCG was used to construct public sanitation facilities at markets and rural growth centres. Part of the funds were also used for software activities, including promotion of sanitation, for communities that received new water points. UGX bn 2 was disbursed to 91 districts under the DHSCG, with each district receiving approximately UGX mn 23. Most districts worked on creating demand for improved sanitation, working in two sub-counties using either Community Led Total Sanitation (CLTS) or Home Improvement Campaigns (HIC) as approach. The use of CLTS has increased over time, with more than 90% of the districts that receive the DHSCG implementing CLTS in the FY 2015/16, while the rest used HIC; all approaches have open defecation free (ODF) villages as the ultimate outcome. A total of 1,752 villages were worked in, of which 448 (26 %) were reported to have become ODF.

At national level, MWE implemented sanitation promotion for the communities in rural growth centres that received new water supply systems. These included communities under the Kyoga, Lirima, Bukwo, Bukedea, and Bududa water supply and sanitation projects.

Sanitation and hygiene is also being promoted under the Uganda Sanitation fund (USF) programme by the Environmental Health Division of the Ministry of Health, covering 30 districts. During the FY 2015/16, USD 1,660,977 was disbursed to the districts to carry out Community Led Total Sanitation (CLTS) in 1,551 villages, to trigger the process. However, only 1,234 villages were triggered, while 2,264 villages were declared ODF. The high number of declared ODF villages includes also villages triggered last year that had not been declared ODF in that year. The project put a ban on further triggering until all triggered villages had become ODF. The project estimates that on average UGX 1.6m is needed to get a community open defecation free. A total of 3,106,200 people (63% of the 5 year target) are estimated to now live in ODF communities as a result of the USF project. The project started in November 2011 and ended on 30th June 2016. During that period a total of USD 8,383,669 was disbursed to the project, and USD 5,229,914 was spent, representing an absorption of 62%. Discussions are ongoing to extend and expand the project by an additional four years with additional financing from both development partner and Government of Uganda. With the additional financing, the project area is expected to be expanded to cover an additional 8 districts, including two districts from the Karamoja region (Napak and Nakapiripirit).

8.3.2 Status and Trends of Key Indicators

Golden Indicator No 4: Access to Household Sanitation

The golden indicator for rural sanitation is "*the percentage of people with access to improved sanitation*". In the FY 2015/16, access to rural sanitation, according to district reports was **79%**, an increase of 2 percentage points from last year's coverage. The trend in improvement of country-wide rural sanitation coverage is provided in Figure 8.2.

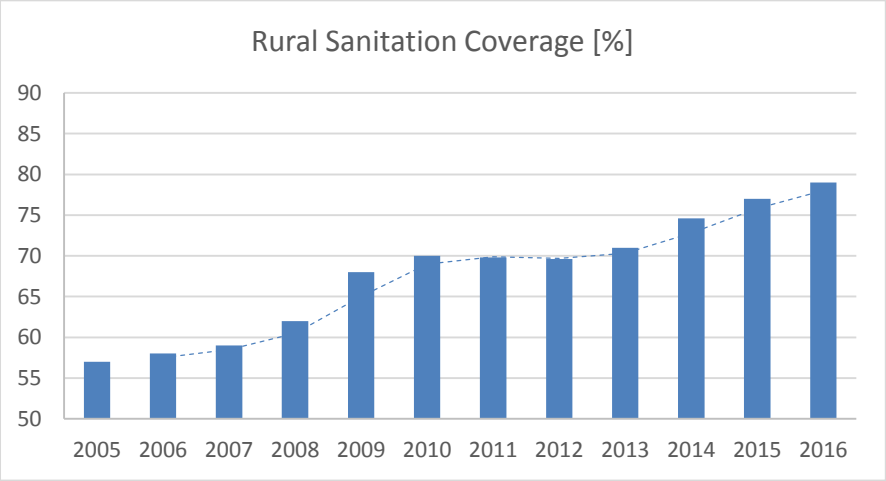


Figure 8.2 Trend in rural sanitation coverage in Uganda, 2005 - 2016

Figure 8.3 shows the district latrine coverage by 30th June 2016. An estimated 250,000 new toilets were built and an estimated 1.2 million new people received access to sanitation. The sector leveraged an estimated UGX bn 38 from households building their own toilets.

It should be noted that, according to the 2014 census, an estimated 10 percent of the rural population does not have a toilet facility, while 58 percent has unimproved toilets. The difference in the coverage figures between what is reported from the districts and the data from the Census is due to a differences in definition. As Uganda sets a baseline for the Sustainable Development Goals (SDGs), the Sector should harmonise the definitions with Uganda Bureau of Statistics. As indicated by the Census, a big number of the rural population use unimproved toilets; if Uganda is to meet the SDGs, it will be necessary to address the quality of facilities constructed by the households. Therefore, promoters of hygiene and sanitation need to address the issue of standards during implementation of any approach/initiative that strives to improve community sanitation and hygiene.

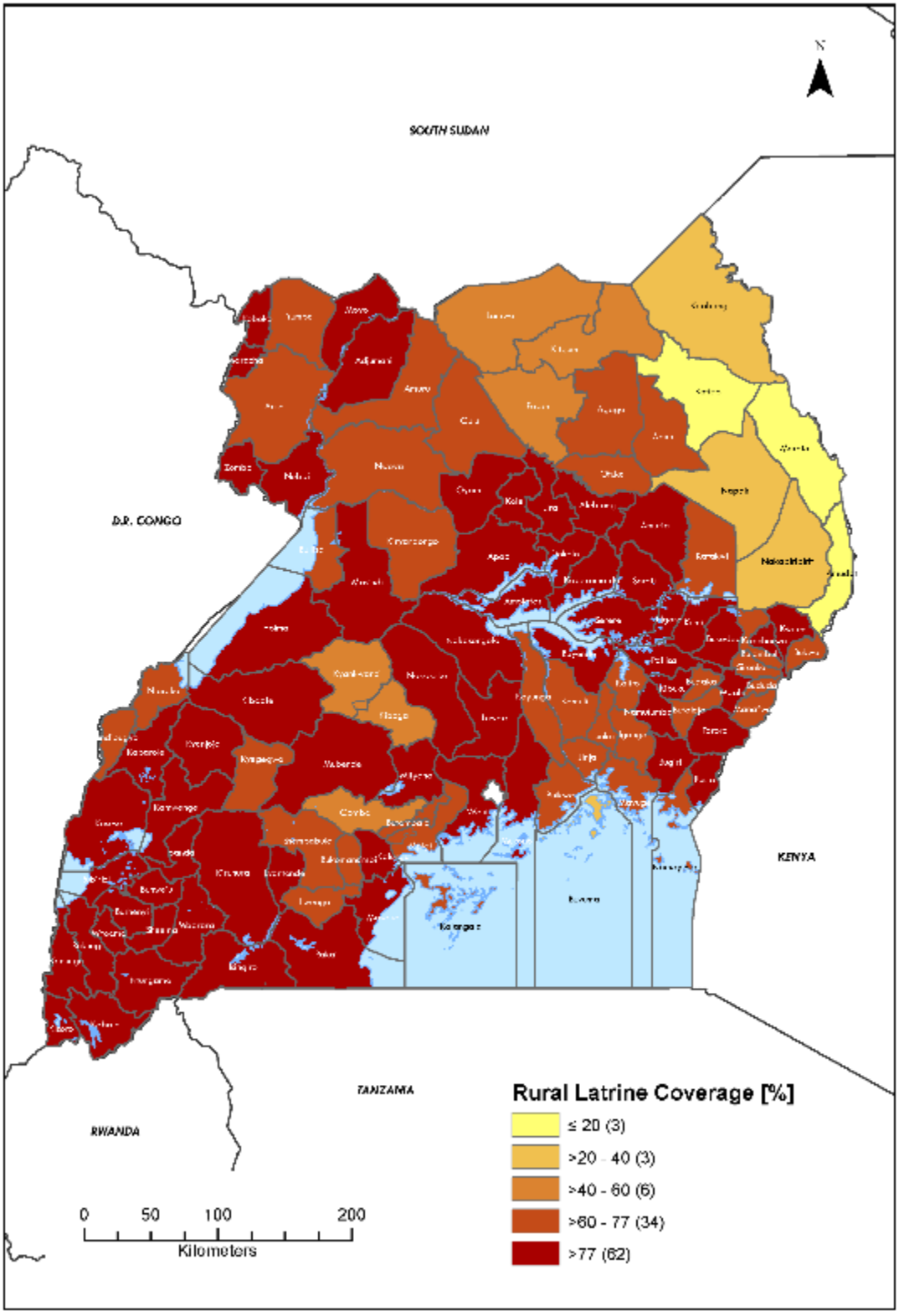


Figure 8.3 District latrine coverage in rural areas (30 June, 2016)

Golden Indicator No 4: Pupil to Latrine/Stance Ratio in Schools

School sanitation is measured on the basis of *"pupil to stance ratio"*. The national standards recommend a pupil to stance ratio of 1:40; according to the reports from the districts, the national pupil:stance ratio is **70:1**, compared to last year at 67:1. Of the 111 districts (excluding Kampala) only 8 districts reported to meet the national standards.

Access to hand washing in schools has continued to be low with only **34%** of the schools having hand washing facilities, which puts the lives of the pupils at risk of suffering from faecal related diseases leading to absenteeism.

The Ministry of Education carried out a water, sanitation and hygiene (WASH) assessment in 910 schools in 30 selected districts and noted that although most schools had toilets, functionality or usability is low. The main reasons for not using the toilets was that they were filled up or were damaged. Another reason for unused toilets was the poor hygienic condition; only 40% were reported to be clean. There were also instances (10%) where the toilets were locked and access restricted. The study established that 34% of the government schools have funds for operation and maintenance of WASH facilities, but the funds were reported not to be enough, and parents are a major source of operation and maintenance funds. The study noted that there was inadequate provision for the management of menstrual hygiene (provision of bins and water inside girls' latrines). Although hygiene education is part of the official curriculum in most schools and 74% of the schools were found to have water, only 30% had soap for washing hands.

Golden Indicator No 8: Hand Washing

The golden indicator on hand washing is *"percentage of people with access to hand washing facilities"*. The access to hand washing in rural areas is estimated to be **36%**, an increase from 33.2% last financial year.

It should be noted that only eighteen districts reported to have a hand washing rate of over 50%, which is the national target. The presence of a water facility (percentage access to hand washing facilities) is however not representative of the practice of washing hands after using the toilet, which is estimated to be lower. According to the National Service Delivery Survey, 2015, only 7% had hand washing facilities with both soap and water.

Benchmarking of District Performance

The performance of districts was benchmarked in terms of sanitation indicators, both on process and outcomes. Annex 11 presents the results of the district performance benchmarking. Table 8.6 presents the best 5 performing districts.

Table 8.6 Best performing districts in terms of sanitation in FY2015/16

Rank	District	Score (%)
1	Bukedea	90
2	Moyo	85
3	Mbarara	78
4	Gulu	75
5	Pallisa	75

The districts under the Uganda Sanitation Fund project perform better than the districts that receive the District Sanitation and Hygiene Conditional Grant, as they have much more resources and can engage more with the communities. In addition, the project carries out close supervision of the districts and has adopted a revised version of the Community Led Total Sanitation which is having good results in the field.

8.3.3 Challenges

The districts cited several challenges to the implementation of the rural sanitation program:

Inadequate logistical support: A good number of environmental health staff lack transport means to enable them carry out their day to day duties thus making their work challenging. In addition to lack of transport, inadequate funds, especially for staff the lower local governments, is a major constraint. The staff at the lower local governments need to be facilitated to implement activities.

Long turnaround period: It takes a long time for villages to become ODF. The long turnaround period has been attributed to the limited number of follow ups made to the villages by the districts' environmental health staff due to inadequate resources.

Quality of sanitation data: There is no system in place to validate data on sanitation as it comes from the village health teams (VHTs) who collect the data that is channelled through to the district and finally to the national level. The quality of data hampers planning.

8.3.4 Recommendations

To address the challenge of limited resources, districts should look for opportunities of integrating sanitation and hygiene in ongoing programs and projects to leverage more resources.

In order to get more communities becoming ODF, districts should plan better in order to carry out more follow up visits after triggering the communities. District local governments should also adopt approaches from the USF project which is more successful in terms of communities becoming ODF.

In order to improve the quality of data from the districts, the districts need to appreciate the need for accurate data by using it for planning and to improve performance. In addition, the Village Health Teams who collect the data should be availed simple data collection tools, and data should be collected throughout the year, not just in the short period preceding the preparation of the sector performance report.

9 ENVIRONMENT AND NATURAL RESOURCES

9.1 Wetland Management

MWE's Wetland Management Department (WMD) recorded a number of achievements during the financial year with operations and activities under a range of government and development partner supported programs and projects, as described in the following section. Despite these achievements, wetlands face serious challenges and, overall, continued to decline with implications for social and economic development.

9.1.1 Promotion of Knowledge of Environment and Natural Resources

The WMD/MWE has raised public awareness of both wetland values and laws related to their protection and management aimed at informing decision making. Awareness raising has been conducted through radio and TV talk shows, brochure and maps distribution to wetland users, commemoration of RAMSAR[63] World Wetland day and focus group discussions to mobilize local communities to engage in the demarcation and restoration. This has contributed to the effective participation of local stakeholders in the demarcation and restoration of wetlands.

9.1.2 Economic valuation of wetlands

Though it is widely recognised that wetlands provide economically important ecosystem services, lack of information weakens arguments for their protection. An economic valuation of Kyazanga wetland in Lwengo district, which is near completion, will help address this situation. The preliminary findings indicate that the wetland contributes significantly to local people in terms of water provision for domestic use, livestock and agriculture. The report will complement other similar reports to put a case for increased funding for wetland management at all levels.

9.1.3 Restoration and Protection of Degraded Wetlands

Demarcation of wetland boundaries

During FY 2015/2016, 257 kms out of 274 kms planned wetland boundaries[64] were demarcated by MWE, a 94% performance Furthermore, six district local governments[65] demarcated 162 kms of wetland boundaries with live markers. The total boundary demarcated was at 419.2 kms, more than the 394 kms in FY 2014/15. The timely procurement of the materials and mobilization of stakeholders has enhanced the completion of the demarcation processes; the technical backstopping provided to the districts has assisted in the prioritization of demarcation output. The demarcation of the wetland has clarified on the legal status and facilitates enforcement and compliance by local communities and MWE.

Restoration of wetlands

MWE together with the relevant local governments restored 151 ha wetland of the planned 250 ha[66], corresponding to a 60.4% performance. Furthermore, MWE and Civil Society Organizations provided technical support to the district local governments of Katakwi, Kumi, Soroti, Kamwenge, Mbarara, Kasese and Mityana Districts to restore 909.9 ha.

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[63] The RAMSAR Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

[64] in Mukono, Iganga, Arua, Bushenyi, Masindi, and Gulu.

[65] Kumi, Soroti, Katakwi, Ngora, Wakiso, and Kiryandongo

[66] in Buhweju, Sheema, Butambala and Buikwe Districts

NEMA supported restoration of 280ha of Lubigi wetland, and initiated restoration activities in Limoto wetland system in Kibuku and Pallisa districts. More support was extended to continue with the restoration of Akadot wetland in Kumi district. The restored wetlands are regaining ecological functions and socio-economic benefits like water supply and fishing have improved.

Figure 9.1 A pillar being planted at a wetland boundary

Figure 9.2 Closing a drainage channel to restore integrity of the wetland

The total area of wetlands restored by the various actors was **1,340.9 ha** during 2015/16FY, compared to 210 ha which was restored during 2014/15FY, thus maintaining the hydrological, ecological and biodiversity functions of these wetlands, which is a remarkable achievement. The trends in wetlands demarcated and restored are shown in Figure 9.3.

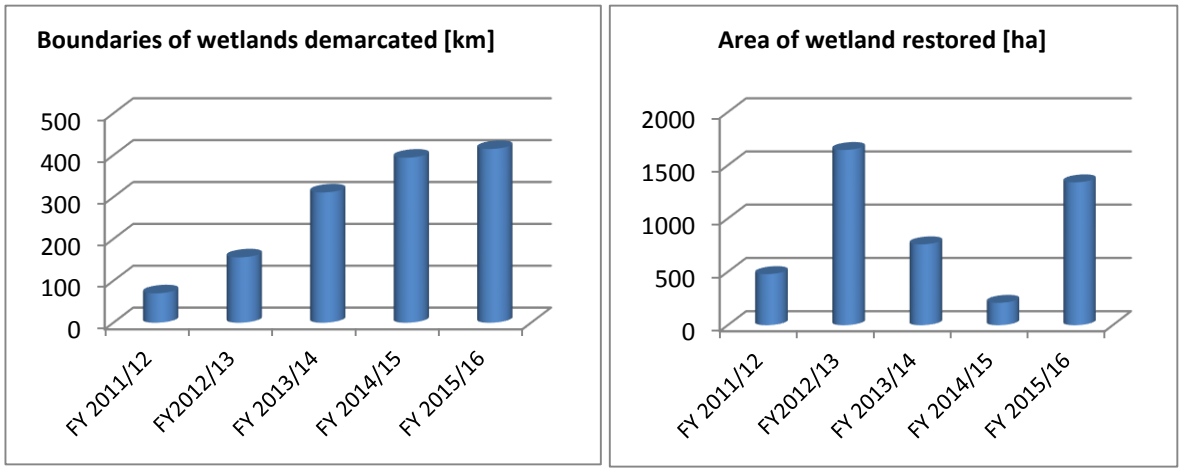


Figure 9.3 Trends in length of boundaries demarcated, and areas restored for wetlands over the last five years

9.1.4 Policy, Planning, Legal and Institutional Framework

During FY 2015/16, three out of the planned four districts, being Kiboga, Kiryandongo and Amuria were supported to develop District Ordinances. The process for formulating ordinances is lengthy, and requires maximum stakeholders' mobilisation, but is useful for demystifying the national regulatory framework to suit local circumstances for ease of understanding and enforcement by the local people and leaders.

9.1.5 Coordination, Monitoring, Inspection, Mobilization and Supervision

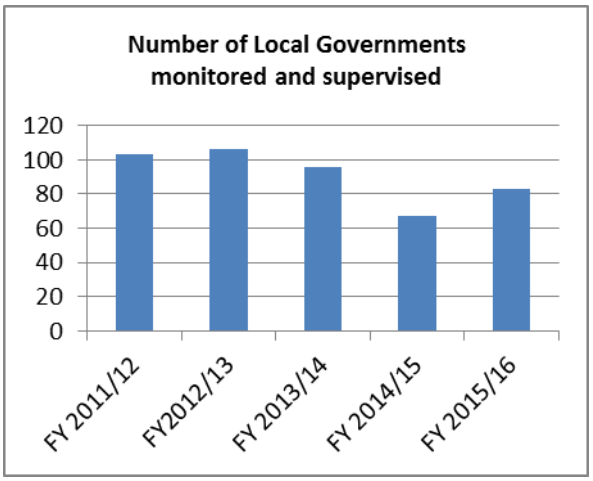


Figure 9.4 Trend in number of local governments receiving technical backstopping in wetlands management

With the establishment and staffing of Regional Technical Support Units, a total of 83 out of 111 LGs were given technical assistance, representing an achievement of 74.8% of the target. Performance of technical support and supervision provided to local governments (LGs) since FY2011/12 has been fairly constant over the years. Technical backstopping and supervision has enhanced LGs capacity for timely planning, reporting, integration of District Wetlands Action Plans (DWAPS) into District Development Plans, compliance monitoring and enforcement for improved wetland management. Over the year all the LG inspected were complying with the wetland policy, regulations, guidelines and strategic plan 2011-2020.

Furthermore, with support from the Environment Protection Police Unit (EPPU) which provided guards and carried out investigations and prosecutions, the MWE conducted compliance monitoring on 227 sites, while 207 cases were registered in various courts. All in all, 282 suspects were arrested, 49 case files have been lodged in various courts, there were 63 cases of sanction in courts, 13 people were imprisoned, 86 trucks and engineering plants were impounded as exhibits, and UGX 52.5 million in form of fines were imposed on encroachers.

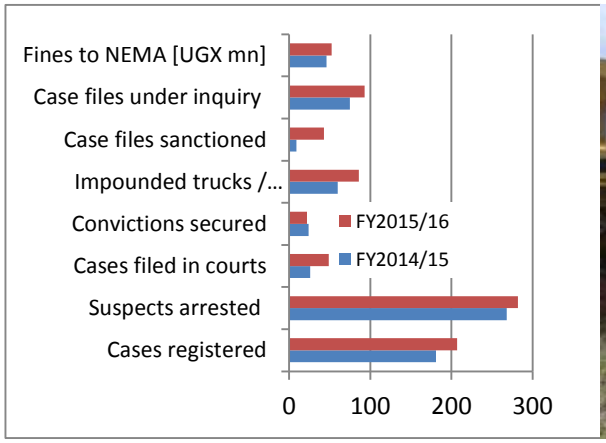


Figure 9.5 Compliance monitoring and enforcement over the last two financial year

Figure 9.6 EPPU carrying out compliance monitoring and enforcement

9.1.6 Status and Trends of Key Indicators

The performance in wetlands management is assessed based on two platinum Indicators: the land area under wetlands, and the area of wetlands under approved management plans. The platinum indicator for wetland coverage is *"% of Uganda's land area covered by wetlands"*. It is based on a percentage coverage determined in 2009.

The percentage of Uganda's land area covered by wetlands is estimated at 10.9% (26,329.6 km^2). This calculation is based on the wetland area restored which was 1,340.9 ha (13.4 km2). The coverage was 10.9% (26,316.2) km^2 in 2014/15, and 10.9% (26,315.1 km^2) in 2013/14, and ultimately compared to 10.9% (26,307.7 km^2) in 2008. Over the last years restored wetland areas have been added to the total

wetland area in 2009 to arrive at the indicator value; as the sizes restored are small compared to the wetland area, it has not impacted on the percentage. Moreover, degradation of wetlands, of which no data are available, may actually be much more severe than the restoration of wetlands.

The platinum indicator for wetland management planning is *"% of Uganda's wetland area under approved management plans*". Six Management Plans[67] covering an area of 838 km^2 were completed. Though the area under management plans increased, the increase was not significant due to a number of factors, including prolonged engagement with the stakeholders to agree on the objectives and zoning.

The total area of wetland under management plans stands 2,968 km^2. With an estimated wetland area of 26,330 km^2, this translates to **11.3%** of the wetlands with a wetland management plan. All in all, the country has now 96 wetland management plans.

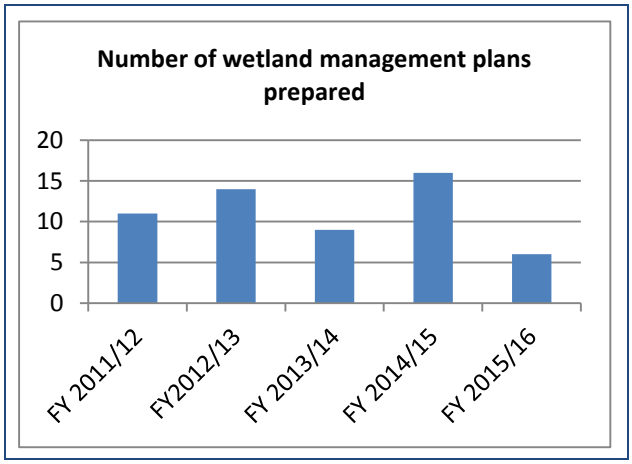


Figure 9.7 Trends in the annual number of management plans made since 2011/2012

Management plans are useful for apportioning wetlands to the different uses promoted under wise use principles. Figure 9.8 and Figure 9.9 show examples of pilot projects recommended for implementation under management plans. The apiary and fish farming projects are encouraging wise use (non-destructive uses) of wetlands. Management plans should be developed for all critical wetlands to ensure resource use equity and livelihood enhancement.

[67] for the wetlands of Lumbuye, Bunambutye, Lwajjali, Walugogo, Atari and Acomai

Figure 9.8 Apiary project in Bududa district under National Wetlands Management projects

Figure 9.9 Fish farming in Budaka district under National Wetlands Management projects.

9.1.7 Challenges and Recommendations

There is inadequate coordination of institutions responsible for the management of wetlands and conflicting mandates, resulting in lack of accountability, transparency and blame games. It is recommended to fast-track the review of the National Environment Management Policy and Act to first harmonize roles and responsibilities and delegation of functions.

The Wetland Bill is not yet finalised, which a big stumbling block in wetland management, given that the existing legal frameworks are weak and do not address key wetland issues. It is therefore recommended to accelerate the approval of the Wetland Resource Management Bill.

There is lack of transparency in EIA processes resulting into continued approval of projects in wetlands without the consent of MWE. Approval of EIAs should not be left to one institution but a technical team comprising of relevant stakeholders.

There are delays in completion, and dismissal of court cases, which is attributed to backlogs in the Judiciary.

Finally, some illegal wetland users are openly resisting eviction. There should therefore be continued community policing around the hot-spot wetlands.

9.2 Forestry Management

The Forestry sub-sector is managed by three main institutions: Forestry Sector Support Department (FSSD) of MWE, National Forestry Authority (NFA), the semi-autonomous agency that manages the Central Forest Reserves, and District Forestry Services (DFS) in district Local Governments. In addition, the Private Sector plays an important supporting role, as well as the Civil Society Organisations (CSOs). The CSOs' performance in forestry management is discussed in Section 13 of this report. Finally, there are a number of key projects, including the National REDD+ Plus Project, The Sawlog Production Grant Scheme (SPGS), Farm income Enhancement and Forestry conservation Project (FIEFOC), and Enhancing forest tenure and governance in Uganda.

Performance in forestry management is described in the following sections.

9.2.1 Key programmes and projects

Forest management activities which are implemented through the different programmes/projects, are described in the following sections.

Forestry Sector Support Services:

The following were the key achievements of FY 2015/2016:

- A National Forest Consultative Forum was held during which 200 stakeholders from various institutions discussed forestry management in Uganda. Key recommendations included enhancing governance and transparency in the sector, gazetting the forestry regulations, and ensuring that central government provides conditional grants for forestry.
- Harvesting of forest products was regulated, with 500 copies of the guidelines for regulating forest products produced and disseminated, and 56 licenses issued to pit sawyers.
- 40 districts were inspected and monitored for compliance with guidelines on forest management. It was found that although the majority (86%) is complying, there is continued misuse of licenses by timber harvesters and traders and misrepresentation of the actual volumes traded. There is profound evidence that the farmers are not tending to their woodlots and plantations as required. Farmers cite lack of financing to undertake management actions.

Management of Central Forests Reserves

The National Forestry Authority's (NFA) core functions as stipulated in the Forestry Act are to manage and control the Central Forest Reserves. NFA's main achievements during FY 2015/16 are summarised below, details of which are provided in NFA's Annual Report:

- A Status of Forests report for Uganda has been prepared and will be launched in first Quarter of FY 2016/17
- 1,180 ha of plantation forest were established in several central forest reserves.
- 280 km of central forest reserve boundaries were resurveyed and opened.
- 670 ha of encroached central forest reserves were restored through planting.
- 69 Permanent Sample Plots were established in Mabira and Budongo CFRs as part of carbon sequestration monitoring.
- Two hundred and sixty thousand cubic meters of round wood was harvested during the FY.
- A total of 10.5 million tree seedlings were produced and distributed under the Community Tree Planting Programme, while 7.2 million were produced for sale, and 1.8 million were produced for NFA's planting programmes.
- 14,596 tourists were received in various eco-tourism sites.
- 4,990 encroachers were evicted from Achwa, Budongo, Kyoga, Muzizi, Karamoja, Lakeshore and West Nile CFRs
- Forest patrols and law enforcement operations conducted by NFA field teams and Environment Police Protection Units impounded 423m3 of timber and 357 bags of charcoal while 2,015 charcoal kilns were destroyed. 1,068 people were arrested for illegal activities and 267 court cases were arraigned.

District Forestry Services

Although no financing was/is provided to local government for forestry, district governments are responsible for managing Local Forest Reserves and forest resources within their district and reporting on forest management to FSSD. District Forest Service activities have been supported by programmes and projects of government, multi and bi lateral development agencies, national and international NGOs, civil society and the private sector (see Annex 2). Reporting continues to be a problem and just 22 district governments have reported on their programmes.

District governments established 1,830ha of commercial plantation and restored 985ha of Local Forest Reserves. District Forest Services worked closely with farmers, providing extension services and training to over 8,000, raising awareness through radio shows, and monitoring farmers on their use of best practice forest management. On farm inspections found that poor post planting management continued to be a problem, attributed to lack of skills and investment.

District Government regulates forest industries through licensing, and collected revenues of USH 226 million from trade in forest products, largely timber and charcoal. It is noted that this revenue is not systematically reinvested in the forest sector.

9.2.2 Projects

Reducing Emissions from Deforestation and Forest Degradation (REDD+)

The REDD+ Programme was launched in Kampala in November 2015 and continued to engage stakeholders at technical and supervisory levels. Additional efforts to engage stakeholders included preparation and distribution of brochures, radio messages, and through public events such as the World Forestry Day and World Environment Day, as well as through formal consultation processes on forest emissions reference levels, benefit sharing arrangements, feedback and grievances mechanisms and REDD strategy options. REDD Process information is shared through the MWE Website as well as websites of REDD+ Partners (World Bank, ADC and UNREDD). Implementation of the undertaking to establish structures for engaging stakeholders, building capacity of these structures and consulting Stakeholders using these structures at national and sub national levels is still on-going.

There is increased appreciation of the REDD+ Programme's contributions to forestry resources development and management and climate change mitigation and adaptation among stakeholders, including government and development and CSO partners. Key achievements during FY 2015/16 included:

- REDD outputs were incorporated in Intended Nationally Determined Contributions in December 2015, the MWE Ministerial Statement, and Joint Partnership Fund (JPF).
- The REDD+ process is integrated into national and sector coordination processes within the Water and Environment Sector. The REDD+ process has been presented during MWE working group meetings and joint technical reviews.
- The REDD+ programme has hosted 3 Joint Missions and participated in the UNDP Energy and Environment Projects Board meeting.
- Based on Uganda's performance an additional USD 3.75 million was allocated to complete Uganda's REDD Readiness process.
- The REDD+ programme supported the Forest Investment Plan (FIP) process for future investments in Uganda's forest sector and its REDD+ programme. Provisional FIP investment priorities were identified by a Joint Mission in June 2016.
- The REDD+ Secretariat Staff participated in the Conference of Parties 21 held in Paris in December 2015.
- Interpretation of remote sensed data is almost complete and has informed the ground truthing activities undertaken by NFA.
- Establishment of National Forest Emissions Reference Levels (FREL/FRLs) and the National Forest Monitoring System (NFMS), including a safeguards information system (SIS) is well underway.

Farm Income Enhancement and Forestry Conservation Project (FIEFOC)

Phase 2 of the FIEFOC project began during the FY with the signing of loan agreements. Project launch and sensitization meetings will be held in the first quarter of 2016/17 but procurement of consultants has already begun.

Under the bridging phase achievements included: distributing 460,000 seedlings to tree growers in various districts around the country, including 215,000 for irrigation scheme catchments of Doho, Mubuku, Olweny and Agoro.

Sawlog Production Grant Scheme (SPGS)

Due to its strong performance in phases I and II, EU and GoU have initiated SPGS III. Phase III will continue supporting tree establishment and begin to process mature tree plantations planted during phases I and II. The SPGS III is implemented by the Food and Agriculture Organization of the United Nations (FAO) while MWE is the Government counterpart executing institution.

Achievements under the transition phase include the following:

- Recruitment of SPGS III staff by FAO is substantially completed, and the project was formally launched in July 2016.
- Establishment of 530ha bio-energy/fuel wood plantations.
- Participated in the Forestry Trade Fair in collaboration with the Uganda Timber Growers Association (UTGA). The fair enabled the project and private entrepreneurs as well as NFA to show case forestry products, tools and equipment for forest establishment, maintenance and processing. Over 500 participants attended.
- Inspected kiln demo host applicants to assess their ability to host the charcoal kilns that will be established under the bio-energy project.
- Printed and distributed 1,000 copies of the Bio-energy support brochures.
- Drafted guidelines for establishing fuel wood plantations and inspected sites to assess their suitability to establish fuel wood tree plantation demonstration sites.
- Inspection visits were made to farmers in the cattle corridor to advise on plantation establishment, maintenance, and protection against pests, diseases and fire. Planted areas were mapped to ascertain farmers' progress towards achieving their contracted areas for subsidy payments.

Enhancing forest tenure and governance in Uganda

Considerable progress has been made towards establishing private and communal natural forests during the financial year. The capacity of local government and Civil Society Organizations staff in issues relating to forest tenure was strengthened through training programmes. Community forest managers and district government staff were trained in the process of establishing private and communal forests and on conflict management. The registration of 21 private and declaration of 4 communal forests are at an advanced stage. Management plans have been prepared, certificates will be issued shortly, and the enterprises formally launch. Submissions to register 2 private and 4 communal land associations in Masindi have been approved and certificates and declarations will be issued in FY 2016/17. Popular versions of guidelines for managing private and community forests have been prepared and 1000 copies disseminated in order to stimulate greater interest in establishing such forests.

Building Resilience to climate change

The Building Resilience to climate change in flood prone areas of Mt. Elgon project engaged staff of District Planning Departments in providing technical support to integrate climate change into District Development Plans, raised awareness on the importance of catchment management, and mobilized and trained farmers in Climate Smart Agriculture.

Kalagala project support under the Water Management and Development Project

Activities to restore degraded areas of the Mabira and Kalagala ecosystem were initiated with training of farmers and district staff done in the districts of Kayunga, Buikwe and Jinja.

9.2.3 Status and trends of key indicators

Five platinum indicators relevant to forest management were developed under the ENR Performance Assessment Framework Additional information on how these indicators were established, and status of other Forestry indicators is provided in Box 9.1.

Box 9.1 Performance on Platinum Indicators for Forestry

Platinum indicator No. 1: % of Uganda's land area covered by forest

Preliminary results of an analysis using 2010 and 2015 spatial data show that forest cover is at between 10 and 11 percent. This represents a decline of 14% from the previous analysis of forest cover of 24% in 1990.

Platinum indicator No. 2: % forest under strict nature reserve

This indicator has remained at 12 %, although some of the areas have been illegally harvested.

Platinum indicator No. 3: % survival rate of tree seedlings (past year 3)

The survival rate of the planting across the whole country is difficult to register given the participation of different players in tree planting with limited information sharing on progress. The average survival rate has been provided under SPGS (80%), NFA (80%), DFS (68.7%) and FIEFOC (70%) based on both monitoring and actual validation. This has remained during the period under review. Using a combination of these records, the average survival is at **74.7** percent.

Platinum indicator No 4: % of rural households that travel less than 1 km to collect firewood for their use

Since the last national household survey, no replicate survey has been conducted to establish performance under this indicator. Data from the FIEFOC project indicated that the average distance travelled in the project areas is 0.7 km, suggesting that tree planting interventions produce positive results in reducing the distances travelled to collect firewood.

Platinum indicator No. 5: % of forest reserves under management plans

Forest reserves with management plans increased to **35%** of all central forest reserves, as 16 Forest Management Plans (FMP) were added for central forest reserves (in total there are 506 CFRs during the period under review.

9.2.4 Challenges and recommendations

The major challenges exist for forest management in Uganda is forest loss as demonstrated by the decline of forest cover from 24% in 1990 to 11% in 2015. The major challenges that have and continue to result in forest loss and recommendations for responding to this trend are:

(i) To stop further encroachment and issuance of illegal titles in both Central Forest Reserves and Local forest reserves, it is recommended that boundaries of these forests are urgently re-opened and demarcated.

(ii) Illegal extraction of timber and non-timber forest products on private lands and forest reserves. It is recommend that tracking of timber be enhanced through increased transparency and coordination of the forestry sector.

9.3 Environmental Management

9.4 Environmental Management

At national level, environmental management is carried out by the Department of Environmental Sector Services Support (DESSS) and the National Environment Management Authority NEMA). The MWE (through DESSS), is in responsible for policy formulation, standard setting, inspection, monitoring, resource mobilisation, and overall coordination. NEMA is a semi-autonomous agency responsible for the regulatory functions and activities that focus on compliance and enforcement of the policy, legal and institutional frameworks. At district level, environmental management is overseen by the District Environment Office of the Natural Resources Department.

9.4.1 Achievements

Performance achievements of the two institutions are described in the following sections.

Monitoring and inspection of local governments

DESSS monitored, inspected and supervised 8 district local governments[68], compared to 12 districts in the previous financial year, and 11 in FY 2013/14. Key among the issues observed was the inadequate

[68] Amuru, Nwoya, Gulu, Sironko, Kapchorwa, Arua, Yumbe and Koboko

level of staffing and equipment across most of the districts inspected. On a positive note, in Amuru, Nwoya and Gulu, the PRDP funds being allocated to the districts have been used to start community projects on energy saving stoves and community woodlots. This has provided a source of income to the groups as well as reduced levels of deforestation.

Environmental Monitoring of Oil and Gas Activities

Monitoring of activities within the Albertine Graben was undertaken to establish whether the treatment and disposal of oil waste is in compliance with environmental laws and regulations. MWE visited the districts of Hoima, Buliisa, Masindi, Kiryandongo, Nebbi, Arua, Nwoya and Adjumani. The key areas visited were the existing and restored well pads, camps and waste consolidation centres at the oil waste treatment plants in Hoima.

Figure 9.10 Oil waste treatment at treatment plant (left) and on site in Kingfisher Oil Field (right), Hoima District

Development of policies, laws and regulations

The National Environment Management Policy (1994) has been reviewed and a revised policy document drafted, a National Environment Bill has been drafted to replace the National Environment Act Cap.153, and regulations reviewed and re-drafted. Policy and legal revisions respond to new and emerging issues including environmental aspects of the oil and gas industry, climate change, biotechnology and biosafety, sound chemical management, electronic waste, the green economy and invasive species. Overlapping institutional roles and responsibilities responsible for inefficiencies have also been reviewed. Regulations for Environment Impact Assessment (EIA), environmental audit, waste management, standards for discharge of effluent, wetlands, riverbanks and lakeshores protection, minimum standards for management of soil quality, management of ozone depleting substances and products, noise standards and control, conduct and certification of environmental practitioners, and mountainous and hilly areas have been reviewed and revised. New regulations on petroleum waste management, oil spill prevention, control and management, and vibrations and control have been drafted.

A draft Oil Spill Contingency Plan (OSCP) has been produced to facilitate the management of environmental and socio-economic risks and impacts associated with the production of oil and gas in Uganda.

NEMA supported 5 districts[69] to develop by-laws and ordinances on environment and natural resources management.

Strengthening Environmental Compliance

Environmental compliance has been enforced through EIAs, audits, inspections and monitoring by NEMA, NFA and MWE's DESSS and Wetlands Management Department with support from the Environmental Police Protection Unit (EPPU) who are engaged in monitoring, surveillance, crime

[69] Dokolo, Otuke, Oyam, Moroto and Nakapiripirit

management and community policing. About 70% of inspected facilities are compliant, especially within the oil and gas sector. Significantly worst compliance is found for developments within wetlands at about 30%. A number of industries including cement, sugar processing and breweries have improved compliance levels by establishing effluent treatment plants, recruiting personnel for environment management, and improving house-keeping policies and other internal regulatory mechanisms.

A total of 1,261 environmental compliance inspections and audits were carried out (1,200 planned; 105% performance). The inspections focused on the major sectors including chemicals, paints, foods and beverages, tanneries, and the oil and gas sector. Multi-sectoral and multi-disciplinary inspections improved monitoring and surveillance and follow-up actions. Inspected facilities, especially tanneries, cement factories, food processing facilities and breweries have introduced self-regulatory systems and mechanisms and invested in waste treatment facilities, recycling and re-use, staff for environment management, self-auditing, environmental sustainability reporting, corporate and social responsibility programmes, and other innovations

NEMA continued to implement the ban on polyethylene carrier bags (*kaveera*) in the major towns, stopping major producers from distributing them and discouraging retailers from providing them. Most super markets and shops have complied and now provide alternative carrier bags. The public has demonstrated popular support for the ban and has adopted use of alternative carrier bags.

The Environment Management Capacity Building Project II has improved solid waste management in several municipalities from an average daily waste collection of (25-40% of total wastes generated (before the project) to 65-70%.

Performance in reviewing Environment Impact Assessments (EIAs) strengthened. 901 of the 1,043 EIAs reviewed were approved. The participation of Lead Agencies in a multi-sectoral approach to EIA review as well as the development of an online database helped improve the processing of EIAs.

Integration of ENR as a cross-cutting issue

Mentoring and the integration of environment and natural resources into District Government development plans and budgets has led to improvement in decentralized environment management functions. Forty one District Planners and Environment and Natural Resources Officers were mentored on 'green economy[70]' concepts and practices in local government planning processes. Eighty percent of District Governments have fully integrated ENR management into their development plans and budgets. However, the percentage of District budgets allocated to environment and natural resources remains as low as 1 to 2% with an average allocation of USH60 million. Budget performance - the % of budget spent against the approved allocation – was also low at about 60%.

A National Green Growth Strategy has been formulated by National Planning Authority (NPA) and MWE. The strategy provides for key milestones and pathways for achieving green growth in Uganda.

School inspectors, head teachers and teachers received training in providing environmental and sustainable development education in schools and communities; 80 schools were sensitized on the School Environment Education Program (SEEP).

9.4.2 Key programmes and projects

Kalagala Sustainable Management Plan (KSMP)

Implementation of the Kalagala Offset Sustainable Management Plan (KOSMP) in the districts of Jinja, Kayunga and Buikwe continued. MWE demarcated 22km of River Nile bank giving a total of 60km river

[70] The green economy is defined as an economy that aims at reducing environmental risks and ecological scarcities, and that aims for sustainable development without degrading the environment.

bank demarcated since the plan's launch in 2011, leaving 6km still to be demarcated. The Kalagala Central Forest Reserve's 8.5km long boundary was also demarcated.

Following demarcation, individuals were provided with tree seedlings to reduce pressure on protected areas and increase catchment vegetation cover. 23,000 tree seedlings were distributed and about 28ha planted in Buikwe District.

Figure 9.11 Demarcation of the River Nile Protection Zone in Mafubira Sub-County, Jinja District

Sustainable Mountain Development for Uganda

The Directorate of Environment Affairs in collaboration with the Albertine Conservation Society (ARCOS) is coordinating sustainable mountain development aimed at maintaining and enhancing the conservation, health, vitality and stewardship of mountain ecosystems. A draft National Strategy for Sustainable Mountain Development for Uganda was prepared to serve as a roadmap towards sustainable mountain development in Uganda.

9.4.3 Contribution by Cross-Sectoral Projects

Ecosystem Based Adaptation project (EBA)

Under MWE, the EBA project aims to strengthen ecosystem resilience by promoting Ecosystem Based Adaptation (EBA) options. The project will reduce the vulnerability of communities depending on mountain ecosystems. Key deliverables under this project include: construction and equipping 2 adaptation learning centres in Sironko and Bulambuli Districts, a report on the cost-benefit analysis of ecosystem-based adaptation on Mt Elgon, and a training manual for ecosystem-based adaptation.

Integrated Landscape Management for Improved Livelihoods and Ecosystem Resilience in Mount Elgon

MWE collaborated with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) to implement this project, which aims at developing an integrated Sustainable Land management (SLM) approach that entails developing SLM options suitable for small land patches that would improve land management and reverse the current land degradation rate.

Population, Health and Environment (PHE) Project

The Ministry of Water and Environment (MWE) and Ministry of Health (MoH) are collaborating in the Population, Health and Environment (PHE) project to integrate health, family planning and conservation. Under this collaboration, a National Plan of Joint Action for Health and Environment Alliance has been prepared.

Under this collaboration, a Country Situational Analysis and Needs Assessment (SANA) for Health and Environment Linkages was prepared. As a follow-up, the National plan of Joint Action for Health and Environment Strategic Alliance (HESA) was prepared. This plan is due for implementation.

Secondly, MWE is partnering with the National Population Council Secretariat, under the Ministry of Finance, Planning and Economic Development (MoFPED) and the Ministry of Health's Reproductive Health Department, coordinated by the Ministry of East African Community Affairs (MEACA) to address multi-sectoral issues on population, health and environment. A National Population, Health and Environment Strategic Monitoring and Evaluation Plan (2016-2020) has been prepared. In addition, a National PHE network was established and is operational. The network meets on a quarterly basis to review progress and share lessons. To create awareness about the collaboration, a Cabinet information paper on PHE has been prepared.

Lastly, MWE in collaboration with Ministry of Health, Ministry of Agriculture, Animal Industry and Fisheries and Uganda Wildlife Authority are implementing a "One Health" approach to prevent and control zoonotic diseases in Uganda. Under the One Health approach, a framework has been prepared and endorsed by the implementing institutions and an MoU has been prepared to operationalize the 'One Health" framework. The MoU is awaiting approval by Solicitor General.

9.4.4 Status and Trends of Key Indicators

Platinum Indicator No 6: % developers complying with certificate of approval conditions

The platinum indicator for environmental compliance is defined as *"% developers complying with certificate of approval conditions*". An average of **70%** of inspected development projects was compliant with EIA approved conditions, as compared to 66% in the previous financial year. As with last year, it should be noted that only about 30% of the inspected projects in or around wetlands were compliant. Consequently, NEMA has reduced approvals for projects in wetlands.

Platinum indicator No. 7: % solid waste disposed of safely in the 9 municipalities

The platinum indicator for solid waste disposal is defined as "% solid waste disposed of safely in the 9 municipalities". An average of **65-70%** of solid waste is collected and safely disposed of in the twelve CDM project-supported municipalities, as compared to 60% in the previous year. It should be noted that there are currently in total 22 municipalities in Uganda, whereas 11 more have been approved for the FY2016/17.

9.4.5 Challenges

Inadequate funding

A key issue remains **inadequate funding**. Sometimes planned activities are not implemented due to lack of or inadequate funding, whereas activities that require a long period for implementation or cut across financial quarters are not completed because of low or no releases during some quarters. The systematic follow-up of such activities is affected. Inadequate funding also affects district local governments. The Wetlands Conditional Grant, which is between UGX 4 to 8 million annually per district, is not enough for the districts to respond to the many environmental challenges they face.

Oil and gas activities in the Albertine Graben require constant monitoring to prevent disasters. MWE relies on data provided by the oil companies, and is unable to verify or corroborate data received. District Environment Officers, despite training on how to conduct inspection of oil and gas activities, are similarly constrained. Independent monitoring of the oil and gas industry is not possible without adequate financing.

Inadequate departmental capacity; There is inadequate departmental capacity characterised by limited staffing and working equipment. DESSS has only 43% of its positions filled. This means that staff is overstretched. Inadequate transport also restricts operations**.**

Coordination; Coordination of activities of the key players is still a challenge. There are overlaps in execution of activities by different actors. There is need for harmonisation of roles of the different key players.

Unsustainable charcoal production; Charcoal burning is one of the biggest threats to the environment. In some of districts, only 1 EPPU officer had been posted, and operates without facilitation or transport, rendering their presence ineffective.

Urban waste management; Urban authorities face challenges in ensuring the efficient and effective implementation of the Clean Development Mechanism (CDM) project for solid waste management.

9.4.6 Recommendations

Government of Uganda needs to consider recruiting more staff for environment management at all levels. It is especially important to have staff permanently stationed within the Albertine Graben to monitor and provide support, where necessary to prevent environmental related disasters. In addition, there is need to strengthen and empower the oil and gas unit at MWE and the districts to be able to carry out more effective and independent monitoring of oil and gas activities.

The review processes of the National Environment Management Policy and National Environment Act needs to be finalised and related regulations developed to enhance institutional coordination and synergies.

To increase environmental awareness, continuous environmental education/awareness programs are required and increased access to environmental information.

MWE must strengthen operations of EPPU at District level, posting and facilitating more officers to carry out enforcement operations.

The institutional and financial sustainability of the CDM project needs to be addressed by both NEMA and the urban authorities.

9.5 Meteorology (Weather and Climate)

9.5.1 Introduction

Uganda National Meteorological Authority (UNMA), formerly Department of Meteorology under Ministry of Water and Environment, is now a semi-autonomous government authority for weather and climate services (UNMA Act. 2012) and is the focal institution to Inter-Governmental Panel on Climate Change (IPCC). In FY 2015/16, UNMA was granted a Vote status and this will be operational with effect from FY 2016/17.

9.5.2 Achievements

Preparation of seasonal forecasts was done with continuous support from IGAD Climate Prediction and Applications Centre (ICPAC) in Nairobi, Kenya. UNMA translated the quarterly/seasonal reports into 35 different local languages (from 22 languages in the previous year) so that is can be understood in most parts of the country. Dissemination of this report is through the newspapers, local FM radio stations, television stations as well as government and non-government agencies.

The Authority has continued to provide specialised aeronautical meteorological services to the aviation sector in the country. 25,800 Flight Folders and International Route Forecasts were prepared and issued for scheduled/unscheduled flights, compared to 13,400 in the previous reporting period. A total of 1,456 Terminal Aerodrome Forecasts (TAFs) were prepared for Entebbe International Airport; an additional pilot briefing office is now operational at the VIP Terminal of this airport. The increased numbers of aviation reports prepared and issued resulted from an increased volume of unscheduled flights in and out of Uganda due to new players in the market such as Easy Jet, Air Morocco and increased number of Rwanda Air flights.

Government has undertaken to revamp Soroti Aerodrome as a result of increased volume of flight operations at Soroti Aerodrome. An additional 1,456 routine aviation reports and Terminal Aerodrome Forecasts (TAF) for Soroti were prepared and issued during the period under review.

The implementation of a Quality Management System (QMS) for Aeronautical Meteorology and the process of obtaining ISO9001 certification continued. All documentation to commence the implantation of QMS were prepared.

The National Meteorology Training School was relocated to UNMA; the regulations to govern the school are still pending.

Partnership dialogues were undertaken in all districts hosting synoptic stations to engage local government to support UNMA with regard to land for meteorological installations, observations and security for the meteorological facilities. MoUs have been signed with 23 districts during the financial year.

In line with the NDP-II target of increasing the automation of meteorological services from 10% to at least 40% by the year 2019/20, in total 39 Automatic Weather Stations were installed within the cattle corridor districts and hard to reach areas[71]. A total of five integrated Automatic Weather Stations with lightning detection were installed on a test pilot programme in Agago, Napak, Kaliro, Kotido and Sironko Districts.

A total of 12 digital barometers were procured and deployed/installed at the 12 synoptic stations. Pressure readings for the aviation industry are now easily provided. Thermometers[72] were procured and deployed to the field stations for re-equipping all the 12 Synoptic stations, 14 Agro-met stations and 7 Hydro-met stations. Sunshine cards for 32 stations, to last four years, were procured and deployed to Synoptic stations. 32 stations (12 Synoptic, 10 Agromet and 10 Hydromet) have had their fences re-established.

During the FY, the weather studio at the National Meteorological Centre in Entebbe was upgraded with modern equipment and software for graphics editing and recording. Daily weather forecasts on TV were revived and this has run throughout the financial year.

An Automatic Message Switching System (AMSS) was procured and installed for data exchange which is now operational at National Meteorology Center in Entebbe. Uganda is now reporting on all the 12 Synoptic stations on the Global Telecommunication System (GTS,) which is a great leap from the usual reporting on 3 stations over the years. This is an improvement in the international weather data exchange for Uganda.

9.5.3 Status and Trends of Key indicator

The platinum indicator for meteorology is defined as *"% meteorological rainfall observation network coverage of the country."*

Though there are 325 rain gauges in place, there are only 52 districts with functional rain gauge stations out of the 112 districts in the country, with the Central Region having 13 rain gauge stations, Western Region having 15 rain gauge stations, Northern Region having 14 rain gauge stations and Eastern Region having 22 rain gauge stations, which adds up to 64 stations. However, there are also

[71] They include; Kamuli, Buyende, Kayunga, Kaliro, Pallisa, Ngora, Serere, Soroti, Wakiso, Arua, Wadelai, Masindi, Gulu, Lira, Kitgum, Kotido, Kasese, Mbarara, Kabale, Kabalore, Mubende, Ntusi, Makerere, Entebbe, Jinja, Tororo and Buginyanya Districts.

[72] for maximum temperature, minimum temperature, wet bulb, dry bulb, grass minimum and soil temperature

31 major stations with rain gauges including the agro-meteorology, hydrometeorology and synoptic stations spread across the country making a total of 95 rainfall stations in Uganda[73].

9.5.4 Key Issues

With effect from 2015/16FY, the Uganda National Meteorological Authority (UNMA) has a Vote under the government budget. However, the UNMA still has a number of challenges:

- Most upcountry stations are hosted by other institutions/organizations such as Civil Aviation Authority, National Agricultural Research Organization, Local Governments and schools. There is therefore the challenge of office space.
- Land for new meteorological installations and land ownership for some of the already existing stations is still a big challenge.
- There is insufficient land for expansion of the National Meteorological Training School.
- Many government investments are being carried out without incorporation of meteorological aspects, which affects the viability of such investments in the short and long run causing social and economic losses.
- UNMA requires 298 personnel as per the business plan; there are currently 198 staff employed. This is hindering proper service delivery. Currently, some stations like Kisoro, Kajjansi and Pakuba in Queen Elizabeth National Park that are un-staffed. Even with only two-third of the positions filled, there is a substantial wage shortfall.

9.5.5 Recommendations

It is recommended to mainstream meteorology in the national budget process, and to create enabling regulations to compel investments that are dependent on weather conditions, such as constructions of roads, buildings, bridges, extension of power lines and establishment of factories.

There is need to review the UNMA structure and adjust the wage allocation for UNMA in consultation with Ministry of Finance Planning and Economic Development, Ministry of Public Service and Parliament.

There is also need to create a development budget for the National Meteorological Training School to purchase land for expansion to cater for construction of a modern training and research institute to serve meteorologists at the center and local governments.

[73] The percentage coverage is thus far not determined.

10 CLIMATE CHANGE

10.1 Institutional Framework

MWE's Climate Change Department (CCD) coordinates Uganda's implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol (KP). Four thematic areas have been highlighted under the CCD's 5 year strategic plan: Develop institutional capacities for climate change management in Uganda, establish the knowledge base for climate change mitigation and adaptation, operationalize the climate change policy, and coordinate, initiate and monitor climate change implementation activities in Uganda.

10.2 Achievements in FY2015/16

10.2.1 Institutional capacities for climate change management in Uganda

Climate Change Resource Centre

The Resource Centre was established in January 2015 to act as a one stop centre for all climate change (CC) related information and actions being coordinated by MWE. Currently, MWE in collaboration with Makerere University Centre for Climate Change Research and Innovations (MUCCRI) is developing an online knowledge management system that will help to:

- Link with communities of practice, by facilitating learning through dialogue and information exchange/dissemination.
- Strengthen linkages and foster collaboration among communities in Uganda, regionally and globally.
- Stimulate discussion, group analysis, and data sharing on research, capacity building and policy issues.

Tools developed and anchored in the National Climate Change Resource Centre in the financial year 2015/16 include the Uganda Climate, an interactive web-based National Climate Atlas to centralize spatial information and knowledge on Climate Change (see Annex 1.2). In addition, working with the EU-UNDP's Low Emission Capacity Building Project, MWE is in the process of developing a National Greenhouse Gas Inventory system that will archive data on greenhouse gas emissions from different sectors. The system will be officially launched in September 2016.

Performance Measurement Framework (PMF)

With help from the Ministry of Local Government and the Africa Climate Change Resilience Alliance (ACCRA), Performance Measurement Framework (PMF) indicators were developed that will be put into the local government assessment tool to measure performance of climate change actions. The CCD will use the PMF to track progress on implementing the CC programme against cross-sector and sector specific milestones and targets, easing coordination of implementation of the national climate change policy.

10.2.2 Knowledge Base for Climate Change Mitigation and Adaptation

Monitoring and Evaluation of Clean Development Mechanism projects

The Ministry of Water and Environment (MWE) is responsible for monitoring Clean Development Mechanism (CDM) projects and evaluating their contributions to social, economic and environmental variables. Staff monitored registered CDM projects and visited potential projects to assess their feasibility. Table 10.1 summarises the outcomes of these assessments.

Table 10.1 Assessment of CDM projects

Projects	Current Status as CDM
Bujagali Hydro Power Plant	Green House Gas emission reduction of about 858,173 tonnes of carbon dioxide annually
Kachyung Forest Project	The project generated 30,492 tonnes of Carbon Dioxide equivalent (CO2e) in its first verification (2006-2012). 240,000 tonnes of Carbon dioxide equivalent(CO2e) is expected to be generated by 2017 when the second verification occurs
Kakira Sugar Works	The project is yet to finalize registration modalities to the UNFCCC as a CDM project
Bidco Uganda Limited	The Managing Director indicated the desire to develop a Project Idea Note (PIN) which is the initial stage in the CDM project cycle

Intended Nationally Determined Contributions (INDCS)

Uganda submitted its Climate Action Plan, also called its Intended Nationally Determined Contribution (INDC) to the UNFCCC Secretariat. Anticipating the serious impacts of climate change in Uganda, the plan confirms CC adaptation as a top government priority and commits to a 22% reduction in GHG emissions by 2030. Uganda is finalising its Green Growth Development Strategy (GGDS) to expand economic growth through the sustainable use of natural resources, energy efficiency, and valuation of ecosystem services. The GGDS provides an opportunity for the country to consider national climate change and development in a more integrated, systematic and strategic way, while decoupling economic growth from high levels of GHG emissions.

Nationally Appropriate Mitigation Actions (NAMAs)

United Nations Development Programme (UNDP)'s Low Emission Capacity Building (LECB) project helped Uganda prioritise and develop concepts for eight Nationally Appropriate Mitigation Actions (NAMAs) in four sectors, namely agriculture, energy, transport and waste management. The proposed Monitoring, Reporting and Verification (MRV) system is structured around these NAMAs.

The status of the NAMAs is as follows:

(i) The NAMA concept on fuel efficiency has been adopted by the Ministry of Energy and Mineral Development and testing of 27 stations is scheduled to commence in September 2016. The LECB project is currently providing strategic support to the identification of co-benefits.

(ii) Global Environmental Facility (GEF) funding has been secured to pilot the Integrated Waste Management and Biogas Production NAMA concept in three towns[74], develop capacity, and develop a policy framework to attract private sector investment. Currently Eco Uganda Limited has been contracted by UNDP to develop a project proposal for this NAMA, which is expected to be finalized by end of September 2016.

(iii) Funds were secured to develop feasibility studies for a NAMA in the transport and agriculture sectors**.**

(iv) Kampala City Council Authority has adopted a rapid bus transport NAMA though funding has not yet been secured.

(v) A Green Schools NAMA has been adopted by the Ministry of Energy and Mineral Development and an inception report presented. Schools to benefit from this NAMA have been assessed and a full proposal will be developed.

(vi) A consultant was procured to fast track development of concepts and proposals for agriculture NAMAs.

[74] Kampala, Jinja Municipality and Mbale Municipality

10.2.3 Climate Change Policy

The National Climate Change Policy (NCCP) development began in 2012 and was approved in 2015 to guide policy engagements on climate change. It highlights a number of priority actions in key sectors such as water, forestry, agriculture and energy. Mitigation and adaptation measures as set out in the policy would be ineffective unless supported by an effective legal framework. MWE is developing the National Climate Change law to support the NCCP and will translate the policy into different languages. Principles of the law have been developed and tabled before Cabinet for approval.

10.2.4 Climate Change Implementation

In liaison with key partners, MWE has guided the national climate change adaptation research agenda and knowledge management as well as monitored, documented and disseminated relevant scientific developments on CC impacts and adaptation strategies, both locally and internationally. Key achievements to date include:

- MWE piloted the National Adaptation Programme of Actions in three ecosystems (mountainous, lowland and semi-arid ecosystems).
- Working with partners, MWE supported and guided sectors in mainstreaming CC adaptation at national and sub national levels.
- The National Adaptation Plan (NAP) road map was developed, approved and submitted to the UNFCCC.

10.3 Projects

10.3.1 The Global Climate Change Alliance (GCCA) Project

The purpose of the four-year project is to strengthen the resilience of rural populations and agricultural production systems in the central part of the Cattle Corridor and build capacities of communities, commercial farmers and the Government of Uganda to cope with climate change. The project has contracted a number of staff, supported development of CCD's capacity development plan, and built the capacity of three CCD staff.

10.3.2 The Low Emission Capacity Building (LECB) Project for Uganda

The Project is focusing on strengthening Uganda's technical and institutional capacity in the development of greenhouse gas (GHG) inventory systems and Nationally Appropriate Mitigation Actions (NAMAs) with in-built measuring, reporting and verification (MRV) systems.

The LECB project has helped to attain the following:

a) Institutional arrangements for GHG data collection, analysis and transfer have been established.

b) Staff of CCD visited the International Livestock Research Institute (ILRI) in Nairobi, Kenya to help find a strategy to reduce GHG emissions from various land uses including livestock production, crop production, wetland conversion and others in Africa.

c) The Climate Change Department through LECB has updated the following to the NAMA Registry of the UNFCCC, which have now evolved and some names have changed:

(i) NS-150 - Reduction, Recycling and Reuse of Solid Waste in Kampala City: no work has been done due the Political Climate involving Kampala City Council Authority (KCCA)
(ii) NS-151 - The Promotion of the Use of Efficient Institutional Stoves in Institutions which is now the Green Schools NAMA
(iii) NS-152 - Promoting cultivation of high-yielding upland rice in Uganda: now under development; Consultant on board.

(iv) NS-153 - Bus Rapid Transit (BRT) for Kampala: stalled due to the need for formation of Metropolitan Authority. Small activities still planned with Ministry of Works and Transport (MoWT) and KCCA to keep the NAMA alive while the enabling environment is promoted.
(v) NS-154 - Developing appropriate strategies and techniques to reduce methane emissions from livestock production in Uganda: procurement process ongoing.
(vi) NS-155 - Fuel Efficiency in Motor Vehicles (FEBID) – labelling system for vehicles to guide on fuel efficiency specifying maximum level of emissions/vehicle was developed.

10.3.3 The Pilot Programme on Climate Resilience (PPCR)

This project, which is still under development, aims to help the country prioritise the key activities to be incorporated in the Strategic Plan for Climate Resilience (SPCR). The key priority thematic areas for SPCR, i.e. (i) climate resilient agriculture, (ii) urban and rural resilience and infrastructure, (iii) resilient landscapes/water catchment management (including wetlands), (iv) hydro-meteorological services, and (v) strengthening institutional capacity in addressing climate change issues. The procurement of consultancy firms to undertake the different tasks under the SPCR is ongoing.

10.3.4 Feed the Future for Enabling Environment for Agricultural Activities Project (EEA)

This programme, which is in its initial phase, is supporting MWE's CCD to mainstream climate change activities into district plans and budgets. The scope of the work is focusing on a minimum of thirty seven (37) districts of Uganda. The aim of this project to improve the capacity of Ugandan government institutions to respond to the impacts of climate change on agriculture.

10.3.5 Participation of Uganda in the Conference of the Parties

Annually, the Government of Uganda, through MWE undertakes consultative preparations for the annual Conference of the Parties (COP) to the UNFCCC. Preparations include, among others, pre-COP Thematic Group Meetings to deliberate on key issues specific to the country. Identified key issues are harmonised with different negotiating blocks that Uganda subscribes to, in order to come up with common positions or stands on CC issues to be pursued at the COP.

Last year's CC negotiations in Paris, France (COP 21) set a target of limiting warming of the planet to below 2.0 degrees Celsius compared to pre-industrial levels, while aiming for a more ambitious target to limit warming to 1.5 degrees Celsius. To achieve these limits, emission of Green House Gases (GHGs) will need to peak, immediately followed by rapid reductions. Currently, the government is in the process of establishing mechanisms that will help to monitor and track progress on emission reduction, hence the development of the GHG National Inventory System and training of sector focal points (Energy, Agriculture, Forestry, Waste, and Transport sectors) on how to collect GHG related data in their sectors.

The country will continue to work on reducing vulnerability and addressing adaptation in agriculture and livestock, forestry, infrastructure (with an emphasis on human settlements, social infrastructure and transport), water, energy, health and disaster risk management and will implement a series of policies and measures in the energy supply, forestry and wetland sectors. The cumulative impact of the policies and measures could result in approximately 22% reduction of national GHG emissions by 2030.

10.4 Contribution to Cross-Sectoral Projects

The Ministry of Agriculture, Animal Husbandry and Fisheries (MAAIF) as well as the Ministry of Energy and Mineral Development have mainstreamed climate change into their sector plans, budgets and activities. Working with Africa Climate Change Resilience (ACCRA), USAID and Feed the Future, CCD developed the national climate change indicators. These will be used in the Output Budgeting Tool (OBT) of the Ministry of Finance, Planning and Economic Development and the Ministry of Local

Government's Assessment Tool. This will provide sectors and institutions mainstreaming CC with measurable indicators.

10.5 Lessons Learned and Recommendations

The operationalization of MWE's Climate Change Department (CCD) is expected to be completed during FY 2016/17. When fully operational, the Department will have an appropriate staffing level.

Under the establishment of a National GHG Inventory System, a number of sectors are reluctant to share data unless MoUs and data protocols are established between MWE and the sectors. The development of the legal framework (National Climate Act), will accord legal powers to CCD to access GHG related information from all sectors. In the meantime, CCD is pursuing working relations with key sectors on a case by case basis.

The concept of INDC/NDC implementation is still abstract and the actual activities to help Uganda attain her NDC targets are yet to be concretely filled out and implemented. UNDP has committed to help MWE to come up with concrete action plans on how Uganda will attain the targets set within her INDC. Reducing land use change and in particular, reducing forest and wetland loss will be important.

11 CROSS-CUTTING ISSUES

During this financial year, a number of activities of cross-cutting nature were implemented as indicated in the following paragraphs.

11.1 Gender Mainstreaming

This section highlights approaches to redressing gender inequality in the water and sanitation sector. A gender-based approach creates a framework of cooperation between men and women, so that the insights and abilities of both men and women are available to shape programs to meet sector objectives.

11.1.1 Local Government Advocacy Meetings

Advocacy and information sharing is an important tool to build political commitment in the district local governments. It helps national and local governments put priorities and policies in place as well as change political attitudes and mobilize activities for hygiene, sanitation and water in communities. Out of 111 districts, 108 districts carried out advocacy meetings. Advocacy meetings have helped to improve self-confidence and community management skills among stakeholders and women in particular. Communities have become more aware of, and motivated to work with issues concerning gender imbalance; this is evidenced by increasing number of women interested in participating in water and sanitation activities as chairpersons of WSCs, masons, and hand pump mechanics thus providing them equal opportunities to men. Advocacy meetings have formalized women's empowerment process by ensuring that there are women representatives at all key meetings with stakeholders and by providing leadership training for the women and gender-sensitivity training for the men leading to ownership and sustainability of Water and sanitation facilities.

11.1.2 Capacity Building Initiatives

Capacity building initiatives in gender have been undertaken in 24[75] new districts for 72 staff. The capacity building efforts targeted staff of the Environment and Natural Resources Sub- Sector given that gender mainstreaming initiatives in the sub-sector were recently initiated. The purpose of the capacity building efforts was to disseminate the new Environment and Natural Resource Gender Strategy (2015) and to enhance capacity of district staff in gender mainstreaming. At the end of the workshop, gender mainstreaming actions plans were developed by participants to act as a guide for gender mainstreaming activities in each of the districts.

11.1.3 Training of Hand pump mechanics

Women's participation as hand pump mechanics, scheme attendants, and masons develops confidence, enhances self-image, and create economic independence for the women, thereby empowering them to play a positive role in water and sanitation activities. Out of 461 people trained as hand pump mechanics, masons, and scheme attendants in the period under review, 24% are women. A total of 15 districts[76] had women trained as hand pump mechanics.

[75] Buikwe, Buliisa, Buvuma, Hoima, Kayunga, Kiboga, Kiryandongo, Kyamkwanzi, Luwero, Masindi, Mukono, Nakaseke, Nakasongola, Wakiso Bundibugyo, Kabarole, Kamwenge, Kasese, Kibaale, Kyegegwa, Kyenjojo, Mityana, Mubende Ntoroko

[76] Kyenjonjo, Kamwenge, Ngora, Ibanda, Kisoro, Rubirizi, Kyegegwa, Kaberamaido, Bududa, Bushenyi, Rukungiri, Mitooma, Kaboong, Amuru, and Busia

11.1.4 Gender Mainstreaming in Plans and Budgets

In compliance with the Public Finance Management Act (2015), MWE has promoted gender and equity planning and budgeting by ensuring that gender and equity issues are considered while allocating resources. This initiative was undertaken by departments during the formulation of the Budget Framework Paper. Prior to the approval of the ministry budget by Parliament, the Equal Opportunities Commission examined MWE's budget to assess the extent to which the Ministerial Policy Statement and the Budget Framework Paper have taken care of Gender and Equity issues. The assessment specifically sought for the inclusion of women, youth, people with disabilities, ethnic minorities and older persons. MWE scored 59% above the pass mark of 40% set.

11.1.5 Gender Aspects in Staffing

Ministry of Water and Environment (MWE)

Data from MWE's human resource unit indicates that MWE has 336 established staff. During the financial year, vacant posts at Commissioner Level were advertised and filled. Figure 11.1 shows gender disaggregated data of staff employed by MWE. A gender analysis of the staffing structure indicates that 34% (115) staff are female and 66% (221) are male. A further analysis by level of management shows that there are 35 staff at top management with 14% (5) female and 86% (30) male. At middle management level, there are 101 staff with 21% (21) female and 79% (80) male. There are 98 staff employed at operational level, with 47% (46) female and 53% (52) male, while there are 102 support staff, of which 39% (40) are female and 61% (62) male.

A general analysis shows that the total number of staff has remained the same but with an increment in top management. This was mainly due to the creation of new departments like the Water and Environment Sector Liaison Department and the Water Utility Regulation Department, which created vacancies in the structure, of which during the year the Commissioner positions were filled. The position of Assistant Commissioner Capacity Development was also filled. With the incremental filling of the vacant Ministry positions, it is hoped that the percentage of women, especially at management level will increase.

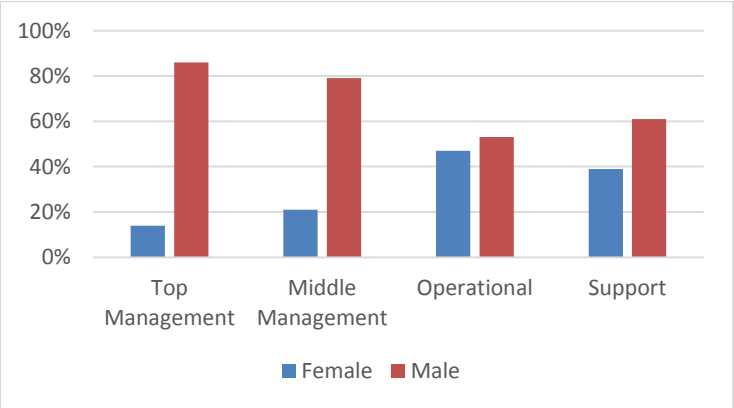


Figure 11.1 Gender aspect in staffing in MWE, FY2015/16

National Forestry Authority (NFA)

As at June 2016, NFA has a total number of 326 staff across the country, with 25% female managing the 506 Central Forest Reserves. NFA employment policy is gender sensitive, though most employees are male due to the fact that the graduates from Nyabyeya Forestry College, Makerere University and other tertiary institutions are predominantly male. Figure 11.2 provides an overview of the employment status of the NFA.

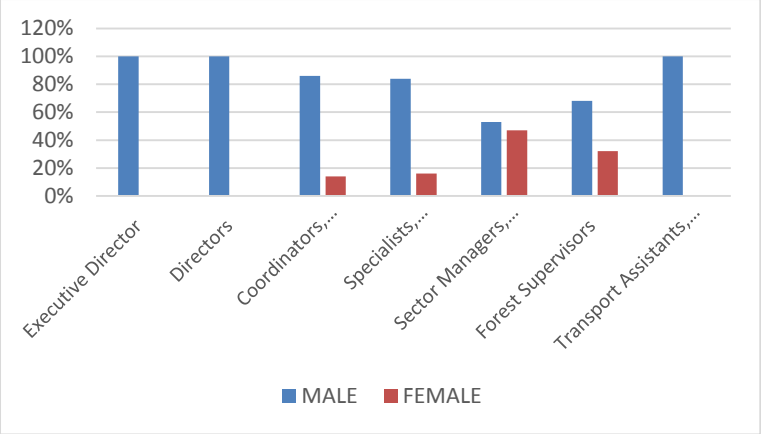


Figure 11.2 Gender aspect in staffing in NFA, FY2015/16

In all NFA nurseries country-wide, women are mostly employed because they pay attention to detail and are committed and are good at handling delicate work. An example forms Namanve Tree Seed Centre, where 86 of the 102 casual workers, or 84%, is female.

11.1.6 Golden Indicator on Gender Mainstreaming

The golden indicator for gender mainstreaming in rural water interventions is "*the percentage of Water and Sanitation Committees with at least one woman holding a key position*".

It is a critical requirement for Local Governments to facilitate communities in formation and training of gender sensitive WSCs for all the newly constructed water sources. Formation of gender sensitive WSCs serves to establish leadership roles for women in the community with least one woman holding a key position including chairperson, vice chairperson, and secretary in the WSC. Data from Ministry of Water Supply Data Base from 111 districts indicates that **86%** of water sources have women occupying key positions therefore showing an improvement from the 84% reported in the FY 2015/2016.

The results of an assessment, carried out in 2016 of the implementation of Uganda's Water and Sanitation Gender Strategy are summarised in Box 11.1.

Box 11.1 Assessment of the Implementation of Uganda's Water and Sanitation Gender Strategy

A study to examine the implementation of gender-informed policy provisions in water supply and sanitation sector in Uganda was undertaken in 2016 with support from the World Bank, resulting in the following main conclusions:

Internalization of Gender in Sector Institutions. The appointment of sociologists in each department of the MWE to oversee software elements, including gender, is an important development in Uganda's WSS sector. These officers are also predominantly permanent staff, which addresses the issue of constant turnover in the case of Gender Focal Point Officers (GFPs).
The appointment of GFPs all the way down to the local government is also a noteworthy development. Here again, individuals in these positions appear to have a background in social sciences, which should lead to increased credibility. However, there appears to be a need for more gender training here.
Putting in place affirmative action policies to increase the numbers of females working in the sector is commendable. However, for these to be truly effective there needs to be an assessment of the outcomes of these policies.

Empowerment of Women at the Community Level. Steps have been clearly taken to promote the inclusion of women in community level sector decision-making bodies such as village water and sanitation committees, in keeping with accepted gender mainstreaming precepts. One of the issues identified in the study, however,

is that this maybe leading to a policy requirement being fulfilled on the face of it, without actually enabling meaningful participation.
The gender tools provided to extension workers are limited to assisting communities identify the gendered roles in WSS and the importance of including women. Capacity building in communities need to move beyond this to empowering women in terms of informal literacy initiatives, leadership/management skills, book keeping, record keeping, access to information and interacting with institutions such as banks and credit facilities.

Creating an Evidence Base for Mainstreaming Gender in the Sub-sector. There needs to be a rigorous and systematic evidence base of the achievements of the gender mainstreaming efforts in the water sector. A study by MWE in 2012 that links functionality of water sources to women's participation in WSCs, particularly in leadership positions of these committees, is a step in the right direction. A clear example emerging from FGDs is the impact of women in community decision-making in the sector on community livelihoods, an issue also garnering interest in emerging sector literature.

11.1.7 Gender and Sanitation under UWSD

During the period under review, a total of 29 public toilets in 26[77] towns were constructed by the Water and Sanitation Development Facilities. The toilets have stances for both men and women, and each of the toilets has two stances for the disabled, with one on the male side and the other on the female side.

MWE constructed a total of 14 toilets in schools in urban towns[78] with a total of 85 stances of which 44 were for girls representing 52% of the total stances constructed. This has promoted the privacy of the girl child, and increased school attendance of girls especially during the menstrual period where they would otherwise not attend school, in the long run ensuring the good performance of the girl child in school.

11.1.8 The Paris Climate Change Agreement 2015

The Paris Agreement calls for gender equality and women's empowerment, and the sections of the agreement detailing adaptation and capacity-building efforts specifically call on countries to adopt gender-responsive approaches. Government of Uganda has already started to address issues of gender related to climate change:

- Uganda's Intended Nationally Determined Contributions (INDC) recognized gender involvement in all climate change related interventions.
- With the framework in place, the Climate Change Department (CCD) of the Ministry of Water and Environment (MWE) has endeavoured to ensure women's participation in mitigation, adaptation and other related climate change actions for example in capacity building, training and awareness programmes.
- Consequently, women are participating in the committees set up to implement the Paris Agreement namely: Adhoc National Steering Committee and Projects implementing committee.
- MWE's Climate Change Department, in collaboration with Makerere University commissioned a joint research on climate change and gender and subsequently, a gender training manual was developed.

[77] Kinoni, Nyahuka, Kahunge, Kabuga, Lyantonde, Sanga, Gasiiza, Kikagati, Bugongi, Nyeihanga, Kinuuka, Kasagama, Buwuni, Kagoma, Namagera, Iziru, Suam, Ochera, Luuka, Bukwo, Dokolo, Kalongo, Pajule, Okollo, Amach, and Midigo

[78] Dokolo, Kalongo, Pajule, Okello, Amach, Midigo, Agweng

11.2 Training of Water and Sanitation Committees

Functionality, ownership and sustainability of water and sanitation facilities depend largely on effective management. If individuals within a community do not understand how decisions are made, or are not aware of whether other people are adhering to the rules, they have little incentive to work together as a community. Figure 11.3 illustrates TSU performance on the follow up of functionality of WSCs.

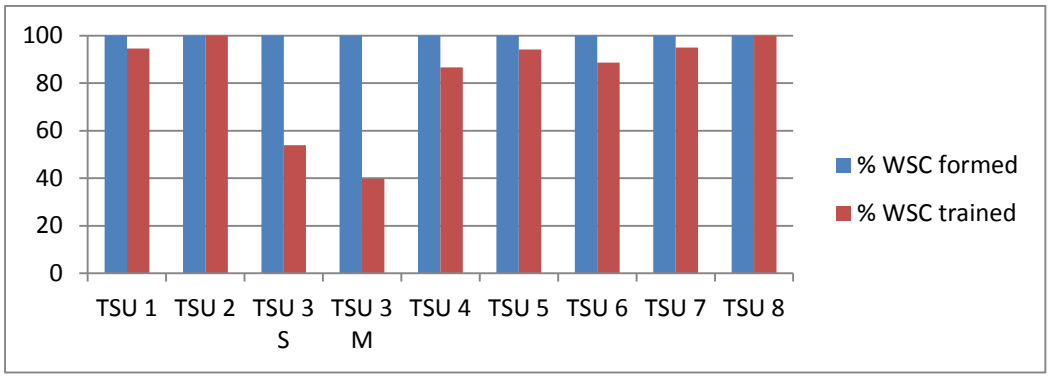


Figure 11.3 Percentage Training of Water User Committees in FY2015/16, per TSU region

Figure 11.4 Impact of water source management

Left picture shows a poorly managed water facility in Luwero district without a WSC, and right picture shows a well-protected borehole in Butaleja district with a functional committee where a woman is a chairperson.

With proper training and technical assistance rendered from District Water office and NGOs, most of these management structures have functioned effectively and have been proven viable for promoting WATSAN activities on a sustainable basis. In Rubirizi District, Rutoto Sub-County has a 100% functionality of WSCs. This has resulted into a one day general cleaning drive (*Bulungi Bwansi*) of all water and sanitation facilities in the sub-county. This general cleaning is done once a month with each household providing a participant.

Figure 11.3 Community members cleaning the tank at Bururuma spring tank; membership in the WSSB formed in FY 2015/16

During the FY 2015/16, 14 new Water Supply and Sanitation Boards (WSSB) were formed and out of the 65 members, 32 were female which represents 49% new female membership in the financial year. This enhances the integration of specific needs of women in decision-making in water and sanitation. For example, the ideas of women are considered in the allocation and location of public kiosks as well as their management, such that their social and economic aspects are improved.

11.3 HIV/AIDS mainstreaming

Ensuring healthy lives and promoting the well-being for all at all ages is essential to sustainable development. Significant strides have been made by districts in increasing life expectancy and reducing some of the common killers associated with child and maternal mortality. Access to clean water and proper sanitation is one of the yardsticks to measure the level of access to basic living conditions. To address this, 41 district local governments in the FY 2015/16 mainstreamed HIV/AIDs in water and sanitation activities through community sensitisation during formation and training of Water and Sanitation Committees, condom distribution, voluntary counselling and testing, training of extension workers and care for the affected households.

During this reporting period, three HIV/AIDS mainstreaming capacity building workshops were conducted for Local Government (LG) staff in districts in TSUs 4, 5 and 6. A total of 37 districts were covered and 140 participants attended.

11.4 Pro-Poor Initiatives

On 28 July 2010, the United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights. The implication is that strategies have to be put in place to ensure that the vulnerable groups in the community who cannot easily access these facilities are helped to have access to water and sanitation.

Collecting water is one of the most laborious tasks in many households especially the child headed families, elderly, physically impaired, as well as families affected by HIV/AIDs. To support such families, the districts of Kamwenge, Bududa, Buhweju, Mbarara, and Mukono constructed water facilities in schools, provided water jars to the Batwa communities, and rain water harvesting tanks to the widow headed families, the disabled, and the elderly households.

Figure 11.5 Batwa household that benefits from rain water harvesting jar in Kitariro village

In the urban centres, water is provided to the urban poor at subsidised rates by constructing public tap kiosks. During the financial year, a total of 101 tap kiosks were constructed in 15 urban towns[79]. This ensures that the urban populations have access to safe clean water so as to prevent poor sanitation related diseases and to promote household hygiene and sanitation.

During the FY 2015/16, 78 household toilets were constructed by WSDFs for the vulnerable groups in 22 towns[80]. The people who benefited include the poor, women headed households, and people with disabilities (PWDs).

11.5 Conclusions and recommendations

Capacity building appears to be given increased prominence in the water supply and sanitation sub-sector, which is noteworthy compared to other reviewed countries that do not have a systematic policy for gender training initiatives in place. As a follow up to recommendations made in a gender audit of MWE, there are now targets defined as well as a budget allocated to training activities in gender. While introductory materials on the importance of gender mainstreaming are important at initial stages of training, there is an obvious need to design a more comprehensive set of training materials that are more targeted to the positions and responsibilities of the trainees and to the level of training (first time trainees vs. those receiving training every two years).

There also appears to be a gap in gender sensitivity training for engineers. Most of the staff have attended trainings once and covered only an orientation on the subject matter. Training in gender especially for technical staff should be more frequent and detailed. Furthermore, MWE staff interviewed in this study clearly articulated a need to have a Training-of-Trainers package developed by a gender and WASH expert that would, in turn, better enable them to undertake training activities at the local level. It is recommended that a needs assessment be undertaken of the different stakeholders of capacity building initiatives to ensure that these activities are tailored to the tasks being undertaken by these individuals rather than having a one-size-fits-all approach.

[79] Kiboga T.C, Katuugo RGC, Kakooge TC, Ssunga, Kayunga, Dokolo,, Kalongo, Pajule, Okollo, Amach, Kinuuka, Kaliro, Buwuni, Luuka, Bukwo.

[80] Kinuuka, kasagama, Kashaka-Bubaare, Kiko, Nyahuka, Nsiika, Ocapa, Kyere, Kachumbala, Kagoma, Iziru, Kiboga, Katuugo, Kakooge, Ssunga, Kayunga, Dokolo, Kalongo, Pajole, Okello, Amach, Midigo.

The districts have not been prepared for the new funding mechanism that provides for the remittance of part of the Rural Water Grant to Sub-Counties for O&M. It is therefore recommended to carry out continuous training of the local governments on the new funding mechanisms.

12 CIVIL SOCIETY ORGANISATIONS IN WATER AND SANITATION

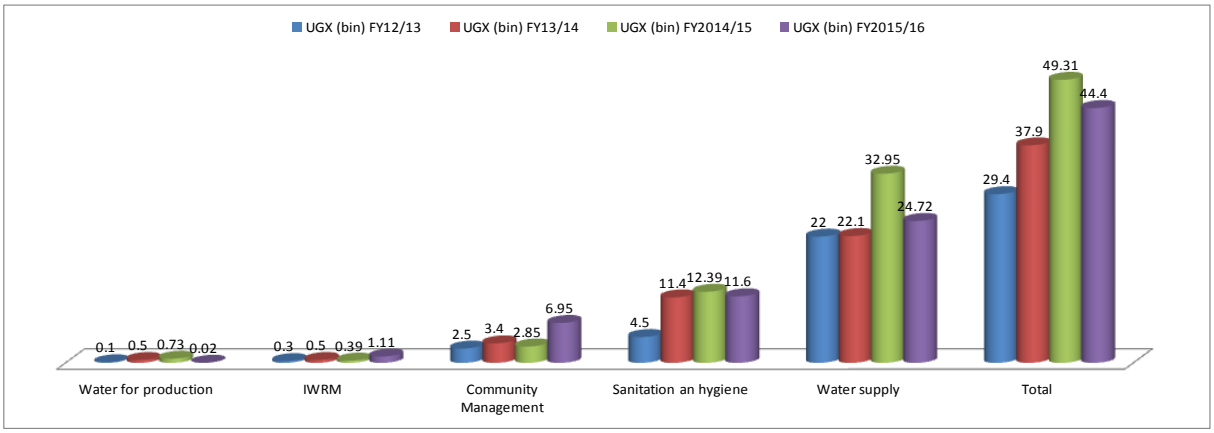
12.1 Overview

This chapter presents Civil Society Organizations' (CSOs) activities in the water, and environment subsector during FY 2015/16. It presents an overview of financial investments in, and contributions to the sector. The information is based on data received from 112 member organisations, out of 200 members (56%) of the Uganda Water and Sanitation Sector NGO Network (UWASNET).

12.2 CSO Investments in WASH

During the FY 2015/16, CSOs made a total investment of UGX bn 44.40 in the areas of water supply, sanitation and hygiene promotion, community management, water for production and integrated water resources management. Most investments were made for water supply (UGX bn 24.72). Investment in sanitation was UGX bn 11.60, in community management UGX bn 6.95, in integrated water resources management (IWRM) UGX bn 1.11 and for Water for Production UGX bn 0.02. Figure 12.1 reflects the trend of total CSO investment in WASH for the last four years.

Figure 12.1 CSO investments for period FY 2012/13 to FY 2015/16

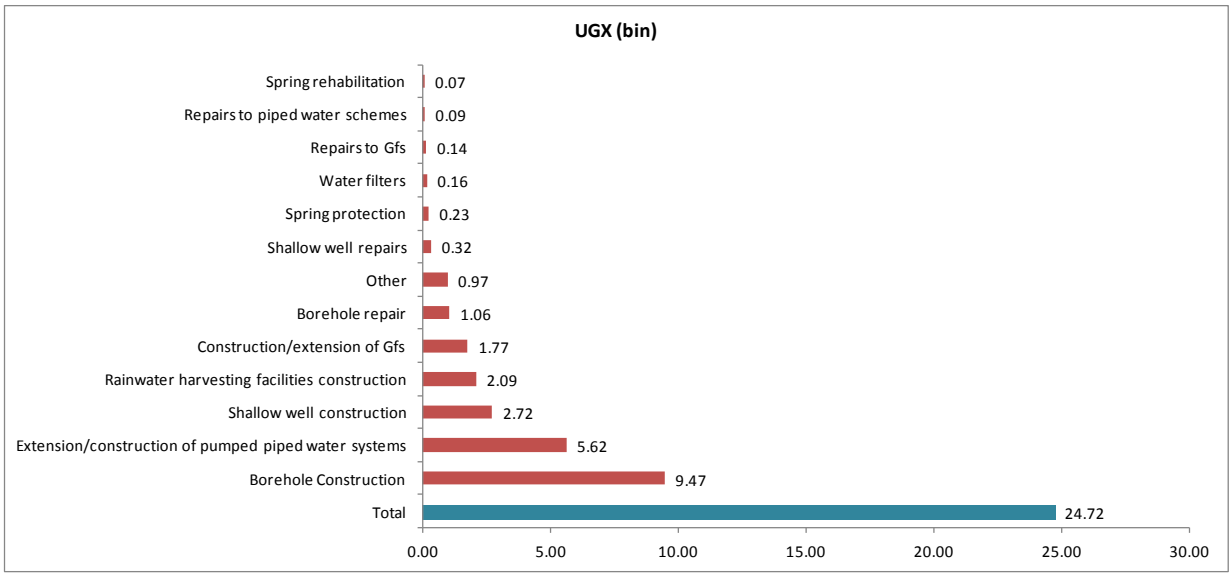


Since FY 2012/13, highest investments have been made in water supply, with least investments being made for water for production facilities. There has been a steady increase of total investment; from UGX bn 29.4 in FY 2012/13 to UGX bn 37.9 in FY 2013/14, and to UGX bn 49.31 in FY 2014/15. However, FY 2015/16 reflects a reduction to the current bn UGX 44.4. One possible explanation to the reduction is that less CSOs submitted data (117, as compared to 112 for the period under review).

12.3 Investments in Water Supply

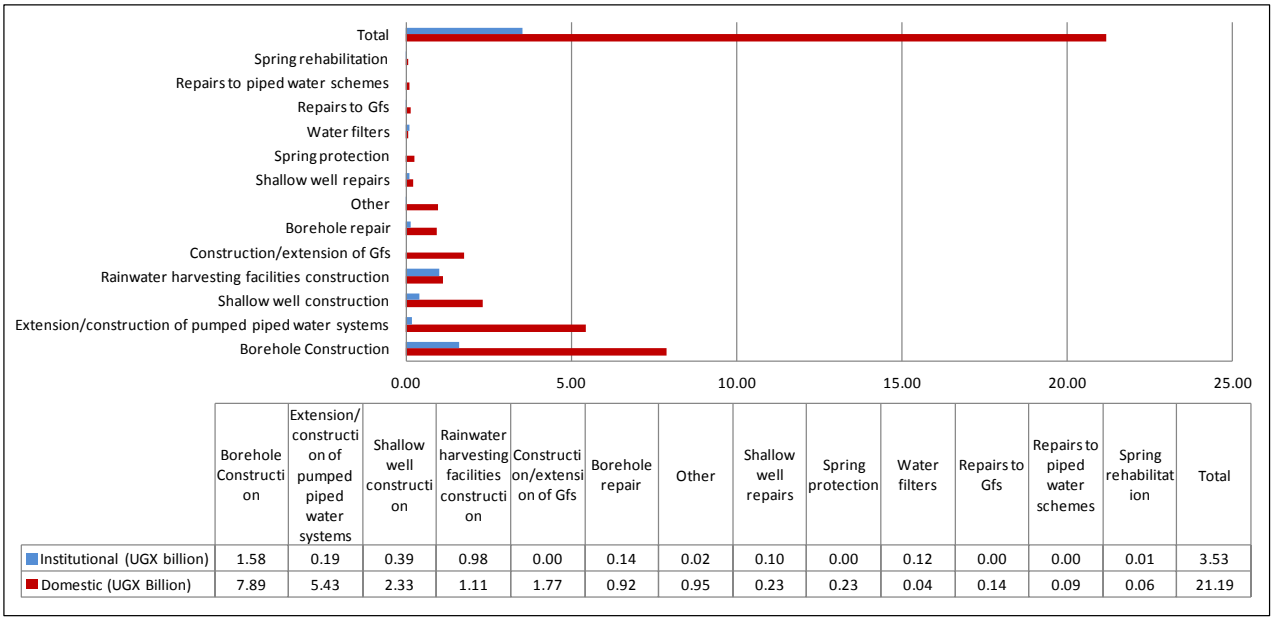
Investment in water supply by technology is reflected in Figure 12.2.

Figure 12.2 Investment in water supply by technology



Highest investments were made in boreholes construction, totalling to UGX bn 9.47. Other significant investments have been made in extension/construction of pumped and piped water systems (UGX bn 5.62), shallow well construction (UGX bn 2.72), rainwater harvesting (UGX bn 2.09), construction/extension of gravity flow schemes (UGX bn 1.77), and borehole repairs/rehabilitation (UGX bn 1.06). Figure 12.3 reflects investments in domestic water supply compared to investments in water supply for institutions,

Figure 12.3 institutional and domestic water supply investments

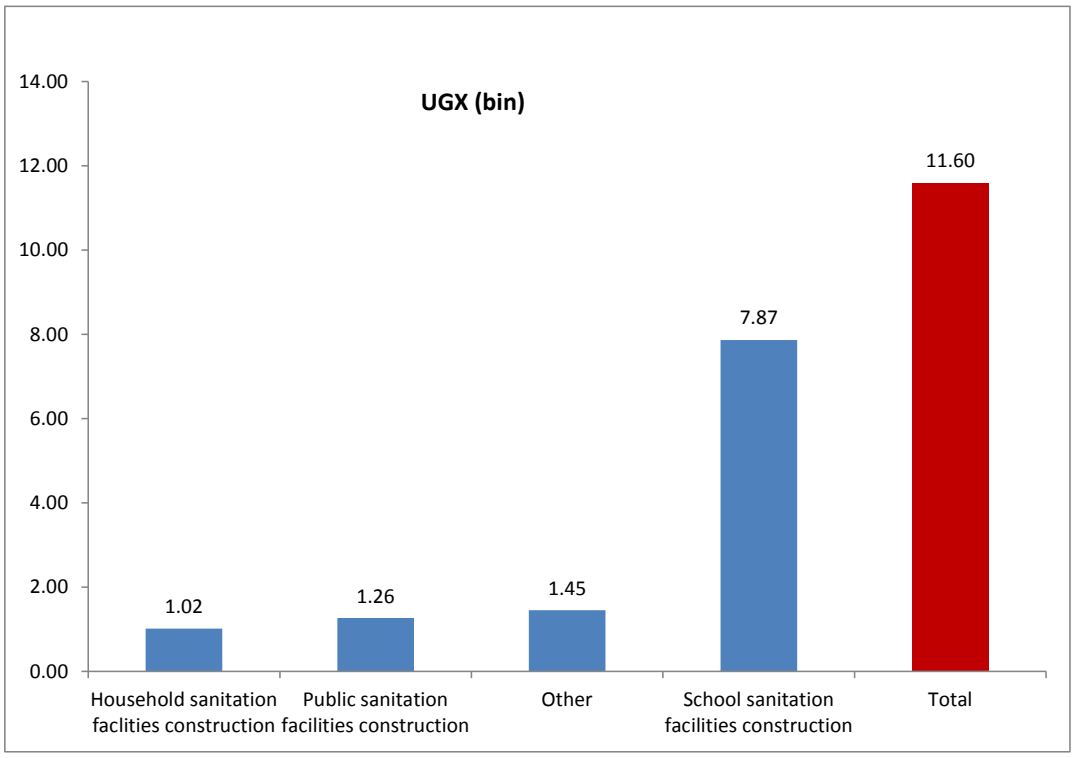


	Borehole Construction	Extension/ construction of pumped piped water systems	Shallow well construction	Rainwater harvesting facilities construction	Construction/extension of Gfs	Borehole repair	Other	Shallow well repairs	Spring protection	Water filters	Repairs to Gfs	Repairs to piped water schemes	Spring rehabilitation	Total
Institutional (UGX billion)	1.58	0.19	0.39	0.98	0.00	0.14	0.02	0.10	0.00	0.12	0.00	0.00	0.01	3.53
Domestic (UGX Billion)	7.89	5.43	2.33	1.11	1.77	0.92	0.95	0.23	0.23	0.04	0.14	0.09	0.06	21.19

12.4 Investments in Sanitation and Hygiene

Figure 12.4 reflects investment in sanitation and hygiene components showing that the highest investment was in construction of school sanitation facilities (UGX 7.87 bn).

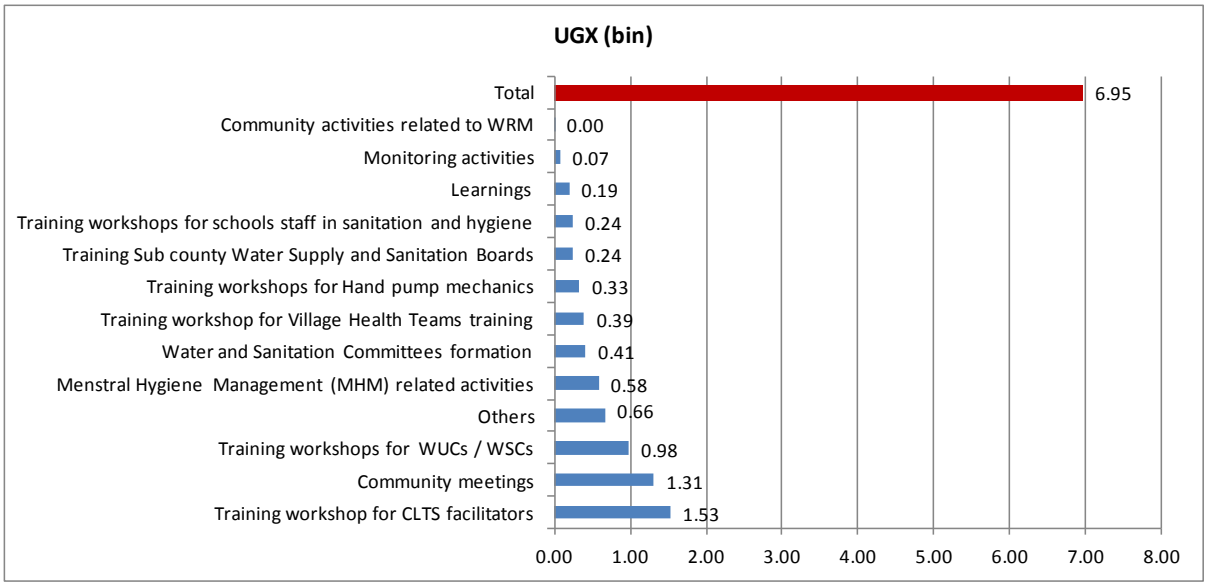
Figure 12.4 Investment in sanitation



12.5 Investments in Community Management

Community management activities range from establishment of a community based management system of developed facilties, capacity building, targeting vulnerable groups, formation and training of various community based organisations as in health clubs, or handpump mechanic associations, among many others. CSOs engaged in a wide rage of activities which included preparing communities to manage water and sanitation facilities, conducting mobilisation activities for community participation and involvement, and a host of activities that target sustainability of programmes/projects or facilities developed. Figure 12.5 presents CSOs investments in community management.

Figure 12.5 Investment in Community Management activities

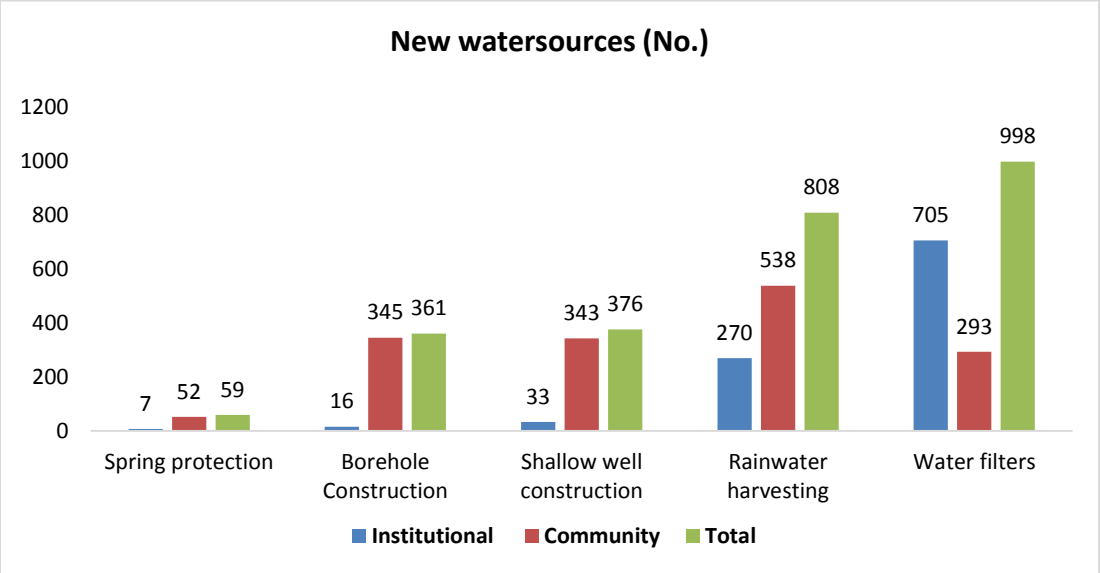


Under community management, highest investment was in training in Community-Led Total Sanitation (CLTS) facilitation (UGX bn 1.53), community meetings (UGX bn 1.31), and in training of WUCs/WSCs (UGX bn 0.98).

12.6 Access to Improved Water Supply

The National Development Plan II (2015/16- 2020/21) prioritises the increase in access to safe water in rural and urban areas. CSOs complement Government efforts to improve access to safe water sources. Figure 12.6 reflects the number of new water sources constructed by CSOs during FY2015/16.

Figure 12.6 New water supply sources developed FY 2015/16



New water sources include 59 (No.) springs, 361 boreholes, 376 shallow wells, 808 rainwater harvesting facilities and 998 water filters installed. Eighty-eight percent, 96%, and 91% of the springs, boreholes and shallow wells, respectively were constructed for community water supplies. Sixty-seven percent of rainwater harvesting facilities were constructed at community level while most water filters (71%) were installed at institutions.

12.7 Functionality of Water Supplies

Effective Operation and Maintenance (O&M) is very important in ensuring sustainable functionality of water points. Routine maintenance of facilities greatly minimizes the need for major repairs of water points. To ensure effective O&M, NGOs conducted a range of activities including formation and training of Water User Committees (WUCs), training and equipping of hand pump mechanics and follow up on management structures to monitor performance. A few NGOs facilitated the formation of Sub-County Water Supply and Sanitation Boards[81].

12.7.1 Formation and Training of WUCs/WSCs

NGOs formed and trained 3,781 Water and Sanitation Committees (WSC). WSC training largely focused on roles and responsibilities in O&M of water facilities, simple record keeping, financial and conflict management, and key components of preventive maintenance. A total of 5,701 committee

[81] The SWSSB is the overall O&M provider of rural water facilities and is appointed by the sub-county council to provide management support to WSCs.

members (2,460 female, 3,615 male) were trained. This led to improvement in maintenance of the water sources and improved record keeping.

12.7.2 Training of Hand Pump Mechanics

A total of 662 hand pump mechanics (HPMs), 156 female and 551 male, were trained. The purpose was to ensure that water points are regularly maintained and repaired in a timely manner to reduce the period of non-functionality.

- ***WaterAid*** built the capacity of 34 HPMs (31 males and 3 females) on U3 modified Un-plasticized Polyvinyl Chloride (uPVC) hand pump systems in Pallisa, Kibuku and Katakwi Districts, following the shift from use of galvanised iron (GI) to use of uPVC and stainless steel pipes in rural areas to promote sustainable functionality. The training, covered both theory and practical components to enable participants clearly appreciate the differences between U3 modified UPVC and other hand pump types and also to have hands-on application of the knowledge.
- ***AMREF*** trained HPMs to contribute to improving operation and maintenance of the water points. In addition AMREF formed a Hand Pump Mechanic Association (HPMA) which further improved the capacity of HPMs to carry out their functions. The HPMs have been able to carry out their functions and earn a living out of it.

12.7.3 Other O&M Activities

A number of initiatives were taken to enhance functionality of water supplies.

- Sixty-six artisan/masons (18 female, 48 male) were trained by various NGOs for water facilities' construction and maintenance.
- **Water for People** established 6 Sub-County Water Supply and Sanitation Boards for the management of piped water supply and sanitation schemes in Biguli Sub-County in Kamwenge District and provided refresher trainings to two Sub-County Water Supply and Sanitation Boards to reinforce their understanding of their roles and responsibilities.
- **Busoga Trust** trained masons in construction and maintenance of shallow wells, construction of rain water harvesting facilities of different technologies e.g. water jars and Ferro-cement tanks. Trainees with exceptional skills and interest have been taken up as organisation artisans and technicians.

12.8 Water quality monitoring

NGOs carried out water quality monitoring activities including testing, filtration and purification. Box 12.1 presents a summary of some water quality monitoring activities which were carried out by CSOs.

Box 12.1 CSO activities in water quality monitoring

- **Water Missions** ensured that water sources constructed are chlorinated and water quality testing is done on a monthly basis. Filtration is conducted based on water quality analysis results.
- **Busoga Trust** trains WSCs and water users about sources of contamination, promotes construction of pit latrines away from the uphill side water sources, promotes sanitation and hygiene around the water point and tests for E. coli before commissioning a water source. Periodic water quality tests are carried out after construction.
- **Katosi Women Development Trust** provides 2 bio-sand water filters at household and 23 at institutional level. Awareness on the use of the bio-sand water filtration has increased usage and adoption of the technology and positively changed community perception and behaviour of consuming unsafe water.

- **Diocese of Kigezi** conducts tests on potential water sources for safety from chemical contaminations before protection. Thereafter, routine testing is undertaken to ensure that the water is continually safe for human consumption.
- The water quality interventions by **AMREF** have focused on improvement in operation and maintenance of water sources. Measures taken include planting 'Paspalum' grass in the catchment area to prevent soil erosion and discouraging pit latrine construction around and near water points.
- All 37 boreholes constructed by **WaterAid** during this reporting period were tested for water quality against national standards. The results from 35 wells had satisfactory water quality for both human and livestock consumption; however 2 in Karamoja region (Toyeptoto and Lokapelkoko) showed high fluoride content. In addition, water quality monitoring was conducted for micro-biological parameters for 15 boreholes drilled in financial year 2014/15 in Amuria district. The three boreholes that had showed traces of E.coli were chlorinated and communities were sensitized about the safe water chain.
- **Voluntary Action for Development** tested 46 communal water points for both physical and bacteriological contamination. The results were shared with users, WSCs and local leaders. During the disseminations of the findings users are encouraged to adopt other methods of water purification / treatment. This will contribute to improved health with reduced expenses of WASH related diseases.

12.9 Integrated Water Resource Management (IWRM)

NGOs are increasingly mainstreaming Integrated Water Resources Management (IWRM) into their WASH programmes. Box 12.2 presents examples of CSOs involvement in IWRM activities while Box 12.3 shares a project experience on improving community Livelihoods through sustainable water management.

Box 12.2 CSOs activities in IWRM

- **ACORD** have attended various fora organised by Government to further appreciate IWRM. ACORD is a member of the Rwizi Catchment Management Committee, a structure which was set up by Government to operationalize IWRM. ACORD staff participated in the Management Committee meetings to agree on activities under taken by the different contractors, and also participated during the visioning of the River Rwizi catchment management plan. The knowledge gained was mainstreamed in the organization activities.
- **Diocese of Kigezi** focused more on catchment protection, prevention of soil erosion and promoting energy saving measures. The specific activities included constructing 3.6 kms of soil and water conservation channels; constructing 276 percolation pits; constructing 7,436 square metres of bench terraces, supporting 40 apiary (bee) farmers and making 46 household and institutional energy saving stoves. Communities are practicing good catchment management practices i.e. construction of bench terraces, conservation channels, percolation pits, energy saving stoves, establishing tree nursery beds, and 130 local environment committees' members were trained.
- **Water For People** conducted various activities whilst mainstreaming IWRM in its programmes. They include water safety planning, water source protection, borehole gardening – to facilitate recharge of wasted water back into the water aquifers, water troughs promotion to tap all the wasted water and use it for watering tree nursery beds near the water source, and conducting studies on surface and groundwater distribution to inform catchment management planning and siting of production wells.

Box 12.3 Improving community livelihoods and sustainable water management on River Rwizi Catchment

The Improved Community Livelihoods and Sustainable Water Management project implemented by IUCN is using a community-based approach to integrated water resources management within the River Rwizi catchment area. The project, through a public-private partnership, championed the application of a sustainable micro-financing mechanism to promote sustainable natural resource management by supporting community livelihood. The seed money is a grant given and accessed by communities, who directly participate in the implementation of their Environment Action Plans for the sustainable use and management of their resources.

The findings of the assessment conducted in June 2015 to March 2016 indicated that the wetlands in the upper catchment were encroached on by communities through wetland reclamation and poor agricultural

practices, which drastically reduced outflow of water towards downstream communities and the River Rwizi catchment especially during the dry season.

The project demonstrated a community-led approach to restore over 350 hectares of degraded wetland systems along the Katara-Kanyabukanja and Kibingo-Kashasha wetland systems in Buhweju and Mbarara Districts. The project facilitated the diversification of livelihoods through provision of UGX 121,000,000 UGX micro-credit fund for over 1,017 households. The revolving micro-credit access has facilitated natural resource management, as its access is directly linked to the communities' participation in natural resource management.

Successes

- Improved water resources availability, quality, and use through the restoration of over 350 hectares of degraded wetlands.
- Reported multiple environmental and socio-economic benefits from the restored wetlands like increased fish catch, availability of mulch material from wetlands, and improved hydrology.
- Overall improvement in water quality over time in the period 2014-2016.
- Improved stakeholder engagement and capacity enhancement through facilitating, establishing and strengthening micro-catchment management committees.
- Improved monitoring of water and natural resources through joint monitoring and learning missions among stakeholders

Lessons learnt

- Natural resources management (especially water) is a key pillar to ensure availability of water and other important natural resources within the Rwizi catchment. This is based on the fact that there is increasing pressure for the finite water resource coming from various actors such as communities, private sector (industries), and the general public thus making it unavailable for all in the right quality and quantity. This calls for all actors to come together to plan, manage, and monitor the natural and water resources to ensure that they continue to provide the key resources to all stakeholders within the catchment.
- It is critical to address the livelihood component of the communities in order to reduce pressure from the degraded wetlands. The micro-credit access model successfully fills this gap as it provides a micro-credit incentive with a direct link to community-led restoration and sustainable management of natural resources.
- Awareness creation is a continuous process which requires innovative communication techniques to ensure capacity building of the key stakeholders.
- Catchment management and restoration needs to be done holistically in a participatory manner, with involvement of all stakeholders to ensure ownership and sustainability.
- There is need for a policy shift on natural resource management to adopt a consultative and stakeholder driven approach to ensure sustainable planning, use, and management of natural resources.

12.10 Sanitation and hygiene promotion

The NGOs' services ranged from promotion of appropriate technologies, direct construction of facilities, promotion of appropriate behaviour change and training for effective and sustainable management of sanitation and hygiene facilities.

12.10.1 Construction of sanitation and hygiene facilities

Table 12.1 presents sanitation and hygiene facilities constructed by NGOs at households and public places.

Table 12.1 Sanitation and hygiene facilities constructed

Technology	Households	Public
Traditional latrines	140745	18
VIP latrines	264	27
Ecosan - Urine diversion dry toilet	1	0
Ecosan - Arbo loo	3	0
Ecosan -Fossa Alterna	109001	56
Hand washing facilities	4,300	166
Water closet	0	4

CSOs championed the promotion of the Fossa Alterna ecosan[82] toilets. Latrines continue to be built at household levels targeting vulnerable groups. Sanplats[83] (4,370No.) and slabs (211No.) were produced and supplied to communities.

12.10.2 Application of CLTS in sanitation and hygiene promotion

Many CSOs promoted Community-Led Total Sanitation (CLTS) as a means of improving sanitation aiming at attaining Open Defecation Free (ODF) status. A total of 3,113 villages were triggered; of these 417 (15%) attained ODF status. Despite the few number of villages declared ODF, all triggered villages registered an increase in number of sanitation facilities constructed; for example, the initiative of HEWASA resulted in the construction of 1,083 household traditional latrines and 357 hand washing facilities in Buheesi and Kasenda Sub-Counties, Kabarole District.

12.10.3 School sanitation and hygiene promotion

School sanitation and hygiene promotion continues to be a key area for CSO intervention. Areas of focus include development of sanitation and hygiene facilities and menstrual hygiene management. Table 12.2 Presents school sanitation and hygiene facilities developed during FY2015/16.

Table 12.2 Sanitation and hygiene facilities developed at schools by CSOs in FY2015/16

Facility	Category of user	Number
latrine stances	boys	545
	Girls	808
	Female teachers	27
	Male teachers	43
	Pupils with disabilities - male	73
	Pupils with disabilities - male	137
Hand washing facilties	All	213
Rainwater harvesting for handwashing	All	419

NGOs also sensitised communities in menstrual hygiene management (MHM) as a way of keeping the girl-child in school and promoting their dignity. Table 12.3 presents key Menstrual Hygiene

[82] Fossa Alterna is another form of ecological sanitation. This is a simple alternating twin pit system designed specifically to recycle humus for use in agriculture. The pits are managed in such a way that excrement is changed into humus through decomposition, after 12 months. After the decomposition, the humus is dug out and taken to gardens. This is facilitated by the regular and generous addition of soil, wood ash and leaves during use. The pits of a fossa-alterna are shallow, about 1.2 m deep, maximum of 1.5 m deep.

[83] Washable sanitation platforms made of cement, fine aggregate, and wiremesh to cover the square area of a pit latrine

Management activities undertaken, while Table 12.3 presents CSO specific examples of Menstrual Hygiene Management activities. Box 12.4 and Box 12.5 provide a case study in menstrual hygiene management, and activities in this field by three NGOs, respectively.

Table 12.3 Menstrual Hygiene Management activities implemented by CSOs in FY2015/16

Activity	Participation		
	Female	Male	Total
Schools staff members trained in sanitation and hygiene	224	242	466
Training of girls and boys on Menstrual hygiene management	961	562	1523
Training of teachers on Menstrual hygiene management	23	25	48
Orientation of CSOs on MHM	25	10	35
Orietation of VHTs/PDCs on MHM	50	60	110
School health clubs members trained	1660	1791	3008

Box 12.4 Case study in Menstrual Hygiene Management: Girls in Control

About 51% of the female population in Uganda is of reproductive age. The majority of these women and girls do not have access to clean and safe sanitary products, nor to a clean and private space for menstrual hygiene management. Besides the health problems due to poor hygiene during menstruation, the lack of appropriate and affordable sanitary products and facilities such as changing rooms/ shelters in schools and other public places have pushed girls temporarily or sometimes permanently out of school, having a negative impact on their right to education.

To alleviate this situation, All Nations Christian Care began implementing Menstrual Hygiene Management programmes in four sub-counties of Amach, Bar Adekokwok and Agali in Lira District. The approaches used were training parents, teachers and pupils on menstrual hygiene management, how to make re-usable menstrual hygiene pads and liquid soap.

Girls making re-usable pads

Lessons learnt

- MHM is a real stumbling block to girl child education.
- There is still lack of awareness on MHM. Awareness creation is needed.
- Both male and female are very willing to break the silence on menstruation.
- Girls drop out are mostly by MHM from upper primary (P.5- P.7)
- Culture and religion still posed a big threat to MHM breaking the silence.

Recommendations:

- MHM need to be tackled in a broader perspective through community led initiatives and demonstration /model homes site set in communities.
- There is need for more intensive and broad community awareness to demystify menstrual hygiene management taboo.

Box 12.5 CSOs in in Menstrual Hygiene Management

- The **AEE** supported primary schools set up mechanisms for managing menstruation emergencies e.g.: stocking emergency sanitary pads, emergency uniforms, basins and soap. Menstruation periods have been demystified and it is perceived as normal for a girl-child to experience.

- **WaterAid Uganda** interacted with the head teachers during monitoring reveals that interventions on menstrual hygiene management in schools contributed to reduced absenteeism of the girl-child in schools but also contributed to enhanced cleanliness of sanitation and hygiene facilities. However, there is still need to address the issue of disposal of disposable pads in schools and communities.
- **Katosi Women Development Trust** in collaboration with Katosi Church of Uganda spearheaded hygiene campaigns by specifically promoting soap making as a school enterprise to promote hand washing at critical times. This has awakened other schools to respond positively to the cleanliness campaigns thus changing their environment.

12.11 Community dialogue meetings

Dialogues and community meetings to sensitise communities about their roles in WASH service delivery and also get their views on how to improve the WASH situation were held. During the year, 7,748 dialogue meetings were held. The meetings triggered awareness of community members' rights, with community members learning on who to hold accountable to improve service delivery. The community dialogues have become reference points where members quote commitments of the leaders made during action planning after the dialogues

12.12 Cross-cutting issues

12.12.1 Gender

Gender mainstreaming has continued to be a key factor during the formation of WUCs. During community sensitization much emphasis was put on the importance of equitable gender representation; women and men were encouraged to fully participate in all project activities including airing out their views. As such, all WUC had women representatives while some NGOs included slots for youth and children. School Health Clubs were also formed putting into consideration the gender distribution. Women and girl children were empowered to take on positions of leadership.

12.12.2 Promotion of Equity in Provision of Water Supply and Sanitation Services

Equity is fairness or justice in the way people are treated or services are offered. Some NGOs have consciously provided their services in an equitable manner. This ranged from participation in District Water and Sanitation Coordination Committee (DWSCC) meetings which act as a platform plan/allocate the different services provided by the different stakeholders thus reducing duplication of services and resource wastage. Some NGOs, e.g. Water for People made systematic initiatives to support districts in planning and advocacy by providing updated data on levels of water service in communities, schools and clinics in order to enable allocation of new infrastructure to the underserved.

In regard to school sanitation, NGOs built gender segregated sanitation structures with provision for pupils with physical disability to cater for the needs of the girl child and those with disability in order to keep them in school in a dignified manner.

12.12.3 HIV/AIDS Mainstreaming

People Living with HIV/AIDS have a compromised immune system therefore having access to safe water and a clean hygienic environment is an important element for keeping away opportunistic infections. Box 12.6 presents examples of CSOs involved in HIV/AIDS mainstreaming in water and sanitation improvements.

Box 12.6 HIV/AIDS mainstreaming

- **Water for People** is constructing technologies (piped water) which bring water to the household yards or very near to the people. This means that People Living with HIV/AIDS and their caretakers can use minimal energy to access enough safe water.
- The **Diocese of Kigezi** encourages people to test for HIV in order to know their status to manage their health better. Voluntary counselling and testing is organized and messages on prevention and positive living shared. Every year persons affected by HIV/AIDS and other vulnerabilities benefit from 20 ferro-cement tanks and locating water points into or near homes.
- **ACORD** mainstreams HIV/AIDs messages in community hygiene and sanitation dialogues hence improving people's knowledge on the subject.
- **VAD** has identified and worked with affected people/ families through the provision of rain water jars and improved latrines to increase their accessibility to clean safe water and sanitation facilities hence better health. During the sensitization, HIV/AIDS issues are discussed to enable community members understand facts about HIV/AIDS.

12.13 Coordination and Collaboration

While collaboration emphasizes the coming together of minds to create a shared understanding or plan, coordination is the process of ensuring that groups are executing according to an already-agreed-upon plan of action. Box 12.7 presents examples of coordination and collaboration undertaken.

Box 12.7 CSOs collaboration and coordination activities

- **AMREF Health Africa** is a member of the Uganda WASH Alliance. Under this consortium, AMREF undertakes joint implementation of some activities with AFSRT, another WASH Alliance member. In addition AMREF has supported establishment of WASH Coordination committees in each of the project areas. These committees convene quarterly to review progress of planned interventions, provide solutions to emerging challenges and review and approval plans for the subsequent periods. AMREF Health Africa has also supported joint support supervision visits and targeted learning journeys to enrich the experience of the committee members.
- **Katosi Women Development Trust** strengthened its collaboration at the district and national level. The Ministry of Water and Environment is currently working with Katosi Women Development Trust, building on the existing efforts to increase access to clean water through promotion of rain water harvesting at households and institutions in Mukono district.
- **Water for People** spearheaded the holding of partner reflection meetings conducted with all implementing partners in Kamwenge. The meetings also attracted district political and technical leaders. The purpose of the meetings was to share progress, harmonization of approaches and geographical areas of operation to avoid duplication. Together with the Kamwenge DLG, MWE staff, TSU-6 staff and Albertine Water Management Zone, Water for People participated in monitoring construction of piped water supplies and development of catchment management plans and water sanitation and hygiene in schools.
- **Diocese of Kigezi** was elected a member of two Catchment Management Organizations responsible for overseeing water resources development interventions in the two catchments of Ruhezamyenda and Maziba (in Kigezi Region). There has been an increased visibility of Diocese of Kigezi evidenced by the increased requests from other organizations to share and learn from Diocese of Kigezi. The Diocese of Kigezi has maintained an excellent working relationship with Government and other sector stakeholders.
- **Goal Uganda** signed an MOU with Airtel Uganda to provide a mobile banking platform to water user committees, and with Marie Stopes to provide reproductive health services to targeted communities.
- **WaterAid Uganda** teamed up with Welthungerhilfe, AEE, Environment Alert, WEDA, TEDDO, Karamoja Agropastoral Dev't Programme, Build Africa, CSBAG, UWASNET and Parliamentary WASH forum. WaterAid promoted inter-sectoral coordination between the district water office and line departments of Health, Education, Planning, Agriculture, Works and Technical Services in Amuria, Napak, Pallisa and Kibuku.

12.14 Key observations/Lessons learnt

Although most existing sector policies and implementation guidelines are well-developed, most of them are not effectively implemented. There is still a challenge of lack of awareness by local leadership of sector policies and/or guidelines. However, some sector policies have helped to guide smooth

implementation of WASH services, for instance NGOs regularly make reference to sector provisions while engaging with the community especially around issues of O&M, access to a water facility, land issues when siting a water points, providing school sanitation facilities, etc.

The District Water and Sanitation Conditional Grant (DWSCG) guidelines provide a clear process for planning and budgeting for Water and Sanitation activities, with an explicit formula for allocation of resources for different cost categories i.e. capital expenditure, operation and maintenance, capital maintenance expenditure and direct support. However, there is no strict adherence to the guidelines.

The current sector monitoring framework (golden indicators) is very helpful for national stakeholders to take decisions and remedial actions. However, they provide little information on the potential sustainability of water facilities, and do not capture the key background indicators that can be used to assess the reliability, the actual levels of water services being delivered to the population in rural areas, user satisfaction and technical backstopping to service providers.

Sanitation interventions of actors mainly focus on two areas, i.e. demand creation and production of latrines leaving out key stages in the sanitation value chain like marketing and distribution of different sanitation options to consumers. Business development has also been largely left in the hands of masons who do not have the required entrepreneurial capabilities to take their operations to scale.

Household rainwater harvesting has proven to be more sustainable because it enhances ownership, thus eliciting regular maintenance. The Government should come up with policies which will support scaling up of water harvesting technologies in households and institutions.

ODF attainment is not the finish line. Emphasis on post ODF support for communities are important during the planning phases. The unit cost of ODF attainment is a virgin area to compare across NGOs and Government-led ODF. Combining CLTS and household improvement campaigns yields better results, enabling villages to have homes with all requirements of an ideal homestead. CLTS alone mostly leads to latrine attainment only, with fewer results on hygiene requirements.

12.15 Recommendations

It is important to consistently engage the science, sanitation and senior women teachers to assess the level of hygiene and sanitation practice adoption among the pupils. The existence of these clubs can be threatened by absence of effective patrons. The head teachers should make a decision to appoint all science teachers as patrons for these clubs.

More investment should be put in piped water supply. These make more sense in reaching people with water closer to their homes.

All stakeholders implementing in a district should agree on financing mechanisms for O&M. They should agree that payment is made for O&M and capital maintenance (e.g. through Yahura Yehoze/VSLA, pay as you fetch, pre-paid cards) and facilitate communities to understand the life cycle costs to assist in tariff setting.

NGOs, through Senior Women Teachers, should teach the girl-child how to make re-usable sanitary pads from appropriate material. This will minimize the cost of access to sanitary pads and further improve menstrual hygiene management. The re-use is also environmental friendly.

The review of the Sector Investment Plan should establish the investment requirements for universal access to WASH services by 2030 as stipulated in the Sustainable Development Goals. As part of this process, districts will need support (from TSUs) to enable them develop their respective District Investment Plans for Universal Coverage of WASH services. The plan could then be used as tools to guide coordination and resource allocation at district level.

13 CIVIL SOCIETY ORGANISATIONS IN ENVIRONMENT AND NATURAL RESOURCES

13.1 Background

This section provides ENR CSO contribution towards the attainment of key undertakings for the Financial Year (FY) 2015/16. Over the years, a number of ENR CSOs have been declaring their contribution to sector development as shown in Figure 13.1. Whereas there has been an increase in numbers of CSOs contributing to this report between 2010 and 2015, this FY we see a decline, from 55 to 33.

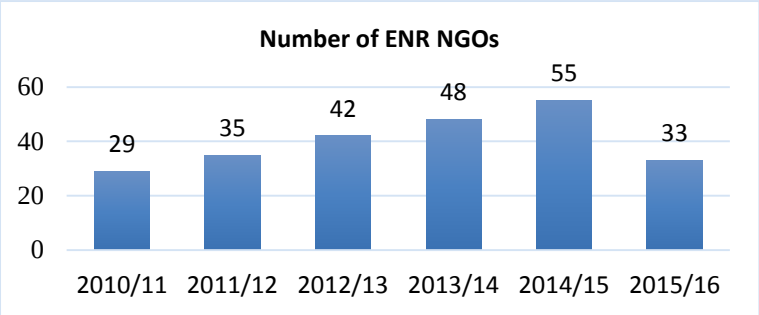


Figure 13.1 Number of contributing ENR CSOs

13.2 ENR CSOs Financial Contributions

This FY, there has been a decline in contribution from CSOs, dropping from USD 25,000,000 in FY 2014/2015 to US $ 4,279,282 (UGC bn 14.3). This is largely due to the following reasons:

(i) Reduction in donor funding as some of the development partners suspended investment due to presidential and parliamentary campaigns held this FY;
(ii) Some donors suspended funding to members of the network in order to beef up humanitarian aid towards a refugee crisis in Europe. Figure 13.2is an illustration of the above.
(iii) In this FY, some members of the ENR CSO Network implemented several activities in partnership with GoU MDA and therefore, to avoid duplication in terms of financial contribution, such financial support has not been computed. Some of the activities in this respect include: the Oil for Development (funded by Norway), Forest Tenure (funding from FAO), Stakeholder consultation in catchment management planning (GoU), participation in REDD+ preparedness (World Bank), Climate Change deliberations at national and global level among others.
(iv) Reduced number of ENR-CSOs that submitted their respective reports during the financial year.

Of the 33 ENR CSOs that reported this FY, 82.8% are registered as Local Non-Government Organisations, followed by International NGOs at 10.3% and Community Based Organizations (CBO) at 6.9%. ENR CSOs spent much of their resources on forestry (54%), followed by governance at 19% and environment at 12%. The CSOs spent 8% on weather, climate and climate change, and 7% was spent on wetlands. Figure 13.3 shows where they have concentrated their efforts. Eastern and Northern Uganda are areas where CSOs have had least operations.

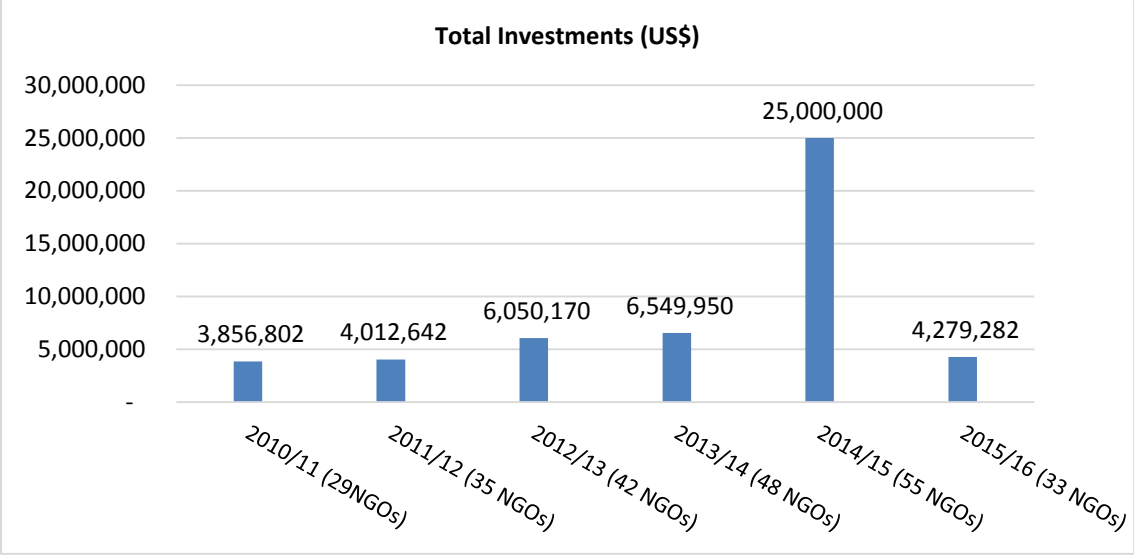


Figure 13.2 Investments by the ENRCSOs for the past 6 years

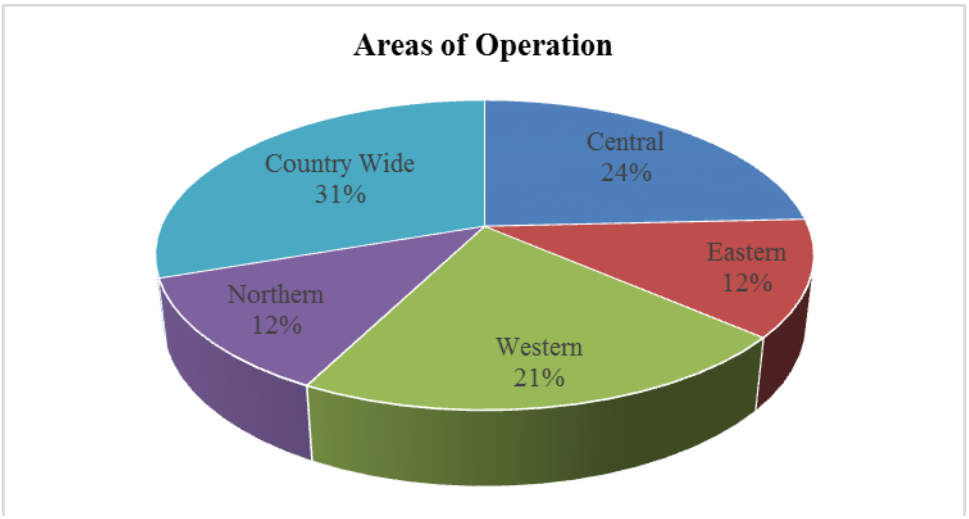


Figure 13.3 Areas of operation of ENR-CSOs across the country

13.3 Specific Achievements

13.4 CSO Achievements in Forestry Sub-Sector

The ENR CSOs achievements in the forestry sub-sector are presented as follows:

(i) This FY, ENR CSO raised 830,895 of assorted tree seedlings (in Tororo, Mpigi, Mbarara, Sheema, Kasese, Hoima, Masindi, Lamwo, Kitgum) including fruit trees, agroforestry tree species and commercial plantation species. These seedlings are estimated to cover 748 hectares. No survival rates have been estimated.

(ii) ENR CSOs also supported the establishment of 15 small-scale community tree nurseries with a capacity to produce an estimated 110,000 seedlings per annum in different areas of the country, and have provided nursery equipment, training and assorted materials.

(iii) In close collaboration with FSSD, ENR CSOs participated in the development of Forest Management Plans for 7 Communal Land Associations and 50 Private Forest Owners. These Forest Management Plans are yet to be endorsed by central government.

(iv) ENR CSOs continued to play their role in raising/creating awareness through 85 radio talk shows, 4 music, dance and drama skits, forest fairs and online news letters. ENR CSOs produced and distributed an assorted 50,100 copies of information, education and

communication materials and 1,000 copies of the ENR-CSO Network position paper that informed discussions at the 2014/15 Joint Sector Review.

(v) In line with community participation in management of natural resources, CSOs have increased vigilance and participation of communities in forest monitoring exercises, especially through Communal Land Association (e.g. Ongo Community Forest and Motokai Forest) and Collaborative Forest Management groups[84]. This year, 10 kilometres of forest boundaries have been opened and 1,100 Kenyan Top Bar (KTB) hives and assorted equipment have been availed to communities.

(vi) ENR CSOs built capacity for 762 community members in various aspects including tree nursery establishment and management, climate change adaptation, community forest monitoring, use of mobile technology in forest monitoring and sustainable brick -making that reduces deforestation.

(vii) The ENR and Forestry manifestos were prepared, to entice politicians to front environment and natural resource issues in their political agenda during the presidential and parliamentary campaigns. The document highlighted the key issues and recommendations in the forestry sub-sector and acted as a guide for the electorate in interrogating what politicians promise in their manifestos.

(viii) ENR CSOs, through the Uganda Forest Working Group and the Standards Development Group, contributed and participated in engagements at local and national levels, which resulted in completion of the pre-approval draft of the National Forest Stewardship Standards for Uganda (NFSS) that was submitted to the Forest Stewardship Council. These standards, when approved will guide and promote responsible forest management through forest certification.

(ix) ENR-CSOs have been partnering with MWE's Forest Sector Support Department (FSSD) to support a forest tenure reform process for registration and declaration of community-based forests and private forests in the districts of Lamwo, Masindi, greater Bushenyi and Kibaale. This also included undertaking a comparative study identifying driving forces of forest tenure security.

(x) The National Forestry Authority in collaboration with ENR CSOs has initiated stakeholders' consultations for collaborative forest management through development of guidelines for benefit sharing.

(xi) Comprehensive studies on policy and information needs for Chinese Investment in the environment and natural resources sector in Uganda were undertaken, with a focus on investment in the forestry, agriculture and the construction (including roads) sector.

13.5 CSO Achievements in Wetlands Sub-Sector

The ENR CSOs achievements in the wetlands sub-sector are presented as follows:

(i) In collaboration with MWE's Directorate of Water Resources Management and District Local Governments, ENR CSOs participated in a process for stakeholder consultations in the Upper Nile Water Management Zone, as part of a process for developing investment options for improving water catchment management[85].

(ii) In South western Uganda, ENR CSOs, NGOs and CBOs participated in the process for regeneration of:

(iii) Nyakambu Wetland system (Mbarara, Ntungamo, Sheema) restoring 118 ha of wetlands.

(iv) Kashasha Kibingo Rushangi Wetland system in Mbarara district, restoring about 150 ha.

(v) Katara Kanyabukanja wetland system in Buhweju district, restoring about 200ha (see also reports by MWE's WMD in Section 9.1.3 of this report).

[84] e.g. Kalinzu, Budongo, Agoro Agu, Lalak, Kasongoire CFRs

[85] Covering the districts of Adjumani, Amuru, Arua, Gulu, Koboko, Maracha, Moyo, Nebbi, Nwoya, Yumbe, Zombo, Abim, Alebtong, Amuria, Gulu, Kaabong, Kitgum, Kole, Lamwo, Lira, Otuke, Oyam, and Pader in Aswa Catchment.

In addition to supporting wetland regeneration process, ENR CSOs have participated in the establishment of 8 Community Conservation Environment Fund beneficiary groups. This fund is utilised by the different wetland user groups.

13.6 CSO Achievements in Environment Sub-Sector

The ENR CSOs achievements in the environment sub-sector are presented as follows:

A total of 36 ENR CSOs, selected from 10 districts of the Albertine Graben, participated in training sessions organised by the Environment Management for Oil Sector Activity. The training sessions were on oil and gas development, district environment action planning (with an oil/gas lenses), ecosystem services valuation, development of checklists for environmental monitoring and development of sensitivity atlas for Queen Elisabeth Protected Area. These trainings are supposed to have a spill over effect since participants were equipped with public information and education materials on oil and gas development to pass on to communities.

ENR CSOs contributed to conservation and sustainable management of lake shores through supporting establishment of 25 Beach Management Units and fisheries management support in the Lake Victoria shoreline district of Mayuge (including Busi Islands).

ENR CSOs raised awareness on biomass energy use and conservation to address the household cooking energy needs among urban communities. Thus, 109 households in the slums of Kampala were trained on making and using of fuel briquettes from biodegradable waste. In addition, 60 households were trained on how to make and use fireless cookers. In total 295 households were trained in solid waste management with an emphasis of recycling waste to make crafts. Furthermore, modern energy saving stoves among communities of Moyo and Apac Districts, and trainings on production of energy-saving stoves for 60 group leaders in these districts were provided by Volunteer Efforts for Development Concerns. These leaders have continued to train their fellow group members in energy saving stove production and use.

ENR CSOs continued playing a role in environmental awareness and sensitisation using various media and participation in celebrated days (e.g. World Environment Day) targeting various stakeholders at different levels. The messages were crafted from a range of valued ecosystem components such as proper land management, conservation of biodiversity, fisheries, climate smart agriculture among others. The messages were intended to reach out to local audiences.

In collaboration with NEMA and WWF Uganda, EMLI held advocacy and awareness campaigns on Sustainable Development Goals with a view to domesticate the global sustainable development process in order to respond to the needs and priorities of the country.

Reaching out to schools, CSOs established and/or maintained school environment clubs and linking them with community dialogue sessions, promoting community based learning and facilitating exchange visits. For example EMLI and Tree Talk Plus established 11 new school environment clubs in Buikwe and Kapchorwa districts.

13.7 CSO Achievements in Weather and Climate Change Sub-Sector

ENR CSOs carried out activities directly linked to climate change adaptation, resilience creation and mitigation, some of which have been highlighted:

Environmental Conservation Trust (ECOTRUST), one of Uganda's carbon brokers, placed 1,322 ha of farmland for 1,533 farmers under improved land management through its Trees for Global Benefits carbon program. ECOTRUST's interventions to broker carbon for smallholder farmers have now yielded sequestration equivalent to 1 million tons of carbon worth USD 6 million.

Nature Palace Foundation (NPF) produced and distributed 200 tonnes of briquettes together with 2,455 improved energy-saving stoves within Kyaka II and Rwamwanja Refugee Settlements in Kamwenge District and modified 8,000 fixed improved energy-saving stoves in Kyangwali Refugee Settlement.

ENR CSOs organised pre and post post-COP 21 workshops that were attended by a total of 204 state and non-state actors who discussed the implications of the 2015 climate agreement and contents of the Paris Agreement. In addition, regional and sub-regional workshops on climate change were organised bringing together 248 participants from Acholi and Teso sub-regions.

13.8 Governance as Cross-Cutting Issue

In a bid to improve advocacy and lobbying from an informed point of view, ENR CSOs have conducted research studies and published reports and papers that are aimed at improving environment and natural resources governance. These include:

- Research on benefit sharing in the Forestry Sector and access to justice in the Forestry Sector (see http://www.monitor.co.ug/artsculture)
- Greening Uganda's 2016 general elections: Key Issues for Political Parties and Political Leaders to Address in their Manifestoes
- The Role of Local Leaders in Promoting Good Forestry Governance in Uganda
- Getting More out of the Oil and Gas Sector: Lessons from Angola and Chad
- The status oil waste consolidation facilities and restored oil drilling sites
- Oil Governance Readiness Assessment Report (draft)
- Enhancing Forest Tenure and Governance in Uganda; the turning point – thinking beyond the forest cover and canopy.
- Citizen journalism – linking media houses with community based forest monitors and community policing.
- Policy and information needs for Chinese investment in Agriculture, forestry, construction industry and roads and the need for environmental cleaning.

Additional governance-related activities included writing advocacy letters to key policy makers on the operationalization of the Tree Fund, degazettement of forest reserves in Luweero and Muzizi river range, and building capacity of journalists through on the on-job apprenticeship training in forest resources governance, coverage/reporting as well as investigative/analytical articles in the newspapers and radio productions.

13.9 Challenges and Recommendations

Being the year of general elections, presented a myriad of unusual challenges during the implementation of work for both government and ENR CSOs. The election period also affected implementation of activities especially related to those, which were in partnership with local government but also created a threatening investment atmosphere for development partners. As a result, the sector continues to grapple with common challenges like limited funds to conduct essential needs assessment for the sector, low implementation and enforcement efforts, gender misrepresentation, unclear understanding of the sector and limited numbers of technical staff and the bureaucracies in government processes. Some of the cross-cutting recommendations include continuous sensitisation and capacity building of the masses across all thematic areas, inclusive stakeholder consultations and networking and improved data collection and information sharing. In Annex 14, the recommendations based on respective sub-sector challenges are presented.

14 GOOD GOVERNANCE IN WATER AND ENVIRONMENT

14.1 Introduction

The Ministry of Water and Environment (MWE) promotes good sector governance through the multi-sector players working group, which was established in 2006. Good governance is critical in ensuring that services reach the intended population, particularly the poor who have less access to services and less influence to demand for them. The Good Governance Working Group (GGWG) aims to strengthening governance, transparency, accountability, integrity and participation in the water and sanitation sub-sector through identification of governance issues in the sector, and designing measures to combat them.

14.2 Good Governance in Water and Sanitation Sub-Sector

During the financial 2015/16, achievements were registered that are summarized in the next sections.

14.2.1 Allocation Formula for the Rural Water Grant

The allocation formula for the District Water and Sanitation Development Conditional Grant (DWSDCG) was reviewed in 2012, and the final report presented to top policy in 2015, to ensure that the grant to the district local governments (DLGs) is appropriated on the principle of equity and coverage at district and sub-county level. The reasons behind the reform of the conditional grants formula included streamlining the variables that DLGs had direct control over, among others. The formula thus took into consideration population, investment costs of the appropriate technology, functionality and the water supply coverage at sub-county level within a district to enable the underserved sub-counties attain average national service coverage.

However, the implementation of this allocation formula was not implemented, as the Ministry of Finance, Planning and Economic Development (MoFPED) developed (through a parallel process) a generic formula which has been applied in conditional grant allocations with effect FY2016/17.

The Joint Sector Review of 2015 recommended the Good Governance Thematic Working Group to have negotiations with the MoFPED to ensure that the principles of the newly developed formula are incorporated in MoFPED's suggested formula. Although several meetings were held with MoFPED to this effect, the MoFPED proceeded with its suggested formula with only minor changes; for example the MoFPED team agreed to separate the sanitation grant that they had combined together with the water grant. Another parameter that was considered for grant allocation as a result of the negotiation process was functionality.

The MoFPED focused on simplifying the formula, which they achieved. However, there is a challenge of limited absorption that is likely to happen in some districts. Towns that have limited capacity to absorb have received more finances this year. There is also a feeling that implementation of the formula which was developed by the Finance ministry was rushed. Not enough time was given to analyse and test the formula before rolling it out. The MWE is looking forward to the formula's performance in the FY2016/17 and thereafter engage MoFPED if necessary. In the negotiations, MoFPED had promised to increase the funds to cover the gaps that were being brought by the formula, but this did not happen.

Table 14.1 shows some specifics about the three formulas of DWSCG.

Table 14.1 Comparison between the various allocation formulas for the Rural Water Grant

Old formula Implemented up to FY2015/16	Revised formula in 2012, never implemented	Formula by MoFPED, implemented from DY2016/17
Was not weighed, focus on district access to water percentage.	Uses weights, taking into consideration individual district's values for equity, access, number of people, investment costs of the appropriate technology, water source functionality rate.	Uses weights, taking into consideration cost, land area, poverty, population, functionality.
Took into account parameters that were easily influenced by local government so that they could have more funds at the expense of performance.	Focuses on access, functionality, sub-county deviation, technology, and the number of sub-counties.	Focuses more on development funds as compared to recurrent expenses.
Did not take into account the desired levels of performance of all districts in general.	Takes into consideration the general performance of all districts	Does not take into account the desired levels of performance of all districts.
Joined sanitation and water activities into one vote	Separates sanitation vote from water vote	Has a separate vote for sanitation.
Was difficult to explain how it was derived at.	Was complicated to explain	Simple to explain how the allocation is done.

The formula for the revised allocation formula proposed by the Sector in 2012 is provided in Annex 15.1, whereas the formula for the formula by MoFPED is provided in Annex 15.2.

14.2.2 Monitoring Governance in the Water Sector

In 2013, the Good Governance Working Group (GGWG) conducted the study "Assessing Governance and Integrity in the Water Supply and Sanitation (WSS) Sub-Sector", which recommended the development of a water integrity indicator. Similarly, although various activities have been undertaken by the GGWG, the efforts and achievement of the group and the sub-sector could not be measured consistently and periodically due to lack of a dedicated indicator. The Joint Sector Review of October 2014 therefore prioritized the need for a governance indicator(s) through the undertaking "*Develop appropriate indicator(s) for monitoring of good governance in the water and sanitation sub-sector by the end of FY2014/15*". In September 2015, the Joint Sector Review further emphasized the need for a sector performance monitoring review to incorporate good governance through Undertaking 7 "*Review Sector Performance monitoring framework – to incorporate water quality monitoring, good governance, human right to water, climate change, Sustainable Development Goals (SDGs), and the National Development Plan (NDP II)*".

The GGWG embarked on a study that aimed to suggest ways of measuring sector governance by use of indices, which are precise, easy to compile and aligned with the performance indicators that reflect the governance processes. A total of 16 proposed indicators were prioritised that could be used to capture 6 key processes of water governance. Focus was put on monitoring the processes rather than the outputs of the sector, with a belief that an improvement in the processes the sector undergoes to produce these outputs would definitely result into performance improvements in the outputs (see also Figure 14.1). The proposed governance indicators are listed in Annex 15.3.

Figure 14.1 Prioritization of indicators by the Technical Task Team

Figure 14.1 Explaining the focus area of good governance

Monitoring good governance will eventually improve service delivery and sector performance for both water and environment. The governance indicators shall be used in ranking and rating the performance in relation to other countries in the achievement of the SDGs. In particular, the results of the indicators shall be used to prioritise the activities of the Good Governance Action Plan (GGAP) and sector undertakings under governance thematic working group. The indicator shall also support the Civil Society and Development Partners in targeting their support to the sector to most critical areas of governance.

Note: The 16 indicators are still work-in-progress. The GGWG is still consulting and will pilot use of these indicators during 2016/17.

14.2.3 Update of the Good Governance Action Plan

The implementation of the updated GGAP 2014-2017 continued progressively with an improvement in performance by 4% from 77% last year to 81% this year. Only 19% of the total actions are still not taking place. Table 14.2 provides a summary of the achievements made in terms of implementing the GGAP activities, while Annex 20 provides the details.

Table 14.2 Summary of performance in implementation of the Good Governance Action Plan

Objective	No. of actions	Complete / continuous	Actions on track	Actions not implemented	Average performance
Governance Oversight Strengthened	19	12	2	5	74%
Improvement in procurement processes, Project Implementation and contract management within the sector	2	2	0	0	100%
Bridging the implementation gap through access to information and empowerment of water users	5	5	0	0	100%
Total	**26**	**19**	**2**	**5**	**81%**

As noted last year, most of the activities that are not yet taking place are beyond MWE's mandate. For example, all ministry departments do not have a concrete measure of implementing incentives and sanctions. The available sanction to ministry staff is through staff appraisals and reprimand by writing to the staff, which us not as threatening as cancelling contracts. If a district is not meeting performance standards, the MWE can only inform the Chief Administrative Officer (CAO) in writing, copied to the political leadership, but effective sanctions cannot be implemented. MWE's Regulation Department and the Urban Water and Sewerage Department are challenged in the same manner. "*Name & Shame*" may be the only available incentive/sanction that can be applied.

14.2.4 Urban Water Grant Survey

Realising that the performance of the towns seemed not to have improved commensurate to the investment, the GGWG embarked on a study to establish the efficiency and effectiveness of the Urban Water and Sanitation (O&M) Grant. The study aimed at determining the effectiveness and efficiency of the urban water conditional grant taking into account the allocation criteria, the channeling process, utilisation of the grant, its adequacy, auditing compliance and reporting. The outcome of the study is to improve planning, channelling and guidelines for utilization of the conditional grant.

The study revealed the following:

i. The grant achieved its objective of keeping the water tariff low, but has not yet been effective in bridging the gap to break-even points of the utilities.
ii. Grant releases from the Government of Uganda Consolidated Fund (GUCF) were traceable on respective Districts or Town Councils' General Collections Accounts (GCA) in real-time, therefore the mechanism used to channel the grant was found to be both efficient and effective. Delays in remittance of funds from the General Collections Accounts to beneficiary grant accounts on average ranged between 3 to 7 days from the date of receipt of funds from GUCF into General Collections Accounts. In all cases however, the grant channelled to beneficiaries was received as a whole in the designated water accounts and expended therefrom to implement specified activities.
iii. Inadequacies were found in accounting and financial management skills especially with scheme operators. Inadequate financial reporting, fostered by the cash accounting method used by Water Authorities was also evidenced, e.g. aged receivables were excluded from quarterly reports which made the financial status of Water Authorities not well represented. Umbrella Organisations do not maintain separate books of accounts for the urban conditional grant, but rather mix up all finances received.
iv. Lack of reporting skill in Water Authorities. Accuracy and completeness in reports are lacking in some schemes and Umbrella Organisations did not provide grant reports to UWRD.
v. Water Supply and Sanitation Boards fall short of provision of management oversight, and are sometimes non-existent.
vi. There is duplication of Conditional Grant funding for some schemes from both Umbrella Organisations support and direct Connection Subsidy Allocation (CSA) grant,
vii. There is no specific audit commissioned for the urban grant in both Water Authorities and regional Umbrella Organisations.

The study report and the recommendations will be discussed in the Water and Sanitation Sector Working Group and an action plan thereafter will be developed for implementation of the study recommendations.

14.2.5 Awareness Campaign

The GGWG developed a good governance awareness strategy which aims to increase the efficiency and effectiveness of water service provision through awareness of good governance practices. The implementation of this campaign is done by the members of the GGWG; the activities carried out this year are summarized in the following section.

The GGWG organised a **governance corner** during the last Joint Sector Review that show-cased the activities of the group and materials that promote governance in the sector.

MWE organized an interactive **e-Learning course on the applicability of governance principles**. The awareness course was attended by 45 senior and middle managers from all sector players.

UWASNET held three dialogues with its members and key sector stakeholders. One of the dialogues produced two documentaries as advocacy tools for promoting good governance in the sector; one on communities and CSOs' participation in planning and budgeting for improved WASH service delivery,

(https://www.youtube.com/watch?v=tqpKgHRPoAI) and the second one on keeping safe water flow, a documentary advocating for increased sector financing for operation and maintenance of rural water points (https://www.youtube.com/watch?v=9KPv7Dwb4tw). They also produced and aired television infomercials that were aired on NTV and Bukedde TV during the inaugural Functionality week (https://www.youtube.com/watch?v=XSz6LTllE80).

NETWAS held **dialogues with sub-counties and districts**. The first phase was done in Akworo and Nebbi Sub-County. The findings were documented and shared with the district. During the dialogue the parties noted that the concept of the Sub-County Water Supply and Sanitation Boards was not yet clear, and there was need for training on the new grant allocation formula, its objectives and how it should be implemented and reported.

14.2.6 Challenges

The challenges of good governance in the sector have not changed since last year. They still include limited financing, no measures for a permanent strong secretariat, and the limited mandate of the group, as described below.

A study to assess the governance and integrity challenges related to the implementation of the agreed action plan and regulation within the sector, which was conducted by the GGWG established that the activities are not mainstreamed with sufficient budgetary provision. The issue of **lack of budgets, no follow-up mechanisms and integration into other activities** were the main causes of lack of progress on some actions. The findings further recommended that the GGWG secretariat would monitor achievements based on targets set by the individual departments and CSOs, but this is hindered by the lack of funding.

The secretariat of the governance group is supposedly filled with one ministry staff who has other mandated assignments aligned to her job description. The current **secretary's capacity needs to be developed** to further this action. The GGWG secretariat is currently supported with a Good Governance Advisor, to strengthen the good governance secretariat and support the activities of the group.

There are still challenges especially towards the implementation of incentives and sanctions, and implementing the rule of law and governance at lower levels of administration.

14.2.7 Conclusion and Recommendations

There is need for **continued governance awareness** with the overall objectives to change the perception of actors in the sector towards positive and ethical thinking, and increase the efficiency and effectiveness of water service provision.

Development, monitoring and follow-up of governance interventions: although members of the governance group implement the GGAP through their individual and mandated activities, the governance group has limited financial capacity to monitor and follow –up on the implementation of such activities. The liberty is left to the member to ensure that such activities are well implemented and provide reports to the group at the end of the activity. This may limit the level of performance and might lure the respective organ into insufficient performance. The GGWG is proposing a new format for developing the governance action plan. The idea is to focus the activities of the group on the improvement of the results of the governance indicator. In this case the GGAP shall be developed from the results of the indicator. This is different from the previous format where the GGAP has been developed after series of studies and surveys that could inform a wide range of critical areas that needed concern.

14.3 Good Governance in Environment and Natural Resources Sub-Sector

The Ministry of Water and Environment instituted the Environment and Natural Resources Good Governance Working group (ENR-GG-WG) in 2011, comprising of representatives from the departments within the Directorate of Environment Affairs, environment agencies within the ministry, civil society and academia. The working group developed a governance action plan for the period 2013-2016, which spells out the actions and interventions of the Government of Uganda designed to address the current governance challenges in the Environment and Natural Resources Sub sector. Progress of the governance plan is provided for each specific objective.

14.3.1 Improvement of Transparency and Accountability of the ENR Sector to the Citizens

Transparency and accountability of the ENR Sector to the citizens was planned to be improved through establishment and strengthening of ENR governance structures, system, tools and procedures by establishing of 111 District Environment Committees (DEC), 4 Regional Wetlands Coordination Committees (RWCCs), 200 forest community-based systems, Tree fund, gazetting of 200 Environment Inspectors, developing and promulgating forest regulation, and conducting 4 regional public hearings on environmental governance.

By September, 2016, 3 steering committees for Climate Change, REDD+, and Sawlog Program Grant Scheme (SPGS) and 375 Environment Inspectors were gazetted; a Joint Compliance Monitoring and Enforcement System is in place for wetland enforcement and forestry regulation as well as conducting national public hearings on Chinese investment practices for improved forestry sub-sector governance[86]. Plans are underway to operationalize the 111 DECs and promulgate the forestry regulation and guidelines.

14.3.2 Harmonise ENR Institutional Mandates and Roles

Inter-institutional coordination and accountability and evidence-based decision-making was to be promoted by harmonizing ENR institutional mandates and roles to create a hierarchy of institutional leadership in the sector.

By September, 2016 the first drafts of National Environment Management Policy (NEMP) and Act (NEA), and the EIA Regulations have been developed and await approval by MWE's Top Policy Committee, before presentation to the Policy Committee on Environment.

14.3.3 Promote Effectiveness and Efficiency in ENR Management

Effectiveness and efficiency in ENR management is to be promoted by developing and mentoring ENR management staff in organisational structures, mission, GoU standing orders provisions, values, and code of conduct and supervise and appraise staff on the achievements of performance plans.

14.3.4 Strengthen Law Enforcement and stop ENR–Based Corruption

Law enforcement was planned to be strengthened and ENR–based corruption stopped by training and a facilitated EPPU. By September, 2016 the Environment Protection Police Unit (EPPU) was supported by the provisions of 4 pickups and 10 motorcycles to enhance fast response to site of crimes. Plans are underway in FY 2016/17 to conduct refresher training of all the 150 staff of the EPPU.

[86] The aim of the China-Africa Forest Governance Project is to strengthen understanding, partnership and joint action on forest governance between China and Africa. It is envisaged that this project will lead to increased preparedness of stakeholders as well as improved policy and investment practices in China and Africa that foster good stewardship of forest resources. The project will be implemented in China, Cameroon, Democratic Republic of Congo (DRC), Mozambique and Uganda

14.3.5 Capacity Building of the ENR Good Governance Working Group (GGWG)

In September, 2016 a technical advisor was recruited with support from the World Bank and he advises the ENR GGWG on governance issues.

14.3.6 Strengthen Access to Justice and Remedy for Citizens

Access to justice and remedy for citizens was planned to be strengthened through the formulation of a new benefit sharing formula for sharing revenues between central government, local governments and communities. A Study on Collaborative Forest management is being implemented by Environment Alert to determine the appropriate benefit sharing scheme to effectively engage local people in forestry management.

15 CRITICAL ISSUES FOR SECTOR DIALOGUE

There are challenges experienced in the water and environment sector, which require a holistic approach, as indicated in the following paragraphs.

15.1 Mainstreaming environmental concerns

The ENR sub sector faces multiple challenges to maintain and protect the environment and sustain the ecosystem services which contribute to social and economic development. Many of these challenges are outside the direct control of the sector. Much of the impact on the environment results from the policies, plans and programmes of government and, in particular, of other sectors or ministries. The ENR sub sector will therefore emphasize mainstreaming of environmental protection into the policies and programmes of five critical areas of high profile/high impact government business, specifically the sectors of agriculture, infrastructure, lands, energy and water in order to reduce environmental degradation emanating from these sectors.

15.2 Maintaining Rural Water Supplies

Since the implementation of the first Water Supply Atlas (2010), a decision was made to de-commission all water sources which had by that time been not been functional for 5 or more years. Subsequently, over the period 2011-2015, such sources were not considered in the estimation or computation of access to safe water. However, the on-going process of update of the Water Supply Atlas (WATSUP II) has revealed that a sizeable percentage of these non-functional boreholes may actually be fit for rehabilitation. The Government therefore needs to ensure that the actual status of these water sources is evaluated, and subsequently urge district local governments and sector CSOs to prioritise rehabilitation of those water sources that are repairable and thereafter ensure revitalisation of the water user committees.

15.3 Managing Small towns' Water Supplies

Uganda's small piped water schemes (outside towns or areas managed by NWSC) – supply at least 3 million people both in urban and rural areas. With the support of Umbrella Organisations, around 90% of these systems are 'functional' in the sense that (some) water is flowing, but many suffer from inadequate system capacity to meet existing demand for water services, low service reliability (intermittent supply), high un-accounted for water, poor revenue collection, and poor water quality. The situation is worsening as the systems are ageing: Many systems are now approaching the end of the design life and need some investments to maintain even the current level of service. Further, with rapid population growth and urbanisation in Uganda, the number of people reliant on each piped system is increasing, requiring progressive expansions to the systems. Finally, many of the older schemes have not been built up to current standards. Many schemes are not metered, do not have adequate source protection or use surface water without treatment. These schemes need investments to create the pre-conditions for proper operation and maintenance.

All this cannot be paid by the current users of small piped water systems. Realistic tariffs can only cover the running costs for routine O&M and replacement of some components (such as a pump or broken solar panels), but not substantial investments or asset depreciation. It is therefore recommended to:

- Consider creation of a Revolving Facility for investments in existing small piped water schemes. This fund would address two key issues: Channel subsidies for investments that cannot be paid by the users, as described above; and create a saving mechanism where the scheme revenue exceeding the running O&M costs can be safely kept and accumulated until it is needed for repairs or other investments.
- Improve local revenue collection by introducing innovative systems such as non-cash payment like use of mobile money (taking present NWSC practices as an example), billing software

(including customer database and meter readings), and pre-paid water vending. The key problem is very often not a lack of user willingness to pay but poor financial management practices. This includes implementation of the Action Plan developed for implementation of last year's undertaking No. 6 of 2015/16 (i.e. "*improve the sustainability of small towns and rural piped water schemes*").

- Increase the level of funding of Umbrella Organisations to a realistic level. If Umbrellas are to support at least 100 piped water schemes each, this must be in line with the available human, transport and financial resources.

15.4 Catchment Planning and Water Source Protection

The **guidelines for catchment planning and water source protection** (2014) were disseminated and have been piloted before scaling-up their usage. In addition to the pilots, some other stakeholders/projects have used the guidelines for catchment planning and water source protection against quality and quantity degradation. The piloting has provided an opportunity to test the usefulness of the guidelines as well as assessing any existing gaps so that they can be addressed before the guidelines are formally adopted by all sector players.

In addition, a draft **strategy for operationalising the 3% contribution for water sources protection** was developed, and will be finalised after incorporation of experiences/lessons learnt from the pilots.

15.5 Water Pollution Issues

Water resources pollution in Uganda is currently on the increase as a result of the rapid population growth, increasing economic and industrial activities, urbanization and climate change. For example, Lake Victoria receives 25 tons of biodegradable substances and 4 tons of plant nutrients every day from the Ugandan side from industries, urban centres and fishing villages (*Okurut et al, 2004*). The inner Murchison bay alone receives 9 tons/day of biodegradable materials.

This increase in pollution is manifested by the following facts:

- Nutrient loading into water resources which has resulted into proliferation of aquatic water weeds such as water hyacinth and Kariba weed which impact negatively on water supply intakes, docking of ferries, navigation, generation of HEP and fisheries.
- Pollution of drinking water sources due to inadequate containment and treatment of human waste, which has contributed to mortality from water borne diseases such as cholera and typhoid. Approx. 87% of the 218 protected springs in Kampala are contaminated with faecal matter (*MWE, 2015*). Diarrheal diseases including water borne diseases contributed to 3.0 % of all illnesses in Uganda (*HSPR, 2013*).
- The Climate change will increase incidences of waterborne diseases in Uganda (*Taylor et al, 2004*).
- Between 2007 and 2010 the water treatment costs at Gaba Water works under the NWSC have tripled from an estimate of US$0.3/m3 of water in 2007 to about $0.9/m3 in terms of alum used for removal of organic pollution. (*MWE, 2013*).
- Pollution has also resulted into reduced level of fish catches from Lake Victoria. The total fish catch has reduced by about 60%, i.e. from a peak of 39,201 tonnes in 2005 to about 15,417 tonnes in 2010. Water pollution has been cited among the principle causes for this reduction (*ICEIDA 2014*).
- Oil and gas activities can create negative environmental impacts if not managed properly. Baseline studies indicate presence of heavy metals (arsenic and lead) in amounts above the effluent standards in waste water from some oil drilling sites.

Uganda is signatory to the Sustainable Development Goals (SDGs), and SDG 6.3 specifically reports on the status of water resources in terms of water quality parameters that measure pollution levels. To address the challenges, adequate and reliable financing is required for a holistic (integrated) approach to water resources pollution management.

15.6 Regulation of Water Supply & Sanitation Services

The inadequate framework for effectively regulating the water and sanitation sub-sector to improve service delivery, while protecting the interests of consumers as well as those of the public and private parties is a matter of concern. Areas of weakness that have been identified include, but are not limited to contract management/compliance, performance monitoring and evaluation, water quality monitoring, penalties, sanctions and rewards systems, dispute resolution mechanism, increasing transparency and accountability in the sector, pro-poor interventions, assets and investments management and tariff setting and adjustments.

This challenge is becoming even more prominent at a time where the management of town water supplies is taken over by NWSC at a very fast speed without the accompanying regulatory modalities in place, where urban waste water treatment is grossly inadequate and the water resources quality is deteriorating.

In order to address some of the above challenges, as an interim measure before establishment of the independent regulatory authority, a decision has been taken by the Ministry to de-concentrate some regulation functions to regional Regulation Units to be based in the 4 regions where other MWE de-concentrated structures are operating, to specifically focus on executing regulatory functions in the entire Water and Sanitation sub-sector.

Annex 1. Information Sources and References

Annex 1.1 Information Sources

Issued by	Document/Database	Year of Issue	Useful Data for SPR
UBOS	Statistical Abstract	2015	Population Data for Urban Councils and Rural Sub-Counties
NEMA	State of Environment Report	2012	Information on environment and natural resources
MWE	Water and Sanitation Sub-Sector Investment Plan (SSIP)	2009	Investments
UBOS	National Population And Housing Census 2014	2014	Access
District Local Governments	District Water & Sanitation Situational Analysis Reports	2016	Access, functionality, investment, equity and gender
MWE	WSDB Database and NWSC-MIS Database	2016	Access, functionality, equity, gender, outputs, investment, WfP, performance, compliance and water quality
UWASNET	NGO Group Performance Report for 2015/16	2016	NGO Inputs and Performance
Environmental Alert	CSO Report for Environment and Natural Resources	2016	NGO Inputs and Performance

Annex 1.2 References

Eawag/Sandec, **2016** (the Department of Sanitation, Water and Solid Waste for Development at the Swiss Federal Institute of Aquatic Science and Technology). SFD Promotion Initiative.

Kampala City Council Authority, 2014. Improving Faecal Sludge Management for Onsite Sanitation in Kampala City, Uganda.

Tsimpo and Wodon, 2014a. Water and Sanitation for the Poor and Bottom 40% in Uganda: A Review of Strategy and Practice Since 2006.

SaafConsult BV, 2011. Water for Production: Review of recent implementation experience and identification of strategic options to support the WfP subsector as a component of the planned Joint Water and Environment Sector Support Programme (JWESSP 2013-18).

World Bank, 2015. Improving Incentives for Reinvesting Revenue and Attracting Private Finance for Water Supply Systems in Selected Small Towns in Uganda –Final Report.

Annex 2. Overview of the Sector Institutional Framework

The Water and Environment Sector consists of the water and sanitation sub-sector and the environment and natural resources sub-sector. The water and sanitation sub-sector comprises water resources management and water development. The environment and natural resources sub-sector comprises environmental management; management of forests and trees; management of wetlands and aquatic resources; and climate, weather and climate change.

In July 2008, the Water and Sanitation Sector Working Group (WSSWG) merged with the Environment and Natural Resources Working Group (ENRWG) to form the Water and Environment Sector Working Group (WESWG). The WESWG provides policy and technical guidance for the sector and comprises representatives from key sector institutions.

National Level

The **Water Policy Committee** (WPC) was established under the Water Act Cap 152 and Water Resources Regulations (1998) of Uganda to assist and advise the Minister of Water and Environment and to promote inter-Ministerial and inter-sectoral coordination over a wide range of water resources management and development issues. The WPC provides an avenue for promoting IWRM at national level and guiding the strategic management and development of water resources of the country. The WPC also coordinates the preparation of national water quality standards; and mediations and undertakes conflict resolution between national authorities on water resources matters.

The Policy Committee on the Environment was established by the National Environment Act Cap 153 as a sub-committee of cabinet. It is chaired by the Prime Minister and consists of ten ministers responsible for natural resources; agriculture and fisheries; finance and economic planning; education; health; land, housing and urban development; local Government; gender and community development; wildlife; and trade and industry. The Policy Committee on Environment provides policy guidance and oversight to the National Environment Management Authority (NEMA). It also harmonises the sectoral roles and responsibilities over the range of environmental issues across its jurisdiction. The committee plays a critical role in integrating environmental considerations into the policies, plans and programmes of the respective sectors and sub-sectors under its jurisdiction.

The Ministry of Water and Environment (MWE) has the responsibility for setting national policies and standards, managing and regulating water resources and determining priorities for water development and management. It also monitors and evaluates sector development programmes to keep track of their performance, efficiency and effectiveness in service delivery. MWE has three directorates: Directorate of Water Resources Management (DWRM), Directorate of Water Development (DWD) and the Directorate of Environmental Affairs (DEA). The mandate of the MWE regarding **sanitation and hygiene** activities is stipulated in the Memorandum of Understanding that was signed by MoH, MoES, and MWE. The role of MWE is limited to development of public sanitary facilities and promotion of good practices of hygiene and sanitation in small towns and rural growth centres.

The current mandate for **WfP** facilities in Uganda is shared between MWE and other Ministries. With respect to water for agricultural development, MWE is responsible for “off-farm” activities while Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is responsible for “on-farm” activities. “Off-farm” refers to development of water sources and transmission (bulk transfer to farm gates) while “on-farm” refers to irrigation infrastructure, water use and management. Regarding water for energy, MWE works with Ministry of Energy and Mineral Development; for water for industry, MWE produces water to the industries’ premises, while Ministry of Tourism, Trade and Industry (MoTTI) is responsible for water use and management in the industries.

Directorate of Water Resources Management

The Directorate of Water Resources Management (DWRM) is responsible for developing and maintaining national water laws, policies and regulations; managing, monitoring and regulation of water resources through issuing water use, abstraction and wastewater discharge permits; Integrated Water Resources Management (IWRM) activities; coordinating Uganda's participation in joint management of transboundary waters resources and peaceful cooperation with Nile Basin riparian countries.

While the traditional institutional arrangements for water resources management have been centralised, de-concentration of these functions to regional and local levels has been initiated. Thus, institutional arrangements for management of water resources in Uganda now exist at three levels, namely the national level (DWRM and WPC, mentioned above), the regional and transboundary level, and the local level.

Transboundary Level Institutions such as Lake Victoria Basin Commission (LVBC) and Nile Basin Initiative (NBI) under which parts of Ugandan fall. LVBC is a legal entity, linked to the East African Community (EAC), responsible for the sustainable management of the water resources of Lake Victoria basin. Similarly, the Nile Basin Initiative is a transitional institutional arrangement responsible for sustainable management and development of the Nile basin water resources. Some 98% of Uganda lies within the Nile basin and the active participation of Uganda in the Nile Basin Initiative activities is therefore key to the sustainable management and development of Uganda's water resources.

Directorate of Water Development (DWD) is responsible for providing overall technical oversight for planning, implementation and supervision of the delivery of urban and rural water and sanitation services across the country, including water for production. DWD is responsible for regulation of provision of water supply and sanitation and the provision of capacity development and other support services to Local Governments, Private Operators and other service providers. DWD comprises three Departments; Rural Water Supply and Sanitation; Urban Water Supply and Sewerage and Water for Production. The Regulation Department of MWE ensures adherence to set standards of service established by the sector for water supply, currently restricted to piped water supplies in the country. The type of regulation being exercised by the department is "Regulation by Contract". This is realised through Performance and Management Contracts with Water Authorities.is regulating urban water supply services.

The MWE, through its **Urban Water and Sewerage Department**, is responsible for overall coordination, policy formulation, setting standards, inspection, monitoring, technical back-up and initiating legislation. It also directly oversees and supports water supply and sanitation service delivery in in all water supply areas that are not gazetted for management by the National Water and Sewerage Corporation.

The National Water and Sewerage Corporation (NWSC), established as a Public Utility operating on a commercial basis, is traditionally responsible for water supply and sewerage services in the large towns. However, in recent years numerous small towns and rural growth centres have been gazetted for management by NWSC, with a further increase from 110 to 170 towns/supply areas during 2015/16.

Service delivery and asset management in water supply areas outside the jurisdiction of NWSC is the responsibility of Local Governments. Normally these are appointed as Water Authorities and receive performance contracts which require them to appoint a Water Board and contract a Private Operator (company) for day-to-day management of the water scheme. Currently, approximately 50 small towns and rural growth centres have actually sub-contracted scheme management to a private operator. Others manage their water supply directly or have contracted an individual Scheme Operator.

Traditionally, the Urban Water and Sewerage Department (UWSD) takes care not only of gazetted urban areas but also of piped water systems supplying rural growth centres. For effective operations it has set up two sets of regional deconcentrated units:

4 Water and Sanitation Development Facilities (WSDFs) for the implementation of new water supply and sanitation schemes and major rehabilitations

6 Umbrella Organisations for supporting the operation and maintenance of existing piped water infrastructure.

The four WSDF Branches plan, finance and implement new water and sanitation projects in Northern, Eastern, Central and South Western Uganda, from their headquarters located in Lira, Mbale, Wakiso and Mbarara, respectively. The districts covered by each of the WSDF Branches are listed in Annex 6.1. WSDFs have delegated procurement and accounting authorities and operate following a common Operations Manual. Mobilisation and design activities are partly contracted out and partly done by in-house staff, as appropriate, whereas construction works are always carried out by private contractors. After completion, some of the larger WSDF schemes are handed over to NWSC whereas the others are handed over to local authorities (for management responsibility) and Umbrella Organisations (for O&M support). The WSDF model is currently under threat as apart from AfDB the current funding arrangements will not be available beyond 2016/17.

The Umbrella Organisations (UOs) have been set up to provide O&M support to the local Water Authorities/Boards, and thereby improve the functionality, financial viability and sustainability of small piped water schemes. The six regional Umbrellas are based in Kabale (South-West), Kyenjojo (Mid-West), Wakiso (Centre), Lira (North), Mbale (East) and Moroto (Karamoja), respectively. Umbrellas provide technical and management support, training, advocacy and advisory audit services, water quality monitoring; as well as financial and technical support for major repairs and scheme extensions. Umbrella Organisations have regional elected Executive Committees, while permanent staff has been appointed as MWE staff in 2016. This reflects the fact that Umbrellas are almost entirely financed by public sources (GoU and DOPs) and that they are now expected to support all piped water schemes in their areas of intervention, not only their subscribed members.

The Water and Environment Sector Liaison Department is mandated to ensure effective planning, coordination and management of the Water and Environment sector.

Directorate of Environmental Affairs (DEA) is responsible for environmental policy, regulation, coordination, inspection, supervision and monitoring of the environment and natural resources as well as the restoration of degraded ecosystems and mitigating and adapting to climate change. DEA comprised the three departments of Environmental Support Services (DESS), Forestry Sector Support Department (FSSD), and Wetlands Management (WMD). DEA works in collaboration with the National Environmental Management Authority (NEMA), the Uganda National Meteorological Authority (UNMA), and the National Forestry Authority (NFA).

Under the National Forestry and Tree Planting Act, 2003, **NFA** is mandated to manage Central Forest Reserves (CFR) in partnership with private sector and local communities; advisory, research and commercial services on contract; supply of quality seeds; and national forest inventory and other technical services. **FSSD** is charged with formulation and oversight of appropriate policies, standards, and legislation for the forest sector; coordination and supervision of technical support and training to local governments; inspection and monitoring of local governments; monitor NFA using a performance contract; coordination of the National Forest Plan (the sector's investment plan) and cross-sectoral linkages; resource mobilisation for the sector; and promotion, public information and advocacy for the sector.

Climate Change Unit (CCU) was created in 2008, directly under the office of the Permanent Secretary within MWE. The main objective for the establishment of the CCU is to strengthen Uganda's implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and its

Kyoto Protocol. In FY 2013/14, the Climate Change Unit has been upgraded to Climate Change Department.

The National Water and Sewerage Corporation (NWSC) is a parastatal that operates and provides water and sewerage services in 66 large urban centres across the country including Kampala. NWSC's activities are aimed at expanding service coverage, improving efficiency in service delivery and increasing labour productivity. Key among its objectives is to plough back generated revenue surplus for infrastructure improvements and new investments.

The National Environment Management Authority (NEMA) is responsible for the regulatory functions and activities that focus on compliance and enforcement of the existing legal and institutional frameworks on environmental management in Uganda. NEMA's mandate covers both green and brown issues of environmental management. It oversees the implementation of all environment conservation programmes and activities of the relevant agencies both at the national and local Government level.

The National Forestry Authority (NFA) is responsible for sustainable management of Central Forest Reserves (CFRs), supply of seed and seedlings, and provision of technical support to stakeholders in the forestry sub-sector on contract. NFA is a semi-autonomous business entity and generates most of its own revenues and finances its activities, i.e. NFA's support is contingent upon payment for its services.

A number of other line ministries have important roles in the sector as described briefly below.

The Ministry of Health (MoH) is responsible for hygiene and sanitation promotion for households through the Environmental Health Division (EHD).

The Ministry of Education and Sports (MoES) is responsible for hygiene education and provision of sanitation facilities in primary schools. It also promotes hand washing after latrine use in the schools.

The Ministry of Gender, Labour and Social Development (MGLSD) is responsible for gender responsiveness and community development/mobilisation. It assists the sector in gender responsive policy development, and supports districts to build staff capacity to implement sector programmes.

The Ministry of Agriculture, Animal Industry and Fisheries spearheads agricultural development. This includes the on-farm use and management of water for production (irrigation, animal production and aquaculture).

The Ministry of Lands, Housing and Urban Development was created in June 2006 and is responsible for the management of land affairs including physical planning, surveys and mapping, valuation, land registration, urban development and housing as well as the Uganda Land Commission.

Uganda Wildlife Authority under Ministry of Tourism, Trade and Industry (MTTI) manages the forests in National Parks and Wildlife Reserves, especially under the Uganda Wildlife Act, 1996 (CAP 200).

The Ministry of Finance, Planning and Economic Development (MOFPED), mobilises funds, allocates them to sectors and coordinates development partner inputs. MOFPED reviews sector plans as a basis for allocation and release of funds, and reports on compliance with sector and national objectives.

The Uganda Water and Sanitation NGO Network (UWASNET) is a national network organisation established in 2000 to strengthen the contribution of NGOs/CBOs in achieving the Water and Sanitation Sector goals. By June 2014, the Network had a membership of 235 NGOs and CBOs. There is a strategic framework for cooperation between local Governments and NGOs for water and sanitation. It guides Local Governments and NGOs on how to jointly plan and implement community mobilisation/software activities with respect to water supply and sanitation. It also provides guidance to districts on how to procure NGOs to undertake software activities.

ENR Civil Society Organisations (CSOs) are active in service delivery and advocacy for sustainable forest sector development. They work especially at the grassroots levels, mobilising and sensitising local

people, supporting active local participation in managing forests and trees, providing forestry advisory services, and advocating for the concerns of the underprivileged in national development processes. Most of the local NGOs/CBOs working in the forestry sub-sector operate under an umbrella organisation, the Uganda Forestry Working Group (UFWG), with Environmental Alert housing UFWG's Secretariat. An estimated 200 Civil Society Organisations (CSOs) are involved environment and natural resources. ENR CSOs are organised under a network that is hosted by Environment Alert. By, membership stood at 120 member organisations.

De-Concentrated Level

In response to the increasing number of districts and the need to provide support to local government, MWE have established a number of deconcentrated entities which are outlined in brief below:

Water Sector Development Facility (WSDF)

WSDF branch offices are currently established in Mbarara (South West); Lira (North); Mbale (East) and Wakiso (Centre). Each office is headed by a senior staff member of the Urban Water and Sanitation Department. In two cases (South West and North) the branch offices are supported by contract employed staff financed through the JPF. The branch office carries out all the contract management functions of the UWSD, including procurement. Simplified functions include:

Implementation management:

- Zonal level planning and scheme identification
- Feasibility study and detailed design of piped schemes where financed through MWE
- Tendering, procurement and supervision of construction contracts
- Financial management and reporting

Capacity building:

- Support to Town Councils for water authority function, establishment of water and sanitation boards and selection/appointment of private operators
- Support to UOs

The head of the WSDF branch office is delegated as the accounting officer for the funds under their responsibility. A government bank account is set up to receive funds and enable local disbursement. In two branch offices, a separate bank account has also been set up to receive DP funds from the JPF.

The WSDF branch office in South West has piloted different approaches to the management and supervision of investments in Small Towns and RGCs and developed an interim operations and procedures manual that has now been adopted by MWE as a national manual.

Technical Support Units (TSU)

TSUs were established in 8 locations in 2002 with a ninth being established for Karamoja in 2009. At present there are approximately 35 professional staff employed in the 9 units. The TSUs were established to build capacity at the districts following decentralisation of rural water supply and sanitation and the channelling of government grants to the sub-sector via the DWSCG. Simplified functions of the TSU include:

- Quality assurance
- Monitoring of adherence to guidelines, standards
- Capacity building of local governments
- Planning, budgeting and reporting
- Procurement and contract management
- Financial management and reporting
- Software activities implementation including establishing management structures at user levels
- Sanitation and hygiene promotion

- Support to record keeping, management information systems including the WATSUP
- Promotion of coordinated capacity building including inter-district efforts
- Promotion of effective private sector use
- Support to local governments and NGOs in service provision and IWRM

The TSUs were intended to be temporary and to gradually withdraw from well performing districts. The TSU functions were originally contracted out to private sector companies and/or NGOs but more recently the staff have been hired on individual contracts by the MWE and paid through the JPF. Over time, TSU's roles have also expanded to provide support to RGCs and also water resources and water for production.

Umbrella Organisations (UOs)

Umbrellas Organisations are Uganda's model to support local Water Authorities, Water Boards and scheme operators in providing sustainable piped water supply services. They were created in recognition of the fact that often local capacities are insufficient to ensure effective asset management, preventive maintenance, sufficient revenue collection and water quality monitoring. The model, which had been successfully piloted in South West Uganda since 2001, was subsequently rolled out and covers today all regions of Uganda. The six regional Umbrella Organisations are based in Kabale (South West), Kyenjojo (Mid-West), Wakiso (Centre), Lira (North), Mbale (East), and Moroto (Karamoja). Together the UOs have about 380 member schemes (excluding those that are still under construction). However, it has been decided that UOs should provide support to all piped water schemes outside of NWSC jurisdiction, which increases the number of schemes to be supported to at least 950. The UO's current resources are insufficient to extend their services to all these schemes, many of which are not metered, do not have regular revenue collection and require rehabilitation.

UOs provide on-demand O&M backup support as well as training, technical advice and managerial support, planning and supervision of rehabilitation and extension works as well as regular water quality monitoring. They channel conditional GoU grants for major repairs, rehabilitation and extension works. Most UOs have also developed credit and/or savings schemes for their member schemes and keep a stock of frequently needed spare parts.

At present UOs are established as associations of the local Water Authorities/Boards, with the legal status of a Company limited by guarantee. The Executive Committee of each UO formally employs the permanent staff of the UO Secretariats, even though the funding of both UO operations (including salaries) and of the services they provide to member schemes is essentially public. Only a small fraction of the costs (less than 5%) is covered by membership fees.

This setup has led to misunderstanding and queries regarding the UO's status as "private" organisations, even though they are in fact associations of local government bodies. It is therefore planned to reorganise the UO Secretariats as deconcentrated government units for O&M support under the MWE/UWSSD. Under this new arrangement the bottom-up structures of the UOs (General Assembly, Executive Committee) would continue to exist as "Umbrella Associations of Water Boards" whereas day-to-day support operations would become a government responsibility.

Water Management Zones

WMZ offices are operational in the 4 WMZs (Victoria, Albert, Kyoga and Upper Nile). The main purpose of the WMZs is to de-concentrate WRM closer to where action is needed in order to mobilise local community efforts and other stakeholders to achieve catchment-based IWRM and to ensure effective coordination with other water resources related activities being implemented at district level such as environment, forestry and water supply.

Simplified functions are shown include:

- Zonal assessment of permit applications;
- Zonal compliance monitoring

- Regional level laboratory services
- Zonal monitoring and data management;
- Zonal water resources mapping, assessment and planning;
- Contribution to national assessments, planning and coordination including environmental impact assessments and international waters
- Support to catchment stakeholders in a local water resources management

WMZs are supposed to be a permanent operational arrangement for effective water resources management and development. Catchment-based Water Resources Management (WRM) activities have been mainly undertaken on a pilot basis and thus the WMZ offices are not yet fully operational.

District Level

Local Governments (Districts, Town Councils, sub-Counties) are empowered by the Local Governments Act (2000) to provide water services and manage the Environment and Natural Resource base. Local Governments, in consultation with MWE appoint and manage private operators for urban piped water schemes that are outside the jurisdiction of NWSC. The District Water Offices manage water and sanitation development and oversee the operation and maintenance of existing water supplies in the District.

The District Environment Office is responsible for the environment and natural resources. District Forest Services of local Governments (LGs/DFS) manage Local Forest Reserves (LFRs); carry out support and quality control of forest extension for private and community forests; develop and enforce bye-laws; strengthen forestry in production and environment committees and district development plans; as well as land administration, surveying, and approval of Community forests; among others.

Local Governments receive funding from Central Government in the form of Conditional Grants as follows:

- District Water and Sanitation Development Conditional Grant (DWSDCG).
- Environment and Natural Resources Conditional Grant to cover forestry, wetlands and lands was established in 2004. Although funds for forestry were allocated for FY 2004/05, it was not accessed and has subsequently ceased. There is limited funding for wetlands management under the grant.

Local Governments can also mobilise additional resources for water and environment related activities.

The District Environment Committee coordinates the activities of the district councils relating to the management of the environment and natural resource base.

District Water and Sanitation Coordination Committees (DWSCCs) have been were established in all districts. The committee provides a platform for coordinating and overseeing the activities of the water and sanitation sector in the Local Governments and strengthens collaboration across sectors and between different players. The DWSCC comprises all political leaders, relevant district departments (District Water Office, the Planning Office, the District Directorate of Community Based Services, the District Finance Office, the District Directorate of Health Services, and the District Education Office), NGOs and development partners at the Local Government Level.

Private Sector

Private sector firms undertake design and construction in water supply and sanitation under contract with local and central Government. Private hand pump mechanics and scheme attendants provide maintenance services to water users in rural and peri-urban areas. Private Operators manage piped water services in small towns and rural growth centres. Private Forest Owners, including Local Communities with registered forests, are legal forest management authorities. In addition, the private

sector plays an important role in terms of commercial tree plantation development as well as promoting wood based industries and trade.

Community Level

Communities are responsible for demanding, planning, contributing a cash contribution to capital cost and for the O&M of rural water supply and sanitation facilities. A water user committee (WUC), which is sometimes referred to as a Water and Sanitation Committee (WSC) should be established at each water point.

With respect to the environment and natural resources, over the years, community members have been encouraged to form user groups at local level, i.e. Beach Management Units (BMUs), Forestry Resource User Group, Land Committees and Environment Committees. These structures are intended to enable oversight of the environment and natural resources at the lowest level.

Annex 3. Formulas Used for Calculating Indicators in MIS

Annex 3.1 Access

1. Calculate the number of people served based by multiplying the number of sources per type with the number of users given for each type in Table 1.2.

   a. For Point water Sources

$$\boldsymbol{PopPWS = PS * 200 + SW * 300 + DBH * 300 + KSK * 150 + YTF1 * 150 + RHTsmall * 3 + RHTbig * 6}$$

   Where PWS= Point Water Source, Pop=population, PS=protected spring, SW=shallow well, DBH = deep borehole, KSK=kiosk, YTF=yard tap for public use, RHT=rainwater harvesting tank

   b. For Piped Schemes

$$\boldsymbol{PopPS = HC * 6 + IC * 100 + (YTF2 - YTF1) * 24}$$

   Where: Pop=population, PS=piped scheme, HC=house connection, IC=institutional connection, YTF=yard tap for public use

   c. For NWSC served areas a total population served figure is provided by NWSC on scheme level (PopServedNWSC). The covered sub counties, resp. counties were identified and the served population was assigned/apportioned if needed.

2. Calculate the total number of people served on SC level. If NWSC provided data it is assumed that it took over the piped scheme and the piped scheme data is not considered.[87]

$$\boldsymbol{total\ served_{NWSC\ subcounty} = PopPWS + PopServedNWSC}$$

$$\boldsymbol{total\ served_{other\ subcounty} = PopPWS + PopPS}$$

3. Divide the number of served people by the total population on sub county level. If the result is higher than 95% it is capped (capped is assumed maximum access which is 95%, so if ratio below is >95% still 95% will be reported).

$$\boldsymbol{Access\ SC = \frac{total\ number\ of\ people\ served\ according\ to\ 2.}{total\ population}}$$

4. Calculate the capped population served on county level. This only occurs if capping takes place, otherwise the values from 2 will summed up on county level. If NWSC provided data for a Municipality it is assumed that it serves the entire county and the data calculated with the WSDB is ignored.[88]

[87] On sub-county level the population served by point water sources is added to the population served from NWSC. This can lead to slightly higher population served because Kiosks and Tap Stands providing water from the NWSC scheme are counted in both data sets.

[88] This can lead to lower population served because there might be people in a county which still depend on rural water supply/point water sources. They are not counted here.

$$\boldsymbol{total\ served_{NWSC\ county} = sum(SC\ population) * 95\%}$$

$$\boldsymbol{total\ served_{other\ county} = sum(SC\ population * Access\ SC)}$$

5. On district level the population served based on capped access is summed up:

$$\boldsymbol{Access\ District = \frac{sum(total\ served_{county})}{sum(SC\ population)}}$$

Where: Pop=population, PS=piped scheme, HC=house connection, IC=institutional connection, YTF=yard tap for public use, SC=sub county

Annex 3.2 Functionality

Functionality is the number of functioning improved water sources divided by the total number of improved water sources. Only point water sources are considered (all beside of dams or valley tanks). A separate WfP Functionality is calculated considering dams and valley tanks only. On district level the calculation is done twice counting sources from urban and rural sub-counties separately. With this method a rural and an urban functionality on point sources is calculated. This urban functionality as calculated through the WSDB is different from the golden indicator "urban functionality" which is described and is provided by the urban department.

Formula

1. count all functional PWS
2. count all PWS
3. calculate ratio

$$\boldsymbol{Functionality = \frac{Sum\ of\ functional\ point\ water\ sources}{sum\ of\ functional + sum\ of\ non\ functional\ pws}}$$

Sources marked as "Functional (not in use)" (Fniu) are considered as functional if the downtime is less than 5 years or not specified.

Annex 3.3 Equity

Equity determines the deviation between the numbers of persons per improved water point at sub-county level.
Therefore the sub-county and district population is divided by the number of sources in that sub-county resp. district. The equity is then the difference between the district and sub-county ratios.
National and district equity are also based on sub-county level and give the average of considered sub-counties.

Formula

- count all point water sources per rural SC
- count all point water sources in rural SC per district
- count all population of rural SC per district
- calculate sub-county equity

$$\boldsymbol{Equity\ SC = \left| \frac{rPopDistrict}{sum\ of\ district\ PWS} - \frac{PopSC}{sum\ of\ SC\ PWS} \right|}$$

- calculate district equity

$$\boldsymbol{Equity\ district = \frac{sum\ of\ all\ district's\ sub\ county\ equities}{total\ rural\ sub\ counties\ in\ the\ district}}$$

- calculate national equity

$$Equity\ national = \frac{sum\ of\ all\ sub\ county\ equities}{total\ rural\ sub\ counties}$$

Remarks

- Only rural sub-counties are considered, hence population and sources are only counted from those sub-counties.
- Sub-counties with only one or two sources are not considered, these are new sub-counties. The new sub counties are not yet part of the set of administrative units that are being used in the database, and including these sub-counties with very low number of sources (high equity) would create an unrealistic picture.
- District Equity is the simple average of SC equity figures and not the difference from district average to national ratios.

Annex 3.4 Management

The management indicator gives the percentage of communally managed water sources (PS, SW, and DBH) in rural areas with a functioning Water Source Committee

Formula

1. count all springs, boreholes and shallow wells which are
    a. functional
    b. in a rural SC
    c. communally managed
    d. and where a WSC is established
2. of those sources count the ones which have a functioning WSC (the WSC collects fees or undertakes repairs or holds meetings or cleans environment/sanitation around the source)
3. calculate the ratio

$$Management = \frac{total\ communally\ managed\ sources\ with\ a\ functioning\ WSC}{total\ communally\ managed\ sources\ with\ established\ WSC}$$

Remarks

- Only springs, boreholes and shallow wells are considered. RHT, PSP, KSK and YTF1 were taken out in 2013 calculation.
- Only functional (in use) sources are considered
- Only rural sub-counties are considered
- Only communally managed sources are considered
- Only sources with a WSC are considered. In the 2010 Atlas all communally managed sources were considered.
- As functional WSC only WSC were considered which collect fees, undertake repairs or hold meeting. This was changed in 2015 to also consider WSC as functional if they clean the environment/sanitation around the source only.

Annex 3.5 Gender

The gender indicator is restricted to communally managed water sources in rural areas and gives the ratio of WSCs with at least one woman in a key position versus the total number of functional WSCs in the same area

Formula

1. count all springs, boreholes and shallow wells which are
    a. functional
    b. in a rural SC
    c. communally managed
    d. and where a WSC is functional
2. of those sources count the ones which have a women in a key position of the WSC
3. calculate the ratio

$$\boldsymbol{Gender = \frac{total\ communally\ managed\ sources\ with\ a\ woman\ in\ a\ key\ position}{total\ communally\ managed\ sources\ with\ a\ functional\ WSC}}$$

Remarks

- Functional water sources that are not used are not considered.
- Gender was calculated from sources with any established WSC in 2010. This was changed in 2013 to be calculated from sources with functioning WSC only. Both gender indicators are calculated in the database.
- As functional WSC, only WSCs were considered which collect fees, undertake repairs or hold meeting. This was changed in 2015 to also consider WSC as functional if they clean the environment/sanitation around the source only.

Annex 4. Financial Sector Performance FY 2015/16

On-Budgeting Funding - Status and Trend [UGX bn]						
	Financial Year	**Budget**	**Release**	**Payments**	**% Released**	**% Spent**
	2008/09	183.90	172.46	170.95	93.8%	98.8%
	2009/10	238.44	205.66	191.02	86.3%	92.9%
	2010/11	256.43	200.25	187.25	78.1%	93.5%
	2011/12	281.57	244.01	225.33	86.7%	92.3%
	2012/13	308.27	203.70	198.47	66.1%	97.4%
	2013/14	439.09	386.19	347.96	88.0%	90.1%
	2014/15	444.65	345.72	325.70	77.8%	94.2%
	2015/16	560.95	399.24	396.40	71.2%	99.3%
Sector Off-Budget Component [UGX bn]						
		Budget	**Release**	**Payments**	**% Released**	**% Spent**
WSS	UWASNET (122 members)	44.40	44.40	44.0	100.0%	100.0%
WSS	NWSC (Internally Generated Rev. & Investment)	285.04	269.44	269.44	94.5%	100.0%
	Total WSS Off-Budget	**329.44**	**313.84**	**313.84**	95.3%	100.0%
ENR	ENR CSOs REPORT (33 members)	14.730	14.730	14.730	100.0%	100.0%
ENR	**Total ENR Off-Budget**	**14.73**	**14.73**	**14.73**	100.0%	100.0%
Total WSS and ENR Off Budget		**344.17**	**328.57**	**328.57**	**95.5%**	**100.0%**
WSS	WSS as % of Total Off-Budget Component	95.72%	95.52%	95.52%		
ENR	ENR as % of Total Off-Budget Component	4.28%	4.48%	4.48%		

Off-Budget Funding- Status and Trend [UGX bn]						
	Financial Year	**Budget**	**Release**	**Expenditure**	**% Released**	**% Spent**
	2009/10	79.68	64.35	62.75	80.7%	97.5%
	2010/11	207.77	84.61	84.61	40.7%	100%
	2011/12	207.77	84.61	84.61	40.72%	100%
	2012/13	73.7	70.01	70.01	94.99%	100%
	2013/14	103.66	91.37	91.37	88.14%	100%
	2014/15	401.55	401.55	401.55	100.00%	100%
	2015/16	344.17	328.57	328.57	95.47%	100%

Overall Sector Finance [UGX bn]						
		Budget	**Release**	**Payments**	**% Released**	**% Spent**
On-Budget	WSS	361.36	217.09	216.65	60.1%	99.8%
	ENRS	72.05	57.04	56.80	79.2%	99.6%
	SPS	61.47	58.98	58.02	95.9%	98.4%
	Conditional Grants to LG	66.07	66.07	64.38	100.0%	97.4%
	Conditional Grants to KCCA	0.01	0.01	0.01	100. 0%	100.0%
	Total (On-Budget)	**560.95**	**399.19**	**395.86**	**71.2%**	**99.2%**
Off-Budget	WSS	329.44	313.84	313.84	95.3%	100.0%
	ENRS	14.73	14.73	14.73	100.0%	100.0%
	SPS	0	0	0	0	0
	Total (Off-Budget)	**344.17**	**328.57**	**328.57**	**95.5%**	**100.0%**
Overall Total	WSS+KCCA &CGs	756.88	597.01	594.88	78.9%	99.6%
	ENRS	86.78	71.77	71.53	82.7%	99.7%
	SPS	61.47	58.98	58.02	96.0%	98.4%
	Total (On+Off-Budget)	**905.12**	**727.76**	**724.43**	**80.4%**	**99.5%**
	% On-Budget	**62%**	**55%**	**55%**		
	% Off-Budget	**38%**	**45%**	**45%**		

Annex 5. District Rural Water Performance Golden Indicators, FY2015/16

No.	District	Access	Functionality	Equity	Management	Gender
1	Abim	85%	72%	70	83%	90%
2	Adjumani	89%	89%	64	94%	97%
3	Agago	95%	69%	19	94%	91%
4	Alebtong	92%	69%	33	84%	91%
5	Amolatar	80%	81%	170	81%	97%
6	Amudat	35%	82%	210	93%	89%
7	Amuria	84%	89%	362	75%	84%
8	Amuru	90%	76%	42	87%	93%
9	Apac	68%	84%	48	90%	86%
10	Arua	76%	86%	89	79%	77%
11	Budaka	86%	94%	63	89%	87%
12	Bududa	66%	91%	89	71%	93%
13	Bugiri	60%	93%	139	92%	96%
14	Buhweju	54%	94%	91	81%	89%
15	Buikwe	77%	89%	78	85%	76%
16	Bukedea	72%	90%	59	94%	96%
17	Bukomansimbi	84%	96%	14	78%	67%
18	Bukwo	64%	94%	326	89%	100%
19	Bulambuli	74%	84%	121	84%	83%
20	Buliisa	64%	73%	266	91%	98%
21	Bundibugyo	58%	88%	107	75%	69%
22	Bushenyi	92%	89%	49	98%	97%
23	Busia	78%	86%	52	86%	84%
24	Butaleja	61%	89%	177	96%	85%
25	Butambala	95%	81%	26	64%	86%
26	Buvuma	35%	90%	198	90%	91%
27	Buyende	39%	90%	118	97%	90%
28	Dokolo	68%	85%	894	86%	91%
29	Gomba	79%	79%	53	92%	49%
30	Gulu	90%	88%	20	67%	77%
31	Hoima	66%	85%	174	93%	88%
32	Ibanda	64%	88%	226	77%	83%
33	Iganga	69%	93%	81	96%	83%
34	Isingiro	34%	99%	99	85%	88%
35	Jinja	77%	85%	180	82%	86%
36	Kaabong	74%	75%	141	97%	97%
37	Kabale	79%	86%	61	85%	69%
38	Kabarole	73%	84%	122	67%	68%
39	Kaberamaido	74%	83%	50	96%	96%
40	Kalangala	61%	89%	49	68%	88%
41	Kaliro	64%	94%	46	97%	89%
42	Kalungu	86%	65%	29	91%	64%

No.	District	Access	Functionality	Equity	Management	Gender
43	Kampala	0%	0%	0	0%	0%
44	Kamuli	75%	88%	80	88%	87%
45	Kamwenge	67%	91%	106	99%	97%
46	Kanungu	91%	91%	66	90%	71%
47	Kapchorwa	84%	84%	64	91%	95%
48	Kasese	57%	93%	220	95%	100%
49	Katakwi	85%	93%	41	93%	82%
50	Kayunga	71%	86%	75	91%	81%
51	Kibaale	49%	90%	405	65%	77%
52	Kiboga	78%	67%	80	81%	89%
53	Kibuku	68%	90%	65	94%	91%
54	Kiruhura	38%	92%	117	65%	94%
55	Kiryandongo	74%	85%	92	87%	66%
56	Kisoro	43%	93%	165	84%	95%
57	Kitgum	95%	59%	11	93%	94%
58	Koboko	80%	89%	45	64%	72%
59	Kole	70%	77%	260	97%	96%
60	Kotido	69%	59%	77	83%	95%
61	Kumi	68%	85%	50	97%	67%
62	Kween	79%	90%	86	84%	93%
63	Kyankwanzi	50%	93%	140	84%	79%
64	Kyegegwa	36%	74%	274	81%	90%
65	Kyenjojo	74%	77%	94	81%	71%
66	Lamwo	95%	83%	31	98%	97%
67	Lira	94%	75%	26	83%	86%
68	Luuka	77%	97%	85	80%	78%
69	Luwero	69%	95%	88	87%	74%
70	Lwengo	76%	79%	53	90%	77%
71	Lyantonde	45%	93%	33	91%	54%
72	Manafwa	67%	95%	132	88%	91%
73	Maracha	91%	84%	28	94%	97%
74	Masaka	78%	74%	81	78%	54%
75	Masindi	94%	90%	36	77%	82%
76	Mayuge	53%	88%	212	87%	76%
77	Mbale	70%	89%	121	87%	83%
78	Mbarara	77%	94%	18	92%	95%
79	Mitooma	91%	91%	36	93%	79%
80	Mityana	76%	75%	1,104	75%	90%
81	Moroto	77%	77%	118	60%	92%
82	Moyo	95%	80%	34	95%	92%
83	Mpigi	83%	78%	75	91%	74%
84	Mubende	32%	91%	425	97%	59%
85	Mukono	71%	86%	263	95%	81%
86	Nakapiripirit	60%	74%	191	94%	96%
87	Nakaseke	82%	79%	695	100%	91%

No.	District	Access	Functionality	Equity	Management	Gender
88	Nakasongola	74%	67%	152	81%	91%
89	Namayingo	51%	78%	90	89%	96%
90	Namutumba	62%	94%	66	99%	78%
91	Napak	75%	58%	124	77%	95%
92	Nebbi	72%	76%	87	87%	94%
93	Ngora	75%	98%	57	94%	92%
94	Ntoroko	81%	73%	109	58%	95%
95	Ntungamo	76%	82%	96	76%	81%
96	Nwoya	84%	75%	511	95%	70%
97	Otuke	92%	82%	48	93%	98%
98	Oyam	75%	88%	81	95%	95%
99	Pader	95%	79%	30	88%	96%
100	Pallisa	66%	94%	102	85%	87%
101	Rakai	41%	75%	77	89%	59%
102	Rubirizi	65%	95%	81	89%	92%
103	Rukungiri	90%	86%	26	89%	90%
104	Serere	84%	93%	53	99%	97%
105	Sheema	84%	85%	47	93%	94%
106	Sironko	78%	92%	67	80%	88%
107	Soroti	91%	88%	35	84%	84%
108	Ssembabule	35%	85%	68	53%	61%
109	Tororo	58%	94%	237	77%	79%
110	Wakiso	42%	84%	215	90%	58%
111	Yumbe	45%	79%	112	96%	87%
112	Zombo	89%	85%	37	51%	86%
	National Level	**67%**	**86%**	**142**	**87%**	**84%**

Annex 6. Water Sources constructed in FY2015/16 using DWSDCG / PRDP

District	Point Water Sources																					Piped Water Systems		
	Protected springs			Shallow wells			Deep boreholes			Rainwater harvesting tanks			Dams			Valley tanks			PSP/kiosks, tap stands			Yard Tap	Household	Institutional
	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot			
Abim	11	1	12	21	9	30	272	85	357	12	14	26	1	2	3	0	0	0	2	0	2	517	511	9
Adjumani	36	5	41	62	12	74	575	69	644	41	2	43	0	2	2	0	0	0	45	12	57	1,347	25	42
Agago	10	9	19	93	52	145	671	213	884	47	51	98	10	3	13	1	0	1	33	36	69	0	0	0
Alebtong	303	62	365	108	109	217	263	92	355	13	24	37	3	2	5	0	0	0	8	27	35	0	0	0
Amolatar	4	0	4	6	5	11	364	64	428	11	20	31	10	1	11	0	0	0	6	0	6	30	4	1
Amudat	2	0	2	7	2	9	135	38	173	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Amuria	14	18	32	73	48	121	687	21	708	1	4	5	5	4	9	1	0	1	4	1	5	0	0	0
Amuru	125	10	135	55	27	82	378	102	480	14	8	22	0	0	0	0	0	0	4	32	36	0	0	0
Apac	25	8	33	126	33	159	619	90	709	146	35	181	2	0	2	22	6	28	17	2	19	292	0	9
Arua	958	83	1,041	103	35	138	942	194	1,136	117	44	161	0	0	0	5	1	6	75	12	87	3	0	1
Budaka	149	4	153	17	5	22	515	24	539	13	9	22	1	1	2	0	0	0	1	7	8	284	19	13
Bududa	486	33	519	4	0	4	11	3	14	34	10	44	0	0	0	1	0	1	311	39	350	2	1	1
Bugiri	196	16	212	152	15	167	496	24	520	126	14	140	0	0	0	0	0	0	39	5	44	784	32	109
Buhweju	242	8	250	23	3	26	2	0	2	33	3	36	0	0	0	0	0	0	88	11	99	0	0	0
Buikwe	810	42	852	160	33	193	140	52	192	72	3	75	1	0	1	0	0	0	39	20	59	285	3	10
Bukedea	201	10	211	120	29	149	182	13	195	6	7	13	1	1	2	0	0	0	13	0	13	350	7	19
Bukomansimbi	137	13	150	268	9	277	90	4	94	250	7	257	1	0	1	8	1	9	138	1	139	336	4	11
Bukwo	97	6	103	10	4	14	3	0	3	5	1	6	0	0	0	0	0	0	274	12	286	0	0	0
Bulambuli	276	32	308	58	11	69	84	10	94	15	3	18	0	0	0	0	0	0	200	71	271	0	0	0
Buliisa	26	10	36	43	52	95	103	23	126	6	9	15	0	0	0	0	0	0	102	1	103	45	3	11

District	Point Water Sources																					Piped Water Systems		
	Protected springs			Shallow wells			Deep boreholes			Rainwater harvesting tanks			Dams			Valley tanks			PSP/kiosks, tap stands			Yard Tap	Household	Institutional
	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot			
Bundibugyo	185	42	227	0	0	0	5	3	8	23	13	36	0	0	0	0	0	0	610	108	718	433	50	60
Bushenyi	662	92	754	117	21	138	16	5	21	60	3	63	1	0	1	3	0	3	181	9	190	12	60	0
Busia	220	22	242	69	26	95	452	74	526	30	13	43	2	0	2	0	0	0	50	10	60	1,481	101	87
Butaleja	3	0	3	29	8	37	429	50	479	6	0	6	0	0	0	0	0	0	0	1	1	291	6	12
Butambala	237	20	257	166	69	235	42	21	63	37	5	42	1	0	1	0	0	0	25	4	29	178	13	3
Buvuma	27	0	27	45	7	52	47	4	51	12	3	15	0	0	0	0	0	0	22	0	22	0	0	0
Buyende	0	0	0	7	1	8	412	41	453	24	4	28	2	0	2	7	4	11	8	0	8	4	0	0
Dokolo	130	27	157	131	34	165	257	21	278	11	10	21	0	0	0	0	0	0	13	2	15	124	289	10
Gomba	85	9	94	211	72	283	112	39	151	82	20	102	11	0	11	9	1	10	34	6	40	0	44	10
Gulu	161	20	181	133	15	148	632	60	692	48	23	71	0	0	0	0	0	0	1	10	11	0	0	0
Hoima	631	13	644	426	106	532	326	83	409	59	54	113	0	1	1	0	0	0	50	1	51	44	5	7
Ibanda	139	26	165	127	19	146	10	10	20	39	2	41	0	0	0	0	0	0	335	39	374	1,712	197	80
Iganga	154	5	159	271	37	308	646	27	673	34	21	55	0	0	0	0	0	0	111	0	111	753	5	12
Isingiro	63	1	64	184	12	196	121	29	150	3,408	12	3,420	10	5	15	20	0	20	275	5	280	464	10	70
Jinja	348	3	351	296	123	419	327	46	373	39	17	56	0	0	0	0	0	0	6	0	6	3,867	1,012	1,054
Kaabong	0	1	1	26	2	28	368	119	487	2	0	2	1	0	1	4	0	4	2	0	2	0	0	0
Kabale	1,078	123	1,201	8	0	8	65	34	99	555	27	582	0	0	0	1	6	7	1,389	312	1,701	130	12	7
Kabarole	432	63	495	519	112	631	45	19	64	139	18	157	0	0	0	0	0	0	320	66	386	1,217	17	94
Kaberamaido	22	12	34	52	34	86	399	39	438	12	15	27	2	0	2	0	0	0	7	0	7	20	2	1
Kalangala	25	0	25	47	21	68	1	1	2	107	4	111	0	0	0	0	0	0	60	3	63	273	6	29
Kaliro	1	1	2	29	1	30	460	17	477	11	11	22	0	0	0	0	0	0	1	0	1	406	69	0
Kalungu	34	92	126	242	110	352	33	36	69	127	2	129	0	0	0	1	0	1	110	36	146	1,132	123	37
Kampala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

District	Point Water Sources																					Piped Water Systems		
	Protected springs			Shallow wells			Deep boreholes			Rainwater harvesting tanks			Dams			Valley tanks			PSP/kiosks, tap stands			Yard Tap	Household	Institutional
	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot			
Kamuli	19	2	21	413	74	487	725	67	792	43	16	59	0	0	0	1	0	1	23	7	30	1,777	51	78
Kamwenge	428	61	489	613	23	636	60	14	74	148	22	170	0	0	0	0	0	0	442	41	483	514	0	0
Kanungu	993	73	1,066	43	9	52	31	39	70	100	17	117	0	0	0	4	6	10	543	66	609	226	40	21
Kapchorwa	274	44	318	0	0	0	4	3	7	8	5	13	0	0	0	0	0	0	224	56	280	504	121	72
Kasese	694	38	732	57	6	63	64	15	79	90	10	100	0	0	0	0	0	0	1,986	194	2,180	1,346	4	92
Katakwi	2	0	2	65	4	69	494	32	526	12	10	22	8	1	9	2	0	2	50	0	50	212	37	30
Kayunga	72	7	79	219	58	277	495	69	564	34	5	39	1	1	2	6	2	8	62	8	70	1,180	46	85
Kibaale	656	62	718	696	59	755	354	53	407	244	38	282	0	0	0	0	0	0	18	1	19	399	7	70
Kiboga	58	28	86	96	56	152	94	26	120	60	42	102	6	0	6	5	2	7	93	12	105	103	10	10
Kibuku	41	1	42	30	7	37	354	28	382	8	7	15	0	0	0	2	0	2	5	6	11	800	17	53
Kiruhura	5	0	5	147	19	166	149	79	228	1,171	29	1,200	70	3	73	80	6	86	148	1	149	98	117	45
Kiryandongo	15	5	20	250	40	290	301	47	348	6	5	11	0	1	1	16	5	21	4	0	4	1,090	24	28
Kisoro	418	40	458	0	0	0	4	2	6	393	26	419	0	0	0	1	0	1	242	10	252	1,268	742	71
Kitgum	2	0	2	12	12	24	710	311	1,021	70	208	278	4	4	8	0	0	0	6	4	10	516	168	245
Koboko	225	34	259	82	14	96	269	17	286	9	4	13	0	0	0	0	0	0	33	2	35	198	9	5
Kole	180	44	224	204	24	228	219	47	266	16	67	83	6	2	8	0	1	1	18	3	21	0	0	0
Kotido	0	0	0	1	1	2	244	173	417	34	4	38	17	16	33	13	3	16	34	24	58	278	7	19
Kumi	162	7	169	126	48	174	295	31	326	23	13	36	3	2	5	1	0	1	0	2	2	599	100	84
Kween	238	18	256	2	0	2	53	9	62	11	1	12	0	0	0	0	0	0	122	18	140	4	0	1
Kyankwanzi	22	1	23	143	17	160	197	7	204	89	11	100	2	1	3	32	0	32	60	0	60	359	0	0
Kyegegwa	59	14	73	153	62	215	69	45	114	48	23	71	1	0	1	4	1	5	48	0	48	8	0	0
Kyenjojo	423	88	511	496	166	662	136	72	208	98	21	119	0	0	0	0	0	0	107	22	129	340	14	16
Lamwo	26	0	26	9	4	13	604	110	714	4	15	19	10	3	13	0	1	1	1	3	4	0	0	0

District	Point Water Sources																					Piped Water Systems		
	Protected springs			Shallow wells			Deep boreholes			Rainwater harvesting tanks			Dams			Valley tanks			PSP/kiosks, tap stands			Yard Tap	Household	Institutional
	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot			
Lira	487	90	577	320	134	454	295	114	409	32	23	55	3	2	5	0	0	0	16	14	30	7	0	1
Luuka	125	4	129	188	7	195	380	8	388	13	1	14	2	0	2	2	0	2	0	0	0	0	0	0
Luwero	16	0	16	414	19	433	535	21	556	102	14	116	1	0	1	39	0	39	53	3	56	2,503	145	157
Lwengo	64	45	109	282	164	446	142	82	224	612	9	621	7	5	12	5	0	5	29	4	33	915	9	29
Lyantonde	0	0	0	18	8	26	79	22	101	349	4	353	0	11	11	5	9	14	29	1	30	0	0	0
Manafwa	791	11	802	14	2	16	267	25	292	63	10	73	0	0	0	1	0	1	140	16	156	676	16	32
Maracha	372	50	422	65	11	76	218	56	274	45	20	65	0	0	0	0	0	0	61	18	79	251	1	26
Masaka	116	18	134	262	130	392	41	18	59	56	4	60	1	0	1	1	0	1	1	0	1	0	0	0
Masindi	384	17	401	487	45	532	214	42	256	64	9	73	1	1	2	32	7	39	13	3	16	0	0	2
Mayuge	246	25	271	282	54	336	332	50	382	7	4	11	0	0	0	0	0	0	60	0	60	31	0	3
Mbale	565	15	580	39	6	45	276	40	316	35	9	44	0	0	0	0	0	0	377	83	460	0	0	0
Mbarara	392	75	467	65	27	92	102	54	156	2,839	27	2,866	16	4	20	8	1	9	813	67	880	0	0	0
Mitooma	820	66	886	115	9	124	14	6	20	81	2	83	0	1	1	3	0	3	229	32	261	49	11	10
Mityana	86	28	114	295	158	453	266	51	317	403	65	468	1	1	2	1	4	5	193	7	200	2,136	0	84
Moroto	2	1	3	3	0	3	260	75	335	3	7	10	0	6	6	4	0	4	0	0	0	55	5	37
Moyo	23	12	35	24	8	32	408	115	523	72	15	87	0	0	0	0	0	0	176	29	205	666	88	38
Mpigi	226	40	266	407	121	528	62	39	101	86	11	97	0	0	0	0	0	0	13	14	27	1,187	0	105
Mubende	55	23	78	396	39	435	194	7	201	109	10	119	7	1	8	64	0	64	75	5	80	234	0	0
Mukono	594	53	647	236	62	298	342	59	401	151	21	172	2	1	3	0	0	0	114	26	140	252	14	18
Nakapiripirit	5	4	9	21	13	34	231	77	308	16	8	24	1	1	2	11	2	13	70	23	93	0	0	0
Nakaseke	9	0	9	245	72	317	293	71	364	144	43	187	0	0	0	17	3	20	66	1	67	324	10	16
Nakasongola	1	0	1	25	13	38	272	117	389	102	49	151	5	0	5	146	9	155	380	80	460	599	32	31
Namayingo	17	19	36	117	44	161	188	30	218	79	33	112	0	0	0	3	0	3	19	2	21	9	0	1

District	Point Water Sources																					Piped Water Systems		
	Protected springs			Shallow wells			Deep boreholes			Rainwater harvesting tanks			Dams			Valley tanks			PSP/kiosks, tap stands			Yard Tap	Household	Institutional
	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot	F	NF	Tot			
Namutumba	61	2	63	96	4	100	349	21	370	12	8	20	0	0	0	0	0	0	2	0	2	332	6	19
Napak	5	1	6	1	0	1	227	170	397	25	16	41	1	0	1	3	0	3	2	0	2	0	0	0
Nebbi	137	47	184	56	40	96	555	131	686	57	37	94	1	4	5	1	4	5	59	1	60	898	0	38
Ngora	6	0	6	120	4	124	193	3	196	12	1	13	4	0	4	0	0	0	18	0	18	0	0	0
Ntoroko	39	29	68	45	20	65	42	6	48	10	12	22	0	0	0	0	0	0	89	11	100	0	0	0
Ntungamo	717	83	800	370	95	465	153	121	274	104	22	126	1	0	1	3	1	4	439	62	501	550	30	63
Nwoya	68	9	77	18	30	48	283	73	356	8	11	19	0	0	0	0	0	0	6	11	17	0	0	0
Otuke	20	13	33	45	21	66	295	38	333	9	10	19	1	1	2	0	0	0	13	0	13	0	0	0
Oyam	218	8	226	310	49	359	446	57	503	32	23	55	0	0	0	0	1	1	8	5	13	134	0	0
Pader	19	0	19	38	14	52	786	191	977	33	24	57	1	0	1	1	0	1	31	8	39	0	0	0
Pallisa	283	17	300	62	20	82	591	20	611	17	3	20	1	0	1	0	0	0	20	10	30	0	0	0
Rakai	60	24	84	196	169	365	155	103	258	947	162	1,109	2	0	2	8	1	9	34	11	45	1,671	80	170
Rubirizi	168	12	180	55	8	63	6	0	6	212	4	216	0	0	0	0	0	0	194	10	204	477	43	62
Rukungiri	1,172	140	1,312	62	21	83	36	28	64	289	42	331	1	0	1	0	0	0	434	64	498	828	157	96
Serere	26	7	33	239	28	267	594	18	612	13	13	26	0	1	1	0	0	0	2	0	2	357	16	39
Sheema	314	69	383	129	27	156	17	22	39	132	6	138	0	0	0	0	0	0	520	74	594	606	0	84
Sironko	438	33	471	15	3	18	76	13	89	28	4	32	1	0	1	3	0	3	471	44	515	1,446	42	75
Soroti	83	20	103	142	23	165	550	57	607	56	20	76	4	5	9	1	0	1	34	2	36	0	0	0
Ssembabule	0	0	0	86	54	140	102	55	157	599	20	619	10	4	14	24	13	37	8	1	9	276	6	16
Tororo	230	3	233	28	0	28	698	58	756	64	0	64	0	1	1	0	0	0	3	0	3	273	11	39
Wakiso	840	135	975	920	360	1,280	274	57	331	512	40	552	2	0	2	0	0	0	795	67	862	832	59	51
Yumbe	25	15	40	73	48	121	548	96	644	19	11	30	0	0	0	0	0	0	24	4	28	331	17	39
Zombo	815	113	928	30	8	38	102	30	132	26	16	42	1	0	1	0	0	0	92	33	125	0	0	0

Annex 7. Rural Water Grant (DWSDCG) Budget and Release per District, FY2015/16

TSU	S/N	DISTRICT	BUDGET	EXPENDITURE	%
TSU 1	1	Arua	788,662,838	838,467,675	106%
	2	Maracha	760,258,468	759,498,353	100%
	3	Nebbi	508,414,875	350,465,089	69%
	4	Adjumani	535,700,774	506,659,632	95%
	5	Yumbe	774,280,230	773,984,693	100%
	6	Koboko	503,128,892	501,179,000	100%
	7	Zombo	484,220,682	414,926,847	86%
	8	Moyo	792,485,125	792,485,000	100%
	TOTAL		**5,147,151,884**	**4,937,666,289**	**96%**
TSU 2	9	Agago	597,831,452	578,548,648	97%
	10	Alebtong	522,005,865	522,011,305	100%
	11	Amolatar	498,137,822	498,138,000	100%
	12	Amuru	648,246,063	648,246,160	100%
	13	Apac	726,843,337	834,420,999	115%
	14	Dokolo	579,711,042	579,711,000	100%
	15	Gulu	751,145,164	730,059,700	97%
	16	Kitgum	571,370,215	571,369,700	100%
	17	Kole	568,521,193	568,521,000	100%
	18	Lamwo	485,801,857	483,432,812	100%
	19	Lira	741,548,734	730,092,130	98%
	20	Nwoya	412,687,712	298,755,915	72%
	21	Otuke	571,043,216	507,233,855	89%
	22	Oyam	752,139,355	621,338,680	83%
	23	Pader	726,604,833	693,772,370	95%
	TOTAL		**9,153,637,860**	**8,865,652,274**	**97%**
TSU 3	1	Bukedea	467,665,313	482,422,042	103%
	25	Kumi	563,342,697	681,583,023	121%
	26	Ngora	450,175,819	424,392,980	94%
	27	Soroti	655,676,691	627,359,793	96%
	28	Serere	698,226,433	679,226,000	97%

TSU	S/N	DISTRICT	BUDGET	EXPENDITURE	%
	29	Amuria	542,353,821	543,533,542	100%
	30	Katakwi	531,724,723	531,635,553	100%
	31	Kaberamaido	351,026,526	350,974,879	100%
	32	Abim	739,807,245	649,247,615	88%
	33	Kaabong	792,796,225	649,882,400	82%
	34	Kotido	887,676,173	758,542,036	85%
	35	Moroto	669,626,414	580,959,565	87%
	36	Nakapiripirit	795,709,477	383,332,680	48%
	37	Napak	613,845,088	562,557,916	92%
	38	Amudat	641,641,135	571,599,872	89%
	TOTAL		**9,401,293,780**	**8,477,249,896**	**90%**
	39	Jinja	600,875,589	676,876,000	113%
	40	Kamuli	665,723,686	665,724,000	100%
	41	Mayuge	672,357,568	670,494,925	100%
	42	Iganga	634,702,916	671,618,415	106%
	43	Kaliro	416,331,678	416,332,000	100%
	44	Bugiri	674,702,916	674,703,000	100%
	45	Busia	436,808,982	350,201,042	80%
	46	Tororo	672,530,399	643,072,003	96%
	47	Butaleja	488,982,206	454,828,930	93%
	48	Manafwa	685,950,902	784,491,988	114%
	49	Bududa	430,709,460	423,315,653	98%
TSU 4	50	Mbale	835,789,942	823,242,351	98%
	51	Sironko	437,850,022	436,361,899	100%
	52	Kapchorwa	461,674,454	461,508,933	100%
	53	Bukwo	442,699,347	442,699,000	100%
	54	Pallisa	884,328,982	869,370,067	98%
	55	Budaka	669,986,700	669,987,000	100%
	56	Namutumba	461,646,669	461,647,000	100%
	57	Kween	551,495,679	551,330,029	100%
	58	Luuka	475,207,877	481,647,546	101%
	59	Bulambuli	450,929,138	400,929,000	89%
	60	Buyende	502,319,907	502,260,000	100%
	61	Kibuku	574,223,105	574,223,000	100%

TSU	S/N	DISTRICT	BUDGET	EXPENDITURE	%
	62	Namayingo	502,319,907	502,343,669	100%
	TOTAL		**13,630,148,031**	**13,609,207,450**	**100%**
	63	Kayunga	520,052,356	520,052,000	100%
	64	Buliisa	557,187,082	557,186,000	100%
	65	Hoima	383,567,317	367,969,012	96%
	66	Luweero	475,006,610	475,007,000	100%
	68	Mukono	503,319,907	542,017,164	108%
	69	Nakasongola	424,126,934	424,127,000	100%
TSU 5	70	Wakiso	636,875,589	671,589,560	105%
	71	Kiboga	414,560,018	414,560,000	100%
	72	Masindi	467,502,642	467,289,359	100%
	73	Nakaseke	355,899,786	355,828,632	100%
	74	Kyankwanzi	502,319,907	502,320,000	100%
	75	Kiryandongo	628,396,962	628,397,000	100%
	76	Buvuma	387,626,479	388,140,720	100%
	77	Buikwe	502,319,907	502,356,083	100%
	TOTAL		**6,758,761,496**	**6,816,839,530**	**101%**
	80	Kabarole	467,252,718	467,253,000	100%
	81	Kamwenge	372,291,119	372,112,177	100%
	82	Kasese	551,546,997	552,470,300	100%
	83	Kibaale	472,906,017	460,206,655	97%
TSU 6	84	Kyenjojo	535,499,579	516,811,570	97%
	85	Mityana	461,565,319	461,459,196	100%
	86	Mubende	674,530,242	704,001,987	104%
	87	Bundibugyo	353,099,620	305,381,559	86%
	88	Ntoroko	358,999,546	333,931,634	93%
	89	Kyegegwa	365,531,851	355,989,448	97%
	TOTAL		**4,613,223,008**	**4,529,617,526**	**98%**
	90	Lyantonde	439,179,318	413,849,770	94%
	91	Masaka	364,684,885	360,217,009	99%
TSU 7	92	Kalangala	375,059,974	372,196,000	99%
	93	Rakai	633,219,936	683,219,943	108%
	94	Sembabule	672,530,242	659,826,486	98%
	95	Kalungu	358,999,546	325,895,080	91%

TSU	S/N	DISTRICT	BUDGET	EXPENDITURE	%
	96	Bukomansimbi	359,000,449	328,999,000	92%
	97	Lwengo	455,373,495	451,248,584	99%
	67	Mpigi	404,774,592	404,716,014	100%
	78	Butambala	358,999,546	324,784,800	90%
	79	Gomba	387,453,051	330,062,348	85%
	TOTAL		**4,809,275,034**	**4,655,015,034**	**97%**
	98	Isingiro	673,530,242	673,530,000	100%
	99	Kiruhura	673,530,242	684,920,000	102%
	100	Mbarara	673,530,242	673,530,000	100%
	101	Ntungamo	441,359,440	432,293,000	98%
	102	Kanungu	356,129,163	335,299,800	94%
	103	Bushenyi	356,129,163	357,068,161	100%
TSU 8	104	Rukungiri	356,129,163	359,669,697	101%
	105	Mitooma	371,636,980	371,637,000	100%
	106	Sheema	356,129,163	340,496,053	96%
	107	Buhweju	368,999,520	328,999,866	89%
	108	Kisoro	772,428,265	772,429,000	100%
	109	Kabale	356,129,163	356,129,000	100%
	110	Ibanda	600,616,167	600,609,697	100%
	111	Rubirizi	502,319,907	502,170,904	100%
	TOTAL		**6,858,596,820**	**6,788,782,178**	**99%**
	GRAND TOTAL		**60,372,087,913**	**58,680,030,177**	**97.20%**

Annex 8. Urban Water Supply

Annex 8.1 WSDF Branches, Districts under their Jurisdiction and Schemes Completed in 2015/16

WSDF Branch	Location	Districts Covered		Completed Schemes 2015/2016
WSDF-North	Lira	23	Agago, Alebtong, Kole, Lamwo, Nwoya, Otuke, Zombo, Apac, Lira, Dokolo, Amolatar, Oyam, Amuru, Gulu, Pader, Kitgum, Adjumani, Moyo, Yumbe, Koboko, Maracha-Terego, Arua and Nebbi	Midigo, Pajule, Kalong, Patong, Opit, Ovujo
WSDF-East	Mbale	39	Amuria, Kotido, Kaabong, Abim, Moroto, Katakwi, Soroti, Kaberamaido, Kumi, Bukedea, Bukwo, Kapchorwa, Namayingo, Buikwe, Nakapiripirit, Sironko, Manafwa, Bududa, Mbale, Butaleja, Serere, Kibuku, Napak, Ngora, Kween, Luuka, Tororo, Amudat, Bulambuli, Busia, Buyende, Pallisa, Budaka, Namutumba, Bugiri, Kaliro, Iganga, Mayuge, Kamuli and Jinja	Buwuni, Kaliro and Luuka
WSDF-Central	Wakiso	25	Hoima, Buliisa, Kayunga, Kibaale, Kiboga, Buikwe, Bukomansimbi, Butambala, Buvuma, Gomba, Kalangala, Kalungu, Kyankwanzi, Mityana, Nakaseke, Nakasongola, Masindi, Luwero, Masaka, Mpigi, Lwengo, Kiryandongo, Mubende, Mukono, and Wakiso	Buliisa, Kyamulibwa
WSDF-South West	Mbarara	24	Kisoro, Kanungu, Kabale, Rukungiri, Ntungamo, Bushenyi, Mbarara, Isingiro, Kiruhura, Ibanda, Kamwenge, Kyenjojo, Kasese, Bundibugyo, Ntoroko, Rubiriizi, Buhweju, Sheema, Kyegegwa, Mitooma, Kabarole, Rakai, Lyantonde and Sembabule	Gasiiza, Nyarubungo, Nyeihanga, Bugongi
Project Implementation				
LVWATSAN				Ntungamo, Kayabwe-Buwama

Annex 8.2 Key Data on Schemes Completed under WSDFs and LVWANTSAN in 2015/16

	Town	New / Reh.	Status	Population		Water Source Type	Source Yield (m^3/h)	System Capa-city (m^3/d)	Storage Capacity (m^3)	Points of Service (No.)			Energy Source	Pipeline Length (km)	Investment Cost (UGX million)	Per Capita Investment (UGX)	No. Toilets	
				Current	Design					Institu-tional	HH / Yard Conn.	Kiosks					Ecosan	Public
Schemes completed under WSDFs																		
1	BULIISA	R	RGC	4,976	8,450	Borehole	9	162	120	5	200	0	Grid & Gen.	40	1,544.6	183,000	10	
2	KYAMU-LIBWA	N	RGC	9,548	15,782	Borehole	23	414	220	8	310	0	Grid & Gen.	45	3,417.7	217,000	10	
3	KAYUNGA MINI SCHEMES	N	RGC	10.735	16.725	Borehole	220	-	100	39	-	0	Solar	11	2,098.7	125.486	0	9
4	BUWUNI	N	TB	7,760	18,170	Borehole	14	265	192	3	150	0	Grid & Gen.	7	2,059.2	113,331	7	1
5	KALIRO	R	TB	14,700	17,041	Borehole	43	560	200	0	0	0	Grid & Gen.	4	1,840.8	108,025	1	0
6	LUUKA	R	RGC	10,631	20,748	Borehole	36	539	162	4	150	0	Grid & Gen.	18	3,664.1	176,598	7	1
7	OVUJO	R	TB	18,145	31,055	Borehole	24	384	100	2	200	2	Grid & Gen.	19	1,263.7	40,693.42	7	3
8	OPIT	N	RGC	1,761	7,145	Borehole	14	240	100	2	200	2	Grid	19	1,558.1	218063.2624	7	3
9	PATONGO	N	TC	19,595	26,557	Borehole	36	576	200	4	600	4	Grid & Gen.	19	2,092.2	78,780.34	7	3
10	OKOLLO	N	TC	10,816	33,404	Borehole	35	520	192	4	600	4	Gene-rator		2,382.2	71,314.69	7	1
11	PAJULE	N	RGC	7,750	34,034	Borehole	110	880	200	4	600	4	Grid & Gen.		3,545.0	104,159	7	1
12	MIDIGO	N	TB	17,400	34,622	Borehole	34	544	100	2	200	4	Solar & Gen.	17	1,327.1	349,621	6	3
13	BUGONGI	N	RGC	17,741	19,753	Spring	5.9	137	30	7	367	9	Gravity	33	1,172.9	120,265		
14	NYEIHANGA	N	RGC	6,021	9,132	Spring	18.7	319	150	45	200	15	Grid & Gen.	51	2,351.5	257,507		
15	GASIIZA	N	TC	9,392	7,405	Ext.		200	250	10	100	6	Grid & Gen.	36	2,245.1	303,186		

	Town	New / Reh.	Status	Population		Water Source Type	Source Yield (m^3/h)	System Capa-city (m^3/d)	Storage Capacity (m^3)	Points of Service (No.)			Energy Source	Pipeline Length (km)	Investment Cost (UGX million)	Per Capita Investment (UGX)	No. Toilets	
				Current	Design					Institu-tional	HH / Yard Conn.	Kiosks					Ecosan	Public
16	NYARU-BUNGO	N	RGC	9,880	14,404	Ext.	0	108	310	17	163	6	Grid & Gen.	35	2,698.6	301,554		
17	BUKWO	R	TC	10.969	19.530	Surface		891	200	3	200	0	Gravity	34	4,517,5	411,843		
18	AMOLATAR	R	TC	14.800	26.640	Borehole			260		300	0	Grid & Gen.	17	833.0	56,283		
19	DOKOLO	R	TC	19.130	34.434	Borehole	27		200		1000	5	Grid & Gen.	17	4,758.8	248,761		
20	KINUUKA	N	TC	4.864	11.042	Borehole	15	225	120	30	100	6	Grid & Gen.		1,959.6	402,875		
Schemes completed under LVWATSAN																		
21	NTUNGAMO	N	TC	19.400	34.920	Borehole	120	1.779	534	12	914	0	Grid & Gen.	33	7,566.2	216.673	0	9
22	KAYABWE - BUWAMA	N	TB	7.760	18.170	Surface	166	-	-	20	400	0	Grid & Gen.	25	5,823.3	205.139	0	7
TOTAL				**269,057**	**469,380**			**8,743**	**3,940**	**221**	**6,954**	**67**		**479**	**60,720.1**	**225,677 65.5 US$ (exch. Rate: 3443)**		

Annex 8.3 Urban Centres in Uganda – Population, Water Supply Status and Service Coverage

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Kampala	KCCA	1,568,900	94%	y	1,475,896	94%	NWSC	3,966	130,364
Municipalities									
Apac	Apac	15,400	98%	y	15,027	98%	NWSC	25	822
Arua	Arua	65,800	98%	y	64,453	98%	NWSC	123	6,685
Bugiri	Bugiri	31,300	87%	y	27,081	87%	NWSC	17	915
Bushenyi-Ishaka	Bushenyi	54,700	79%	y	42,956	79%	NWSC	80	1,788
Busia	Busia	59,100	94%	y	55,380	94%	NWSC	51	2,085
Entebbe	Wakiso	78,900	91%	y	71,467	91%	NWSC	93	21,149
Fort Portal	Kabarole	56,500	90%	y	51,132	90%	NWSC	174	6,935
Gulu	Gulu	161,200	95%	y	152,541	95%	NWSC	133	6,350
Hoima	Hoima	108,700	83%	y	70,078	64%	NWSC	58	4,807
Ibanda	Ibanda	34,700	90%	y	31,365	90%	NWSC	40	3,067
Iganga	Iganga	56,700	97%	y	54,843	97%	NWSC	153	4,418
Jinja	Jinja	80,700	96%	y	24,532	30%	NWSC	44	1,072
Kabale	Kabale	50,800	90%	y	45,505	90%	NWSC	96	6,056
Kamuli	Kamuli	63,500	96%	y	44,518	70%	NWSC	21	1,482
Kapchorwa	Kapchorwa	46,200	80%	y	23,380	51%	NWSC	1	609
Kasese	Kasese	106,300	92%	y	97,592	92%	NWSC	103	6,758
Kira	Wakiso	336,800	91%	y	297,290	88%	NWSC	132	28,033
Kisoro	Kisoro	18,200	95%	y	17,241	95%	NWSC	100	3,098
Kitgum	Kitgum	80,200	92%	y	56,860	71%	NWSC	26	2,730
Koboko	Koboko	43,700	92%	y	13,164	30%	PO	46	295

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Kotido	Kotido	14,800	94%	y	13,951	94%	PO	23	352
Kumi	Kumi	38,700	85%	y	13,050	34%	PO	18	481
Lira	Lira	104,200	92%	y	95,588	92%	NWSC	432	9,901
Lugazi	Buikwe	121,100	86%	y	52,174	43%	NWSC	68	2,285
Makindye Ssabagabo	Wakiso	299,900	89%	y	265,458	89%	NWSC		
Masaka	Masaka	107,700	94%	y	101,594	94%	NWSC	168	11,851
Masindi	Masindi	99,400	88%	y	87,193	88%	NWSC	68	4,561
Mbale	Mbale	101,900	95%	y	96,433	95%	NWSC	640	13,374
Mbarara	Mbarara	202,800	78%	y	158,940	78%	NWSC	198	7,205
Mityana	Mityana	101,900	68%	y	68,938	68%	NWSC	51	3,910
Moroto	Moroto	15,500	0%	y	14,725	95%	NWSC	34	466
Mubende	Mubende	101,200	76%	y	72,194	71%	NWSC	44	4,022
Mukono	Mukono	170,200	85%	y	143,891	85%	NWSC	41	18,087
Nansana	Wakiso	388,100	84%	y	283,822	73%	NWSC	89	17,814
Nebbi	Nebbi	36,900	88%	y	32,458	88%	NWSC	39	1,982
Njeru	Buikwe	73,000	94%	y	8,586	12%	NWSC	12	408
Ntungamo	Ntungamo	19,400	86%	y	16,751	86%	NWSC	20	1,121
Rukungiri	Rukungiri	37,200	75%	y	27,958	75%	NWSC	60	1,176
Sheema	Sheema	17,200	49%	y	8,370	49%	NWSC		
Soroti	Soroti	52,600	94%	y	49,538	94%	NWSC	110	5,856
Tororo	Tororo	43,900	94%	y	41,256	94%	NWSC	221	4,507
Town Councils									
Abim	Abim	19,500	99%	y	1,578	8%	PO	3	166
Adjumani	Adjumani	43,800	100%	y	25,528	58%	NWSC	38	1,639
Aduku	Apac	8,100	95%	y	7,729	95%	NWSC	16	404

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Agago	Agago	6,200	82%	n	0	0%	no water		
Alebtong	Alebtong	6,900	89%	y	2,760	40%	TC/SO		
Amolatar	Amolatar	11,800	100%	y	3,000	25%	TC/SO	6	300
Amudat	Amudat	12,600	63%	y	5,040	40%	TC/SO		
Amuria	Amuria	7,500	97%	y	7,262	97%	NWSC	6	376
Amuru	Amuru	10,400	48%	n	0	0%	no water		
Anaka	Nwoya	16,100	88%	y	414	3%	TC/SO		69
Binyiny	Kween	3,900	88%	n	0	0%	no water		
Bombo	Luwero	27,500	94%	y	25,722	94%	NWSC	6	1,203
Budadiri	Sironko	19,500	91%	y	17,708	91%	NWSC	26	853
Budaka	Budaka	25,300	77%	y	6,600	26%	PO	4	315
Bududa	Bududa	7,300	89%	y	270	4%	TC/SO		45
Bugembe	Jinja	42,400	96%	y	31,800	75%	NWSC		
Bugongi	Sheema	12,100	37%	y	4,525	37%	NWSC	33	590
Buheesi	Kabarole	*8,000*	61%	y	732	9%	TC/SO		122
Buikwe	Buikwe	17,300	91%	y	5,676	33%	PO	13	114
Bukedea	Bukedea	11,600	96%	y	11,099	96%	NWSC	12	379
Bukomansimbi	Bukomansimbi	10,300	71%	y	7,354	71%	PO	4	369
Bukomero	Kiboga	15,000	59%	y	6,000	40%	TC/SO		
Bukwo	Bukwo	8,400	21%	y	1,771	21%	TC/SO		200
Bulambuli	Bulambuli	5,500	93%	y	2,200	40%	TC/SO		
Bulegeni	Bulambuli	12,100	89%	y	138	1%	TC/SO		23
Buliisa	Buliisa	8,000	93%	y	7,435	93%	TC/SO	14	200
Bundibugyo	Bundibugyo	19,800	88%	y	5,850	30%	PO	12	697
Bunyinza	Manafwa	*5,000*	94%	y	3,750	75%	NWSC		
Busembatia	Iganga	15,200	99%	y	13,222	87%	PO	17	666

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Busolwe	Butaleja	17,900	96%	y	6,550	37%	PO	4	306
Butalangu	Nakaseke	4,300	38%	n	0	0%	no water		
Butaleja	Butaleja	20,900	95%	y	15,675	75%	NWSC		
Butemba	Kyankwanzi	15,300	58%	n	0	0%	no water		
Butogota	Kanungu	10,700	74%	y	7,962	74%	NWSC	27	219
Butunduzi	Kyenjojo	16,200	50%	n	0	0%	no water		
Buvuma	Buvuma	11,000	51%	constr	0	0%			
Buwangani	Manafwa	*5,000*	0%	n	0	0%	no water		
Buwenge	Jinja	23,500	97%	y	1,712	7%	NWSC	2	57
Buyende	Buyende	24,800	91%	n	0	0%	no water		
Bweyale	Kiryandongo	33,300	88%	y	29,273	88%	NWSC	33	672
Dokolo	Dokolo	21,400	86%	y	12,200	57%	PO	6	1,000
Endiinzi	Isingiro	*4,000*	0%	n	0	0%	no water		
Gombe	Butambala	16,500	77%	n	0	0%	no water		
Hamurwa	Rubanda	5,300	67%	y	384	7%	TC/SO		64
Hima	Kasese	13,500	63%	y	8,541	63%	NWSC	41	973
Igorora	Ibanda	6,000	93%	y	2,400	40%	TC/SO		
Ishongororo	Ibanda	22,900	51%	y	11,720	51%	NWSC	15	231
Isingiro	Isingiro	31,800	41%	y	8,650	27%	PO	13	597
Kaabong	Kaabong	12,000	96%	y	2,036	17%	PO	4	210
Kaberamaido	Kaberamaido	4,300	97%	y	4,171	97%	NWSC	7	320
Kaberebere	Isingiro	7,300	70%	y	5,130	70%	NWSC		
Kabuyanda	Isingiro	17,400	51%	y	6,960	40%	TC/SO		
Kabwohe-Itendero	Sheema	20,800	71%	y	14,847	71%	NWSC	45	1,374
Kagadi	Kagadi	25,200	75%	n	0	0%	no water		

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Kagarama	Ntungamo	*8,000*	60%	y	4,798	60%	NWSC		
Kajjansi	Wakiso	60,000	84%	y	50,151	84%	NWSC	21	7,775
Kakira	Jinja	33,700	90%	y	25,275	75%	NWSC		
Kakiri	Wakiso	21,900	71%	y	8,200	37%	NWSC	10	250
Kakooge	Nakasongola	9,200	67%	y	828	9%	TC/SO		138
Kakumiro	Kakumiro	10,800	56%	y	4,320	40%	PO		
Kalangala	Kalangala	5,200	85%	y	4,416	85%	PO	1	263
Kaliro	Kaliro	17,900	98%	y	17,550	98%	NWSC	3	601
Kalisizo	Rakai	14,800	79%	y	11,748	79%	NWSC	15	1,116
Kalongo	Agago	11,900	98%	y	948	8%	TC/SO		158
Kalungu	Kalungu	8,300	71%	y	5,918	71%	NWSC	8	464
Kambuga	Kanungu	6,000	69%	y	4,150	69%	NWSC	11	109
Kamwenge	Kamwenge	20,600	67%	y	13,735	67%	NWSC	49	1,054
Kanara	Ntoroko	8,200	97%	n	0	0%	no water		
Kanoni	Gomba	12,700	81%	n	0	0%	no water		
Kanungu	Kanungu	15,500	60%	y	9,369	60%	NWSC	25	612
Karago	Kabarole	10,200	83%	n	0	0%	no water		
Karugutu	Ntoroko	11,100	82%	y	366	3%	TC/SO		61
Kasangati	Wakiso	80,000	72%	y	57,336	72%	NWSC		
Kashenshero	Mitooma	6,000	81%	y	4,832	81%	NWSC	15	231
Kasilo	Serere	3,900	99%	y	1,560	40%	TC/SO		
Katabi	Wakiso	80,000	90%	y	60,000	75%	NWSC		
Katakwi	Katakwi	8,200	98%	y	8,061	98%	PO	13	285
Katerera	Rubirizi	9,600	86%	y	1,272	13%	TC/SO		212
Katooke	Kyenjojo	16,600	61%	y	432	3%	TC/SO		72
Katuna	Kabale	10,300	88%	y	4,120	40%	TC/SO		

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Katwe-Kabatoro	Kasese	6,600	83%	y	5,463	83%	PO	14	368
Kayunga	Kayunga	28,700	86%	y	18,500	64%	PO	10	1,622
Kazo	Kiruhura	13,600	20%	y	2,705	20%	NWSC	88	235
Kibaale	Kibaale	7,100	87%	y	6,206	87%	PO		406
Kibiito	Kabarole	13,500	87%	y	11,694	87%	NWSC	56	467
Kiboga	Kiboga	20,500	64%	y	8,848	43%	TC/SO	16	134
Kibuku	Kibuku	9,000	91%	y	8,201	91%	PO	4	435
Kibuuku	Ntoroko	2,200	45%	n	0	0%	no water		
Kigorobya	Hoima	6,300	94%	y	4,000	63%	TC/SO	5	50
Kigumba	Kiryandongo	19,700	90%	y	17,736	90%	NWSC	16	1,319
Kihiihi	Kanungu	20,900	54%	y	11,221	54%	NWSC		
Kijura	Kabarole	11,200	77%	n	0	0%	no water		
Kiko	Kabarole	12,500	65%	n	0	0%	no water		
Kiruhura	Kiruhura	6,000	21%	y	1,238	21%	NWSC	7	111
Kiryandongo	Kiryandongo	6,300	97%	y	6,092	97%	NWSC	16	230
Kitwe	Ntungamo	18,900	41%	y	7,745	41%	NWSC	12	173
Kiwoko	Nakaseke	11,600	90%	n	0	0%	no water		
Kole	Kole	9,300	84%	n	0	0%	no water		
Kyamuhunga	Bushenyi	*15,000*	57%	y	6,000	40%	TC/SO		
Kyamukube	Kabarole	*10,000*	60%	y	4,000	40%	TC/SO		
Kyamulibwa	Kalungu	*8,000*	71%	y	5,647	71%	PO		310
Kyankwanzi	Kyankwanzi	*8,000*	35%	y	2,802	35%	TC/SO		
Kyarusozi	Kyenjojo	14,900	68%	y	996	7%	TC/SO		166
Kyazanga	Lwengo	15,800	22%	y	3,411	22%	PO	9	575
Kyegegwa	Kyegegwa	21,500	28%	n	0	0%	no water		

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Kyengera	Wakiso	*60,000*	76%	y	45,000	75%	NWSC		
Kyenjojo	Kyenjojo	26,700	57%	y	10,530	39%	TC/SO	5	276
Kyotera	Rakai	13,300	79%	y	10,487	79%	NWSC	9	1,182
Lamwo	Lamwo	8,400	84%	n	0	0%	no water		
Lukaya	Kalungu	24,700	77%	y	19,125	77%	NWSC	1	1,049
Luuka	Luuka	10,700	95%	y	2,900	27%			150
Luwero	Luwero	44,500	98%	y	41,952	94%	NWSC	26	2,544
Lwakhakha	Manafwa	9,500	84%	y	7,125	75%	NWSC		
Lwengo	Lwengo	15,800	66%	y	8,334	53%	PO	5	404
Lyantonde	Lyantonde	14,300	73%	y	10,448	73%	NWSC	58	1,082
Malaba	Tororo	19,100	81%	y	15,415	81%	NWSC	41	404
Manafwa	Manafwa	14,300	95%	y	5,720	40%	TC/SO		
Maracha	Maracha	9,900	91%	y	5,300	54%	TC/SO		60
Masulita	Wakiso	16,700	70%	y	6,680	40%	TC/SO		
Mateete	Ssembabule	10,900	38%	y	4,176	38%	TC/SO		
Mayuge	Mayuge	18,100	81%	y	14,643	81%	NWSC	21	606
Migeera	Nakasongola	6,100	71%	y	3,000	49%	TC/SO	8	123
Mitooma	Mitooma	5,800	79%	y	4,570	79%	NWSC	20	777
Moyo	Moyo	10,900	96%	y	10,428	96%	PO	20	749
Mpigi	Mpigi	46,200	82%	y	37,847	82%	NWSC	8	1,883
Mpondwe-Lhubiriha	Kasese	53,200	98%	y	52,136	98%	NWSC	79	2,627
Mugusu	Kabarole	*10,000*	74%	y	816	8%	TC/SO		136
Muhanga	Kabale	12,000	87%	y	10,492	87%	NWSC	14	312
Muhorro	Kagadi	25,300	76%	y	870	3%	TC/SO		145
Nagongera	Tororo	13,000	76%	y	9,914	76%	NWSC	6	439

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Nakaloke	Mbale	29,100	93%	y	21,825	75%	NWSC		
Nakapiripirit	Nakapiripirit	4,000	94%	nf	0	0%			
Nakaseke	Nakaseke	7,600	96%	y	7,311	96%	NWSC	6	442
Nakasongola	Nakasongola	10,800	91%	y	7,076	66%	PO	8	509
Namasale	Amolatar	12,600	95%	n	0	0%	no water		
Namayingo	Namayingo	16,300	77%	n	0	0%	no water		
Namayumba	Wakiso	17,100	65%	y	552	3%	TC/SO		92
Namutumba	Namutumba	19,900	95%	y	14,212	71%	PO	7	578
Napak	Napak	5,000	100%	y	2,000	40%	TC/SO		
Ngoma	Nakaseke	6,700	63%	n	0	0%	no water		
Ngora	Ngora	15,800	90%	y	14,201	90%	PO	4	298
Nkokonjeru	Buikwe	9,400	82%	y	2,858	30%	TC/SO	7	250
Nsiika	Buhweju	3,000	42%	y	1,272	42%	NWSC		
Ntwetwe	Kyankwanzi	11,000	92%	y	3,790	34%	PO	8	373
Nyahuka	Bundibugyo	17,200	55%	constr	0	0%			246
Omoro	Omoro	*10,000*	0%	nf	0	0%	no water		
Otuke	Otuke	6,700	85%	y	5,025	75%	NWSC		
Oyam	Oyam	12,500	75%	y	834	7%	TC/SO		139
Pader	Pader	14,600	92%	y	13,380	92%	NWSC	23	840
Padibe	Lamwo	10,000	97%	y	4,000	40%	TC/SO		
Paidha	Zombo	35,100	88%	y	27,702	79%	NWSC	35	1,376
Pakwach	Nebbi	23,600	48%	y	11,372	48%	NWSC	3	1,229
Pallisa	Pallisa	34,700	83%	nf	6,836	20%	TC/SO	19	525
Patongo	Agago	12,000	99%	y	6,400	53%	TC/SO	4	600
Rakai	Rakai	7,800	31%	y	2,429	31%	TC/SO	2	291
Rubaare	Ntungamo	13,800	63%	y	8,661	63%	NWSC	8	322

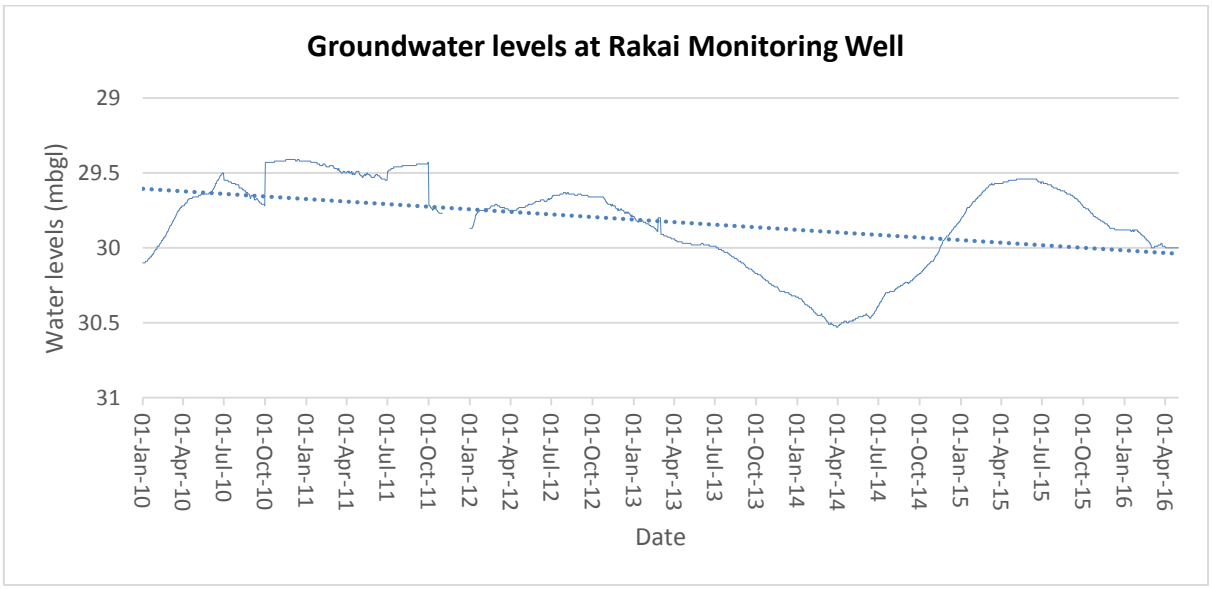
Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Rubanda	Rubanda	*5,000*	66%	y	2,000	40%	TC/SO		
Rubirizi	Rubirizi	8,400	95%	y	7,951	95%	NWSC	112	825
Rubona	Kabarole	5,900	84%	y	4,968	84%	NWSC	33	404
Rubuguri	Kisoro	*9,000*	67%	y	324	4%	TC/SO		54
Rushango	Ibanda	4,200	52%	n	0	0%	no water		
Rwashamaire	Ntungamo	8,000	79%	y	6,000	75%	NWSC		
Rwebisengo	Ntoroko	3,300	82%	y	420	13%	TC/SO		70
Rwimi	Kabarole	17,000	70%	y	11,840	70%	NWSC		
Sanga	Kiruhura	9,600	35%	constr	0	0%	no water		
Semuto	Nakaseke	11,500	81%	y	9,284	81%	NWSC	4	532
Serere	Serere	9,100	99%	y	7,900	87%	TC/SO	2	171
Shuuku	Sheema	*5,000*	63%	y	4,000	80%	TC/SO	5	11
Sironko	Sironko	19,700	90%	y	17,650	90%	NWSC	30	1,091
Ssembabule	Ssembabule	7,000	24%	y	1,699	24%	NWSC		
Wakiso	Wakiso	68,600	74%	y	50,687	74%	NWSC	405	41,124
Wobulenzi	Luwero	28,200	85%	y	23,314	83%	NWSC	28	1,012
Yumbe	Yumbe	39,300	96%	y	21,296	54%	TC/SO	16	315
Zombo	Zombo	13,000	55%	n	0	0%	no water		
Town Boards									
Agweng	Lira	*5,300*	n/a	y	792	15%	TC/SO		132
Akore	Amuria	*5,300*	n/a	n	0	0%	no water		
Asamuk	Amuria	*5,300*	n/a	n	0	0%	no water		
Bubutu	Manafwa	*5,300*	n/a	n	0	0%	no water		
Bugobero	Manafwa	*5,300*	n/a	n	0	0%	no water		
Bukhaweka	Manafwa	*5,300*	n/a	n	0	0%	no water		
Bukuya	Mubende	*5,300*	n/a	y	2,120	40%	TC/SO		

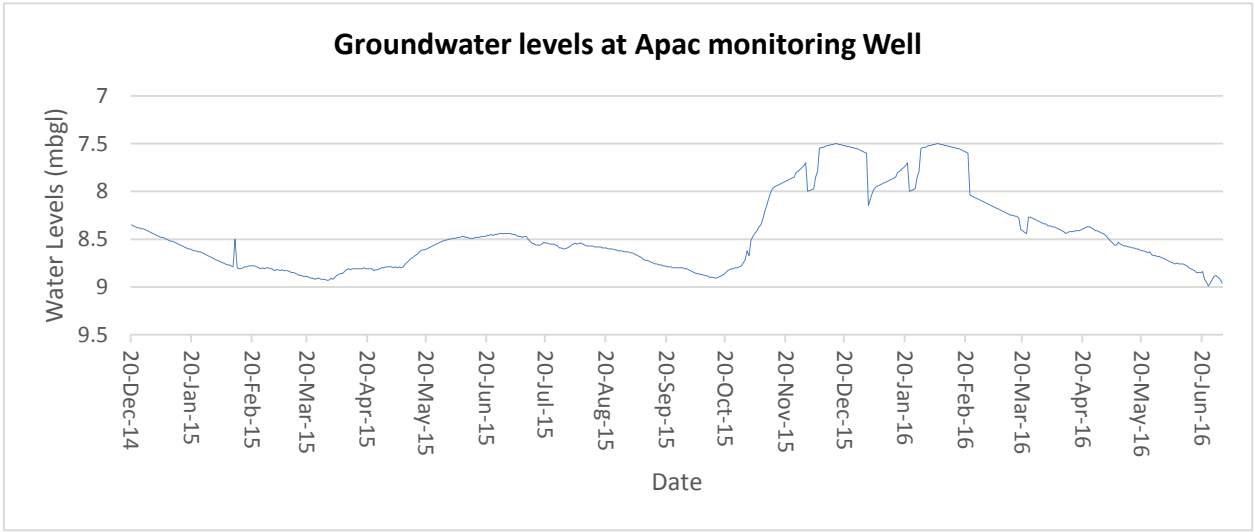
Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Bunagana	Kisoro	*5,300*	n/a	y	2,120	40%	NWSC		
Busambatsa	Manafwa	*5,300*	n/a	n	0	0%	no water		
Busiu	Mbale	*5,300*	n/a	y	2,120	40%	TC/SO		
Busowa	Bugiri	*5,300*	n/a	n	0	0%	no water		
Busunju	Mityana	*5,300*	n/a	y	468	9%	TC/SO		78
Butenga	Bukomansimbi	*5,300*	n/a	n	0	0%	no water		
Butiru	Manafwa	*5,300*	n/a	n	0	0%	no water		
Buwuni	Bugiri	*5,300*	n/a	y	2,910	55%	NWSC	3	141
Buyaga	Bulambuli	*5,300*	n/a	n	0	0%	no water		
Buyanja	Rukungiri	*5,300*	n/a	y	5,035	95%	NWSC	28	506
Chepsikunya	Kween	*5,300*	n/a	n	0	0%	no water		
Idudi	Iganga	*5,300*	n/a	n	0	0%	no water		
Kabujogera	Kamwenge	*5,300*	n/a	y	2,120	40%	TC/SO		
Kadama	Kibuku	*5,300*	n/a	n	0	0%	no water		
Kakindu	Mityana	*5,300*	n/a	y	2,120	40%	TC/SO		
Kakoro	Pallisa	*5,300*	n/a	n	0	0%	no water		
Kamdini	Oyam	*5,300*	n/a	y	1,100	21%	PO	1	151
Kapelebyong	Amuria	*5,300*	n/a	y	2,120	40%	TC/SO		
Kaproron	Kween	*5,300*	n/a	y	90	2%	TC/SO		15
Kasambya	Mubende	*5,300*	n/a	y	1,976	37%	PO	4	200
Kassanda	Mubende	*5,300*	n/a	y	600	11%	TC/SO		100
Katovu	Lwengo	*5,300*	n/a	n	0	0%	no water		
Kebisoni	Rukungiri	*5,300*	n/a	y	5,035	95%	NWSC	28	337
Kinoni	Lwengo	*5,300*	n/a	y	3,508	66%	PO	8	326
Kitaleesa	Kyegegwa	*5,300*	n/a	y	1,218	23%	TC/SO	6	9
Kyamukube	Kabarole	*5,300*	n/a	n	0	0%	no water		

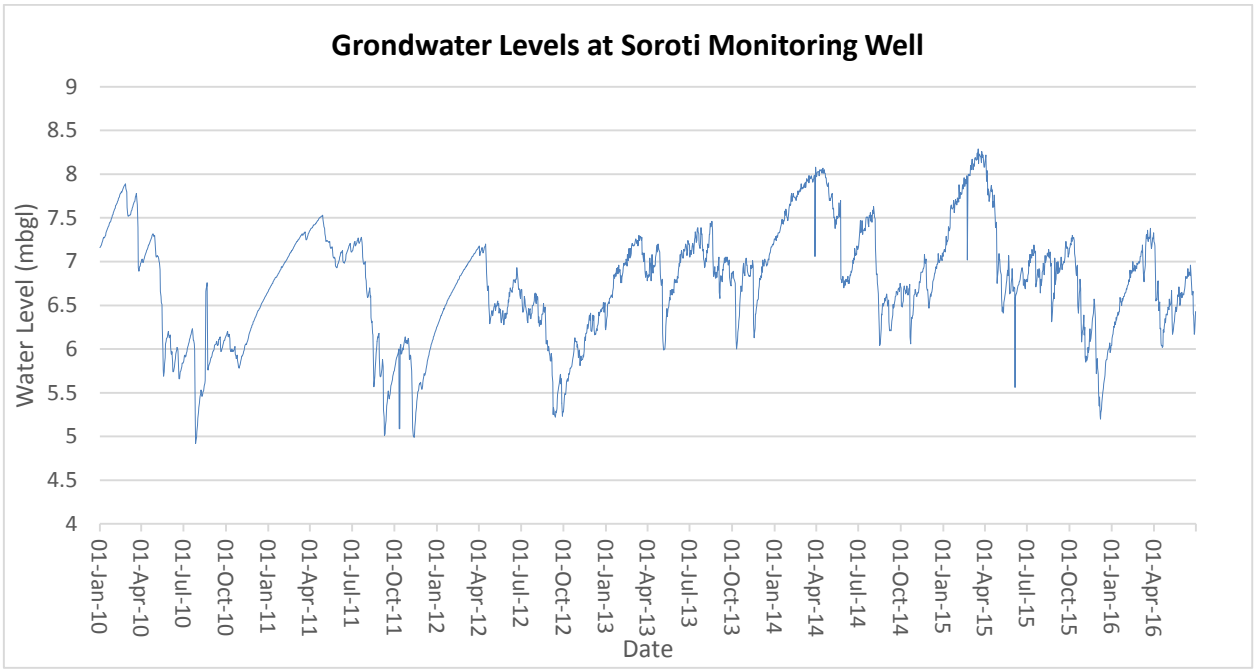
Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Luwa	Manafwa	*5,300*	n/a	n	0	0%	no water		
Madi Opei	Lamwo	*5,300*	n/a	y	90	2%	TC/SO		15
Magale	Manafwa	*5,300*	n/a	y	4,770	90%	PO	12	407
Magamaga	Mayuge	*5,300*	n/a	n	0	0%	no water		
Masaka	Manafwa	*5,300*	n/a	n	0	0%	no water		
Mpara	Kyegegwa	*5,300*	n/a	n	0	0%	no water		
Mubuku	Kasese	*5,300*	n/a	y	2,120	40%	PO		
Muterere	Bugiri	*5,300*	n/a	n	0	0%	no water		
Namayemba	Bugiri	*5,300*	n/a	n	0	0%	no water		
Namungalwe	Iganga	*5,300*	n/a	n	0	0%	no water		
Nangako	Bududa	*5,300*	n/a	n	0	0%	no water		
Nankoma	Bugiri	*5,300*	n/a	nf	0	0%	no water		
Nyamunuka	Ntungamo	*5,300*	n/a	y	2,120	40%	TC/SO		
Obalanga	Amuria	*5,300*	n/a	y	2,120	40%	TC/SO		
Oraba	Koboko	*5,300*	n/a	n	0	0%	no water		
Orungo	Amuria	*5,300*	n/a	n	0	0%	no water		
Pakele	Adjumani	*5,300*	n/a	y	1,848	35%	PO	6	114
Rubuguri	Kisoro	*5,300*	n/a	y	2,120	40%	TC/SO		
Rushere	Kiruhura	*5,300*	n/a	y	5,035	95%	NWSC	16	186
Sipi	Kapchorwa	*5,300*	n/a	y	1,894	36%	PO	5	154
Suam	Bukwo	*5,300*	n/a	y	2,120	40%	TC/SO		
Tirinyi	Kibuku	*5,300*	n/a	y	2,120	40%	PO	incl. in Kibuku	
Toroma	Katakwi	*5,300*	n/a	y	2,120	40%	TC/SO		
Tsakhana	Manafwa	*5,300*	n/a	n	0	0%	no water		
Wera	Amuria	*5,300*	n/a	n	0	0%	no water		
Total 42 Large Towns		5,265,900	90%	0	4,385,168	83%	39	7,818	348,877

Town	District	Population 2016	% using an improved water source (NPHC 2014)	Piped water	Pop. served by piped water (estim. from connections)	Service coverage (piped water)	Operator	Connections	
								PSPs/ Kiosks	Total
Total 174 Town Councils		**2,763,600**	**78%**	**31**	**1,444,246**	**51%**	**68**	**1,917**	**101,383**
Total 58 Town Boards		**307,400**	**n/a**	**29**	**63,929**	**21%**	**5**	**117**	**2,871**
Total 274 Urban Centres		**8,336,900**		**60**	**5,893,343**	**71%**	**112**	**9,856**	**454,980**

Annex 9. Groundwater Levels of 4 monitoring stations since January 2010






Grondwater Levels at Soroti Monitoring Well
Water Level (mbgl)
9
8.5
8
7.5
7
6.5
6
5.5
5
4.5
4
01-Jan-10
01-Apr-10
01-Jul-10
01-Oct-10
01-Jan-11
01-Apr-11
01-Jul-11
01-Oct-11
01-Jan-12
01-Apr-12
01-Jul-12
01-Oct-12
01-Jan-13
01-Apr-13
01-Jul-13
01-Oct-13
01-Jan-14
01-Apr-14
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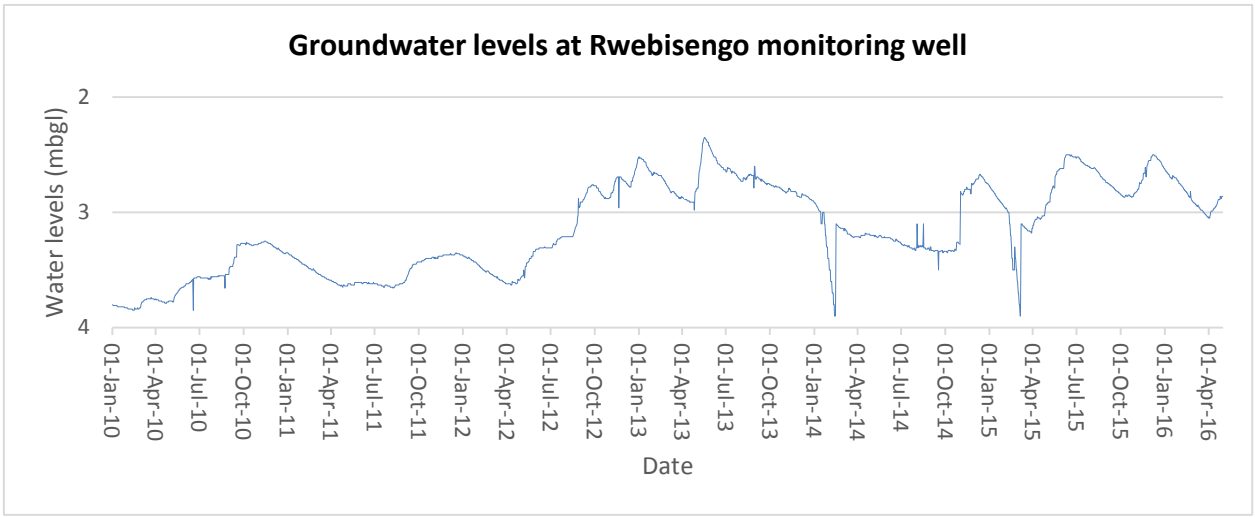
01-Oct-15
01-Jan-16
01-Apr-16
Date


Groundwater levels at Rwebisengo monitoring well
Water levels (mbgl)
2
3
4
01-Jan-10
01-Apr-10
01-Jul-10
01-Oct-10
01-Jan-11
01-Apr-11
01-Jul-11
01-Oct-11
01-Jan-12
01-Apr-12
01-Jul-12
01-Oct-12
01-Jan-13
01-Apr-13
01-Jul-13
01-Oct-13
01-Jan-14
01-Apr-14
01-Jul-14
01-Oct-14
01-Jan-15
01-Apr-15
01-Jul-15
01-Oct-15
01-Jan-16
01-Apr-16
Date

Annex 10. Catchment management interventions in FY2015/16

Annex 10.1 Victoria Water Management Zone

a) Rwizi Catchment

50km of R. Rwizi protection/buffer zone in Mbarara Municipality section has been demarcated in accordance with NEMA Act and related regulations on protection of river banks. The activity is being jointly implemented by Victoria Water Management Zone (VWMZ) through the Rwizi CMO and Mbarara Municipal Council. This is yet another example of stakeholders' partnership in implementation of IWRM activities. The objective is to develop a management and utilization plan for the buffer zone to minimize negative impacts on the river. Stakeholders mapping and sensitization, surveys of the protection zone and casting of boundary pillars have been finalized. The pillars will soon be planted followed by development of the river protection zone management and utilization plan.

Fig. 1: Demarcation pillars for R. Rwizi protection zone already delivered at site

Full landscape restoration interventions in two hotspot micro catchments of Rubara in Nsiika-Buhweju District and Masyoro in Kyangyenyi-Sheema districts in upper Rwizi catchment are being implemented. A wide range of soil and land management interventions are being implemented to increase on the water retention capacity of the catchment. Two very huge gully trails are being rehabilitated, 3km of stone bands, 2.5km of soil band and grass bands and several infiltration and percolation pits are being constructed. These interventions are aimed at controlling the speed of water flow in the upstream part of Rwizi catchment. In addition, 20,000 water friendly trees species are being prepared for planting at the start of the August rains. The aim of these implementing these measures is to reduce erosion and flooding and increase infiltration of water in the catchment.

350 acres of Wetland systems of Rushanje-Kashasha in Bugamba Sub County in Mbarara district and Katara-Kanyabukanja in Buhweju district have been restored in upper Rwizi catchment under a Public-Private-Partnership (PPP) between Ministry of Water and Environment through the Directorate of Water Resources Management (DWRM), GIZ and the Coke Cola system. This brings the acreage of wetland restored so far under this PPP to 630 acres.

An Environmental Conservation Fund (ECF) was created for each of the four community groups at the two restored wetland systems. A total of UGX 28million was disbursed to the four groups for use in getting alternative livelihoods. This brings the total amount of funds disbursed to the groups through the ECF to UGX 98million. The funds are given out to communities as revolving funds and the condition for accessing these funds by group members is implementation of the agreed interventions in the catchment at each of the intervention sites under PPP. Evaluation of the first batch of the ECF undertake mid 2016 indicated a growth of the fund by 62% in a period of 1.5 years.

Annex 10.2 Kyoga Water Management Zone

a) *Awoja Catchment*

A number of number of priority projects identified in the Awoja CMP have been designed ready for implementation. These projects include:

Sipi Integrated Water Resources Water Resources Management and Development Project with support of the World Bank. The project is divided into three components namely; (i) **Middle Sipi Irrigation Project** whose command area will cover Kasango, Kapsinda, Chemere, and Rwanda Villages all located in Sanzara parish, Kawowo sub county of Kapchorwa district, (ii) **Sipi Gravity flow scheme** that will supply water to water stressed areas in Kawowo Sub-County in Kapchorwa district and also supply water to the sub-counties of Malera, Kindogole, Kachumbala, and Kolir, in Bukedea districts and some parts of Bulambuli and Sironko Districts, and **River Sipi Catchment Protection that will include** catchment protection of River Sipi including promotion of tree planting through the supply of seedlings and equipment to protect the river banks (200ha), promotion of on farm soil and water conservation and construction of a walkway across Sipi river.

Design and Piloting of individual farms according to Sustainable land and Environmental Management Principles. This project is being implemented in Sironko, Bukwo, Kween and Kapchorwa districts with the support of GIZ RUWAAS project.

b) Middle Malaba Sub Catchment in Mpologoma catchment

In a bid to implement the middle Malaba sub catchment Management plan (SCMP), support in establishment of a tree nursery each in Osukuru, Mella and Kwappa Sub-Counties was provided to the Water Resources and Environment Management groups.

Annex 10.3 Albert Water Management Zone

a) Mpanga catchment

A number of interventions and remedial measures identified in the Mpanga CMP are being implemented in an effort to protect River Mpanga Catchment and these include;

- Stakeholder groups and beneficiary community members were trained in construction of soil and water conservation measures in the upper Mpanga catchment in *Nyakitokoli Village in Fort Portal* Municipality. The aim of this intervention was to control erosion and reduce sediment loads from the degraded steep slopes through promotion of terracing, placement of soil bunds (fanya chiini and fanya ju). Figures below show placement of stones bunds and stabilization with Vetiva Grass and Greveria Trees. The farmers were trained in implementation of the 3R approaches within their fields through construction of infiltrations pits and storm water diversion drains. In addition, Public Stand Posts for an existing gravity flow scheme were rehabilitated for the homesteads to ensure reliable water supply as also an incentive to the people for their efforts in conservation.

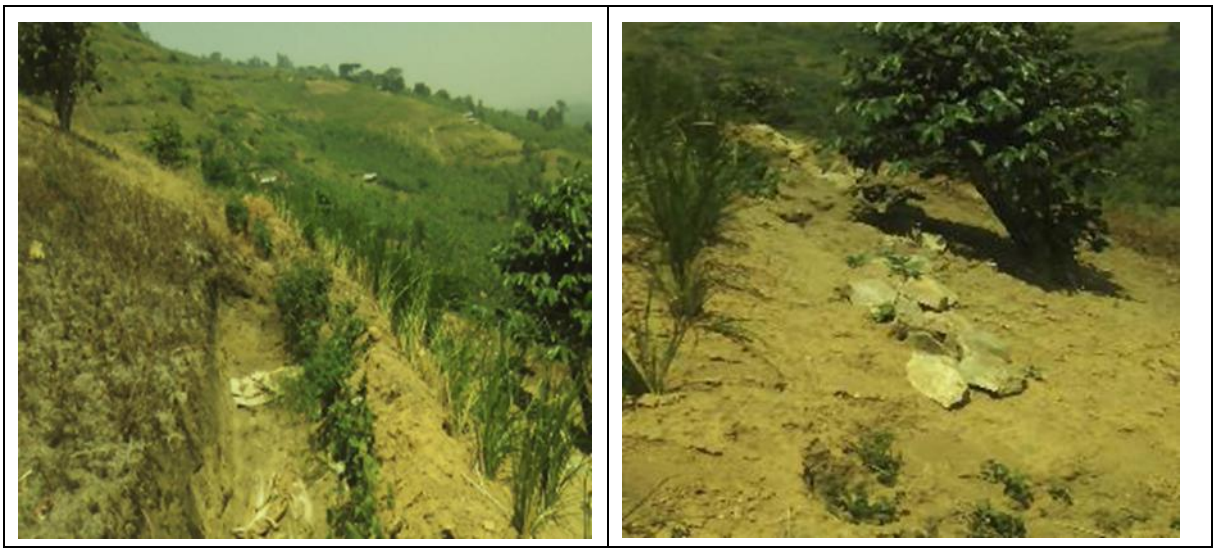


Fig. 1.2: Stone bunds, Vetiva grass and Grevaria trees along the mountain slopes to avert soil erosion

- 6 nursery beds for both local and improved tree varieties and afforestation were established in mid Mpanga catchment in Kyenjojo and Kabarole Districts. The aim of this activity was to address deforestation that was the most outstanding threats highlighted in the Catchment Management Plan. It was also noted despite the abundance of private and community nursery bed operators within the catchment, there was glaring luck of technical expertise among these operators to produce high quality seedlings that would survive after transplantation. More so, with the impacts of climate change (prolonged droughts and floods), communities needed to be trained in raising climate resilient varieties through grafting. Finally, fruit trees were introduced to address aspects of household income enhancement and nutritional requirements.

Fig. 1.3: Established Nursery beds in Kiragale Sub-County in Kyenjojo District

Fig. 1.4: Participation of some of the local community members in Nursery bed preparation at Kazingo site

- Conservation and demarcation of two wetland systems was undertaken and restocked with fish fingers in the lower Mpanga Catchment in Kamwenge District. The excavation of the three ponds is almost complete and the receiver pond where the fish will be raised and act as breeding ground has been completed (Fig.1.5 below). Mutamba Wetland Conservation Group was created and a Village Saving Scheme was initiated to consolidate cohesion among the community members. This has therefore attracted many more participants in the village who have expressed willingness to aid in the wetland conservation measures being implemented.

Fig. 1.5: Receiver ponds that have been excavated in Mutamba wetland

Integrated Water Resources Management program in Mpanga catchment implemented jointly with PROTOS. The program has implemented a number of IWRM interventions in three model sites of Kayinja, Karambi and Mpanga Falls. The interventions include awareness creation on IWRM, sanitation and hygiene promotion, establishment of soil and water conservation measures, distribution of incentives for conservation of critical ecosystems, construction of WASH facilities among others.

While the three model sites are implementing IWRM interventions agricultural related interventions are the main focus in Karambi model site, since almost all the households there are small scale farmers. In Kayinja a greater percentage of the population practice fishing with little focus on farming. Most of the households in Kayinja entirely depend on fishing for their livelihood and less priority is given to

farming and livestock rearing. However implementation of some soil and water conservation activities has been promoted in Kiyanja. Interventions around the wetland area and Mpanga falls faced resistance due to disagreements in land rights and ownership.

In Karambi wetland the following IWRM interventions were implemented during the reporting period:

- soil and water conservation structures were put up in more than 30 households (over 1.5 km of trenches and 4 percolation pits were constructed)
- trees were, after being raised in a community nursery, planted at household level, mainly along the soil and water structures
- Two institutional EcoSan (ecological sanitation latrine) one for boys and the other for girls and hand washing facility were constructed at Nyakahama Primary School (with enrolment of 503 pupils, of which 267 are girls);
- 4 model households were further developed by the construction of a rainwater harvesting tank, energy saving stove and an EcoSan;
- 2 water points were constructed through manual drilling; where one water point serves 30 households in Nyanza village and the other serves 25 households in Karambi village
- 55 beneficiaries were trained in group dynamics and 8 households practically trained in developing land use management plans implemented at household level;
- Community environmental bylaws were formulated in a participatory way, approved at sub county level and recognised at district level;
- the demarcation zone around the wetland was maintained and strengthened with fig trees that are environmentally friendly to create a clear buffer zone from the cultivation zone;
- 25 households were trained to establish kitchen gardens and 6 households have already established kitchen gardens with a plan and design at household-level.

Fig. 1.6: From left to right: Ecosan toilet in primary school; pupils, discovering Ecosan technology; demarcation of wetland with fig trees

In Kayinja landing the following interventions were implemented:

- A construction manual for a new design of Household (HH) EcoSan was developed. The new design is called “Flower toilets” and a first model was constructed at Protos office as a demo-latrine;
- Flower toilets (household EcoSans) were constructed through some basic principles of social marketing (the beneficiaries paid part of the total amount);
- The CLTS (*Community Led Total Sanitation*)-committee was supported to remained active and post-triggering activities on hygiene and sanitation were done;

- The landing site, together with the surroundings were beautified by planting trees along the roads, by installing 10 (sitting) benches at the landing site and by putting up signposts along the road;
- 4 model households were further developed by the construction of a rainwater harvesting tank, energy saving stove and an EcoSan. They were also given a ceramic filter;
- To reduce erosion up hill, landowners were brought together, a tree nursery was established, with the help of a youth group, trees were planted and trenches were constructed up hill;
- A public EcoSan was constructed, after having consulted the needs of the community and having learned from the experiences from Mahyoro landing site. The community agreed to contribute to the total cost of the EcoSan.

Fig. 1.17: From left to right: construction of model flower ecosan toilet, newly constructed public ecosan at landing site, flower ecosan toilet at HH

Fig. 1.18: From left to right: view on landing site from lake; women posing with their kitchen gardens; fanya chini construction at hills close to the lake

At River Mpanga site the focus was on the sustainable use of the riverbanks. These riverbanks are very steep and under high pressure, and at the same time have high environmental value as they are the habitat of a critical endangered plant, the *Encephelartus Whitelockii,* which is a cycad.

Fig. 1.19: .Pictures of the Mpanga gorge showing cycads near the Hydro power plant and bad land-use practices by landowners

The activities carried out include awareness building for the communities on how to use the river banks and to protect the environment of this fragile ecosystem. These awareness campaigns are being led by community drama groups. In addition to the awareness campaign there is a component of enforcement as the riverbank stretch of 100 m is legally protected and to be considered as a no go zone. In order to enforce this law, community bye laws in local language were made and approved at the Sub County level. Also, in line with national legislation protecting river banks, 8km of the river were demarcated using white concrete pillars where the main population of the plant can be found. The pillars were installed at an interval of 100 metres from the banks. These provide a clear and highly visible marker which helps to enforce the bye laws and to protect the remaining population and the young plants that are being re-planting. The young plants are sourced from 2 community based nurseries that were set up on both riverbanks (which are part of different sub counties, namely Kanaara and Ntara). So far more than 5000 seedlings have been re-planted.

Fig. 1.20: Pictures showing cycads in the community nursery and concrete marker pole for the 100m protection zone from the river bank

b) Semliki catchment

Interventions within Semliki Catchment are being undertaken with an aim of reducing the impacts of flooding in the Nyamwamba-Mubuku Sub-catchment that forms part of the Semliki Catchment and building capacity of water user groups. The interventions that have been carried out include:

- Water Resources User Groups (WRUGs) were trained in River Bank Stabilization and Restoration of Degraded Watersheds in Karusandara is Mubuku-Nyamwamba Sub-catchment. A number of interventions have been carried out and include: soil and water conservation and

planting of woodlot along the degraded watershed. This has led to the strengthening of the WRUGs that had been established earlier by World Wide Fund (WWF) in the area.

-

Fig. 1.21: Bamboo Cuttings for reforestation of bamboo forest with full participation of community members at Kazingo.

Fig.1.22: Collapsing Banks of Nyamwamba

Fig. 1.23: River Bank Demarcation using Bamboo

Annex 10.4 Upper Nile Water Management Zone

Aswa Catchment

In an efforts to implement the draft Upper Aswa catchment management plan a number of interventions have been implemented as follows:

- Micro catchment hot-spot restoration and capacity building initiated in Opejal Parish, Okwang Sub-county of Otuke District.
- In collaboration with International Union for Conservation Of Nature (IUCN), activities to up-scaled the project "Building Drought Resilience (BDR2) through Land and Water Management" have been undertaken in Amuria and Agago Districts. As part of this project the following are being done: Inclusive governance and self-organization over land, water and other assets within the catchment areas improved; integrity, diversity and functioning of natural (ecosystems/ catchments) improved; built (subsurface dams/boreholes) infrastructure rehabilitated, improved and extended; livelihood diversification and market developments

that promote resilience are enhanced; multi-stakeholder engagement, participation, learning and political support to enhance effective resilience supported.

8.6.3.3 Promotion of private sector involvement in water resources management

Promotion of the public –private partnership arrangement in water resources management provides opportunities for leveraging technical and financial resources from the non-traditional sources thus supplementing the resources available from Government and Development Partners to upscale implementation of catchment based water resources management.

During the reporting period the following was realized through private sector involvement:

- Support for water catchment management amounting to USD 10,000 (35 million Uganda Shillings) was received from Hima Cement Limited, 10,000 tree seedlings (in kind support) was got from Tronder Power Limited (now Bugoye Hydro Ltd) and 2 million Uganda shillings was received from Tibet Hima Mining Company Ltd through their Corporate Social Responsibility (CSR) program. The support resulted in the following:
  - planted 53,317 tree seedlings covering an estimated 100 hectares of land
  - constructed 0.8 km contour trenches to support water and soil conservation and improve land productivity in the catchment
  - restored 3km on Semliki river bank
  - trained and strengthened 8 water User Groups (5 in Mubuku-Nyamwamba catchment and 3 in Semliki catchment)
  - three preliminary studies, namely i) Payment for Eco Systems hydrology and agronomic study ii) socio-economic study and iii) economic study for Rwenzori Mountains National Park were undertaken. The studies provide information for developing the PES scheme and engaging the private sector to financially support long-term conservation of the Rwenzori ecosystem
  - based on the economic study for RMNP, an advocacy brief was developed as tool to rally the support of the private sector companies identified within the Rwenzori landscape and beyond
  - Regarding the legal and institutional frameworks, PES provisions have been drafted and incorporated in the National Environment Management Policy (NEMP), National Environment Act (NEA) and Regulations. This is a big milestone incorporating PES in national policy framework
  - developed by-laws for Semliki riverbank management
  - Provision of clean water for domestic use and training on WASH in Rwebisengo and Rweramure Sub-Counties in Semliki catchment
- **IWRM initiatives in Nsambye sub-catchment in Buliisa District:** A stewardship program was initiated in Nsambye sub-catchment involving Total Exploration and Production Oil Company and Buliisa District Local Government. The sub-catchment faces a number of challenges that watershed degradation, institutional weaknesses, lack of awareness and political will in sound environmental management. The most prominent emerging issue in the area, is the possible effects of the petroleum development and production on both the surface and groundwater resources. The stewardship aims to support the community to address these challenges.
- A new partnership arrangement with Kinyara Sugar Limited has been initiated in Kiha sub-catchment in Albert Water Management Zone.

Annex 11. District Sanitation and Hygiene benchmarking, June 2016

			PROCESS		INTERMEDIATE OUTCOME			OUTCOME		
Max			**10**	**10**	**15**	**25**	**15**	**10**	**15**	**100**
Nat'l Target/Avg			**2.5%**	**10,000 UGX**	**01:40**	**77%**	**50%**	**Required**	**Required**	
			>=3% = 10	**Top 10 - 10**	**<=40, 15**	**>70% = 25**	**>=50% = 15**	**>=51 = 10**	**>=51 = 15**	**>=76**
			2% = 5	**11th to 20th - 7**	**41-50 = 10**	**50-69% = 20**	**23-49% = 10**	**21 to 50 = 8**	**21 to 50 = 10**	**51-75**
			1% = 3	**21st to 30th - 3**	**51-60 = 5**	**25-49% = 15**	**10-22% = 5**	**1 to 20 = 5**	**1 to 20 = 5**	**26-50**
			<1% = 0	**>=31 - 0**	**>61 = 0**	**<24% = 0**	**<9% = 0**	**Nil = 0**	**Nil = 0**	**0-25**

#	District	Reporting	Submitting Annual Report	Avg Increase in HH San Cvg (2011-16)	SCORE	Financial Efficiency: Software Cost per HH Toilet	Financial Efficiency Rank	SCORE	Pupil: Latrine Stance Ratio	SCORE	% HH San Cvge	SCORE	% HW Coverage	SCORE	# of ODF villages	SCORE	%age of triggered villages that are	SCORE	GRAND SCORE
1	Abim	1	Yes	4.4	10	17312	19	3	65.0	0	61.0	20		0	59	10	56%	15	**58**
2	Adjumani	1	Yes	-1.3	0	(19449)		0	51.0	5	78.8	25	60.2	15	18	5	50%	10	**60**
3	Agago	1	Yes	7.6	10	1727		0	54.0	5	66.5	20	20.6	5	61	10	86%	15	**65**
4	Alebtong	1	Yes	2.6	5	286560		0	86.0	0	80.5	25	25.0	10	133	10	0%	0	**50**

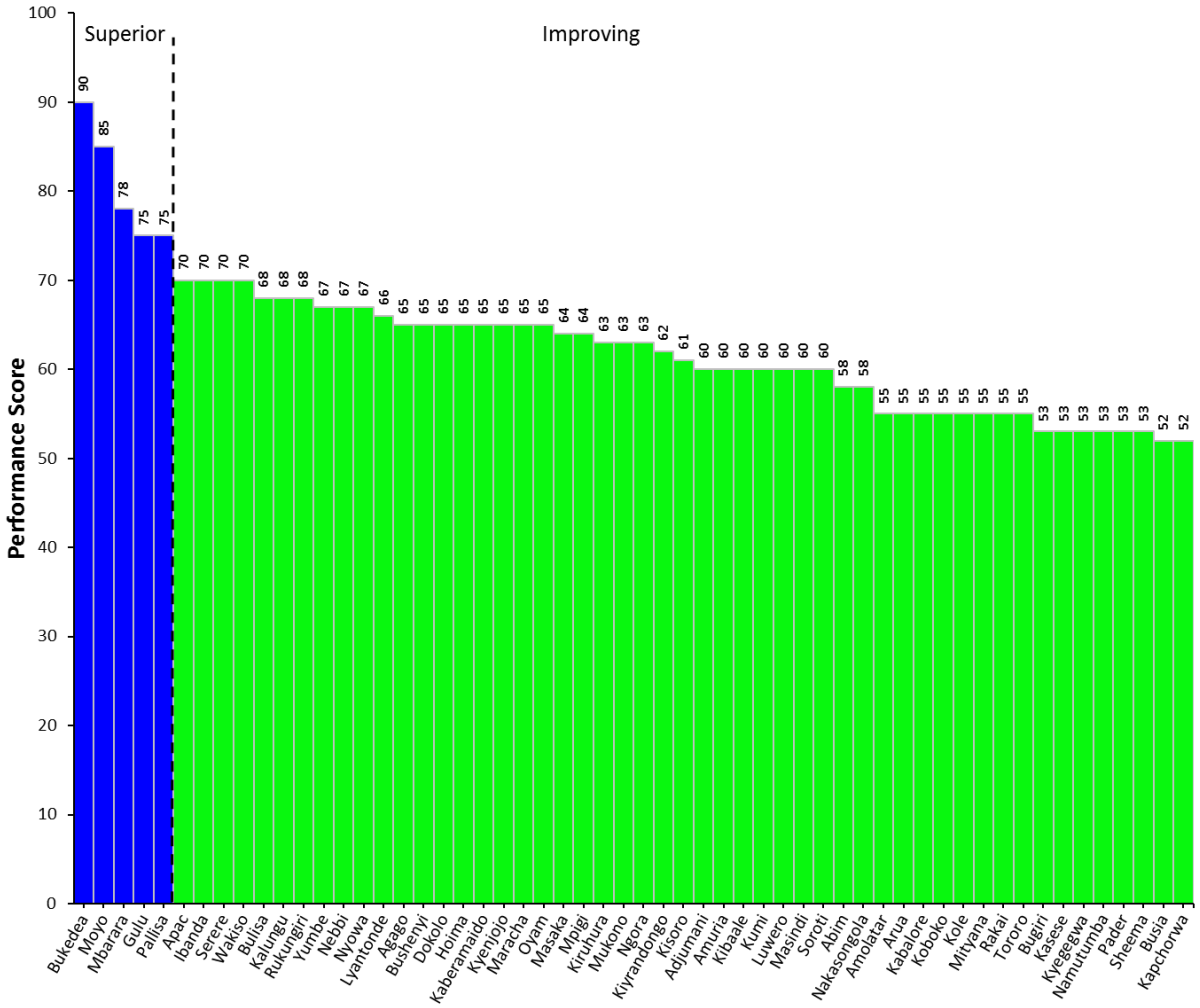
5	Amolatar	1	Yes	2.3	5	36097		0	64.0	0	85.0	25	36.0	10	257	10	21%	5	**55**
6	Amudat	1	Yes	3.4	10	19949	27	3	40.0	15	17.1	0	11.9	5	4	5	17%	5	**43**
7	Amuria	1	Yes	6.2	10	46939		0			84.5	25	55.0	15	268	10	0%	0	**60**
8	Amuru	1	Yes	2.8	5	21286	29	3	58.0	5	72.8	25		0	4	5	0%	0	**43**
9	Apac	1	No	3.6	10	66104		0	86.0	0	80.3	25	30.1	10	74	10	56%	15	**70**
10	Arua	1	Yes	2.7	5	45737		0	110.0	0	73.0	25	35.0	10	20	5	50%	10	**55**
11	Budaka	1	No	-5.0	0	29939		0	50.0	5	66.0	20	33.0	10	0	0	0%	0	**35**
12	Bududa	1	Yes	2.4	5	243655		0	100.0	0	72.0	25	21.0	5	0	0	0%	0	**35**
13	Bugiri	1	Yes	-0.6	0	36827		0			80.5	25	23.3	10	23	8	24%	10	**53**
14	Buhweju	1	Yes	13.2	10	7838		0	43.0	10	87.0	25	18.0	5	0	0	0%	0	**50**
15	Buikwe	0	Yes	2.3	5	18218	21	3			75.0	25		0	0	0	0%	0	**33**
16	Bukedea	1	Yes	4.6	10	83132		0	40.0	15	84.0	25	55.0	15	117	10	69%	15	**90**
17	Bukomansimbi	1	Yes	-1.6	0	(3266)		0	80.0	0	68.8	20	35.0	10	254	10	24%	10	**50**
18	Bukwo	1	Yes	1.0	3	(9774)		0	79.0	0	61.4	20	13.5	5	0	0	0%	0	**28**
19	Bulambuli	1	Yes	1.5	3	80096		0	200.0	0	70.6	25	29.4	10	82	10	0%	0	**48**
20	Buliisa	1	Yes	2.1	5	38264		0	40.0	15	68.0	20	40.0	10	42	8	38%	10	**68**
21	Bundibugyo	0	Yes	0.6	0	28173		0			72.0	25		0	9	5	0%	0	**30**
22	Bushenyi	1	Yes	0.9	0	177603		0	46.0	10	92.6	25	38.8	10	359	10	36%	10	**65**
23	Busia	1	Yes	2.9	5	13194	11	7	52.0	5	88.2	25	46.6	10	0	0	0%	0	**52**
24	Butaleja	1	Yes	-0.4	0	20103	28	3	60.0	5	75.0	25	32.0	10	20	5	0%	0	**48**
25	Butambala	1	Yes	1.8	3	71350		0	78.0	0	68.0	20	47.0	10	7	5	19%	5	**43**
26	Buvuma	1	Yes	4.0	10	30057		0	75.0	0	38.0	15	12.0	5	0	0	0%	0	**30**
27	Buvende	1	Yes	1.4	3	(206045)		0	140.0	0	81.3	25	25.3	10	4	5	0%	0	**43**
28	Dokolo	1	Yes	2.6	5	55560		0	25.0	15	89.0	25	46.0	10	230	10	0%	0	**65**
29	Gomba	1	Yes	0.5	0	83312		0	100.0	0	55.0	20	27.0	10	0	0	0%	0	**30**
30	Gulu	1	Yes	2.7	5	10467	6	10	58.0	5	74.0	25	21.0	5	124	10	67%	15	**75**

31	Hoima	1	Yes	4.1	10	1162		0	100.0	0	91.0	25	40.0	10	16	5	100%	15	**65**
32	Ibanda	1	Yes	-0.3	0	14694	13	7	50.0	5	89.0	25	36.4	10	50	8	83%	15	**70**
33	Iganga	1	Yes	1.6	3	6363		0	82.0	0	76.8	25	23.8	10	2	5	0%	0	**43**
34	Isingiro	1	Yes	3.1	10	5791		0	63.0	0	91.4	25	35.6	10	18	5	0%	0	**50**
35	Jinja	1	Yes	-1.0	0	(5615)		0	154.0	0	75.3	25	16.5	5	0	0	0%	0	**30**
36	Kaabong	1	Yes	1.5	3	51919		0	60.0	5	21.3	0	31.4	10	18	5	13%	5	**28**
37	Kabale	1	Yes	0.3	0	2563		0	56.0	5	96.0	25	23.0	10	8	5	16%	5	**50**
38	Kabarole	1	Yes	-3.0	0	5728		0	80.0	0	83.7	25	52.8	15	14	5	40%	10	**55**
39	Kaberamaido	1	Yes	9.0	10	52348		0	63.0	0	83.0	25	30.0	10	170	10	42%	10	**65**
40	Kalangala	1	Yes	2.8	5	62541		0	39.0	15	69.0	20		0	5	5	0%	0	**45**
41	Kaliro	1	Yes	-1.8	0	8543	1	10	68.0	0	74.2	25	31.6	10	1	5	0%	0	**50**
42	Kalungu	1	Yes	4.5	10	46919		0	64.0	0	92.5	25	51.2	15	34	8	33%	10	**68**
43	Kamuli	1	Yes	-3.2	0	(4719)		0	146.0	0	70.2	25	38.0	10	93	10	14%	5	**50**
44	Kamwenge	1	Yes	1.6	3	6225		0	72.0	0	80.2	25	26.0	10	9	5	15%	5	**48**
45	Kanungu	1	Yes	0.6	0	36193		0	75.0	0	93.0	25	51.0	15	11	5	14%	5	**50**
46	Kapchorwa	1	Yes	3.4	10	15179	15	7			82.4	25	29.4	10	0	0	0%	0	**52**
47	Kasese	1	Yes	1.5	3	6570		0	97.0	0	86.0	25	33.3	10	294	10	15%	5	**53**
48	Katakwi	1	Yes	2.9	5	119661		0	72.0	0	74.6	25	26.3	10	75	10	0%	0	**50**
49	Kayunga	1	Yes	2.4	5	12235	9	10	64.0	0	72.4	25	31.2	10	0	0	0%	0	**50**
50	Kibaale	1	Yes	3.8	10	7613		0			84.0	25	46.0	10	12	5	46%	10	**60**
51	Kiboga	1	Yes	-1.5	0	8854	2	10	45.0	10	60.0	20	10.6	5	0	0	0%	0	**45**
52	Kibuku	1	Yes	3.5	10	106652		0	79.0	0	85.7	25		0	246	10	12%	5	**50**
53	Kiruhura	1	Yes	1.9	3	9198	4	10	48.0	10	91.0	25	45.0	10	6	5	0%	0	**63**
54	Kiryandongo	1	Yes	-1.7	0	19908	26	3	55.0	5	68.2	20	25.0	10	31	8	67%	15	**61**
55	Kisoro	1	Yes	7.0	10	10410	5	10	85.0	0	77.3	25	21.0	5	0	0	0%	0	**50**
56	Kitgum	1	Yes	0.2	0	17202	18	7			59.0	20	24.5	10	52	10	52%	15	**62**

57	Koboko	1	Yes	2.0	5	105163		0	80.0	0	78.0	25	31.2	10	59	10	10%	5	**55**
58	Kole	1	Yes	4.7	10	(67441)		0	62.0	0	78.0	25	43.0	10	56	10	0%	0	**55**
59	Kotido	1	Yes	0.9	0	(11157)		0	40.0	15	8.4	0	0.1	0	13	5	18%	5	**25**
60	Kumi	1	Yes	5.6	10	110873		0	71.0	0	92.0	25	86.0	15	111	10	0%	0	**60**
61	Kween	1	Yes	2.9	5	(113183)		0	50.0	5	80.0	25	19.2	5	0	0	0%	0	**40**
62	Kyankwanzi	1	Yes	-2.6	0	7814		0	68.0	0	59.0	20	15.6	5	8	5	0%	0	**30**
63	Kyegegwa	1	Yes	-2.9	0	(7567)		0	77.0	0	70.9	25	22.0	5	40	8	72%	15	**53**
64	Kyenjojo	1	Yes	2.2	5	6745		0	65.0	0	87.0	25	38.9	10	100	10	91%	15	**65**
65	Lamwo	1	Yes	1.1	3	23325		0	65.0	0	43.6	15	13.9	5	14	5	16%	5	**33**
66	Lira	1	Yes	-0.7	0	199353		0			80.0	25	16.4	5	14	5	19%	5	**40**
67	Luuka	1	Yes	1.7	3	26263		0	117.0	0	65.6	20	31.0	10	2	5	0%	0	**38**
68	Luwero	1	Yes	-2.2	0	3746		0			83.0	25	46.0	10	96	10	54%	15	**60**
69	Lwengo	1	Yes	-4.4	0	55349		0			76.0	25	45.0	10	6	5	30%	10	**50**
70	Lyantonde	1	Yes	0.8	0	21593	30	3			89.0	25	58.0	15	30	8	83%	15	**66**
71	Manafwa	1	Yes	0.1	0	17339	20	7	120.0	0	79.0	25	27.0	10	2	5	0%	0	**47**
72	Maracha	1	Yes	4.8	10	29829		0	110.0	0	82.0	25	45.0	10	264	10	34%	10	**65**
73	Masaka	1	Yes	1.3	3	19451	24	3	57.0	5	84.5	25	33.7	10	39	8	36%	10	**64**
74	Masindi	1	Yes	2.9	5	11502	7	10	58.0	5	79.0	25	35.0	10	4	5	0%	0	**60**
75	Mayuge	1	Yes	1.1	3	8907	3	10	80.0	0	68.0	20	35.0	10	0	0	0%	0	**43**
76	Mbale	1	Yes	8.8	10	(9994)		0	140.0	0	81.0	25	25.0	10	0	0	0%	0	**45**
77	Mbarara	1	Yes	1.1	3	43685		0	34.0	15	98.6	25	48.0	10	443	10	91%	15	**78**
78	Mitooma	1	Yes	2.0	5	32062		0	110.0	0	92.0	25	43.0	10	0	0	0%	0	**40**
79	Mityana	1	Yes	0.1	0	69416		0	62.0	0	87.9	25	34.8	10	55	10	24%	10	**55**
80	Moroto	1	Yes	-1.5	0	476252		0	29.0	15	2.3	0	0.0	0	0	0	0%	0	**15**
81	Moyo	1	Yes	4.0	10	2001712		0	42.0	10	94.0	25	57.0	15	68	10	57%	15	**85**
82	Mpigi	1	Yes	1.5	3	18839	23	3	65.0	0	66.0	20	53.0	15	29	8	64%	15	**64**

83	Mubende	1	Yes	0.4	0	3743		0	71.0	0	83.2	25	20.5	5	89	10	6%	5	**45**
84	Mukono	1	Yes	1.4	3	1589		0	55.0	5	91.0	25	52.0	15	11	5	38%	10	**63**
85	Nakapiripirit	1	Yes	5.9	10	7037		0	70.0	0	31.4	15	7.0	0	1	5	0%	0	**30**
86	Nakaseke	1	Yes	1.0	3	18432	22	3	65.0	0	84.4	25	33.1	10	0	0	0%	0	**41**
87	Nakasongola	1	Yes	1.8	3	32103		0	45.0	10	87.0	25	35.0	10	17	5	19%	5	**58**
88	Namayingo	1	Yes	-2.8	0	3528		0	76.0	0	61.5	20	17.8	5	18	5	0%	0	**30**
89	Namutumba	1	Yes	4.4	10	19490	25	3	60.0	5	84.1	25	23.0	10	0	0	0%	0	**53**
90	Napak	1	Yes	-2.3	0	16644	17	7	54.0	5	22.0	0	5.8	0	4	5	0%	0	**17**
91	Nebbi	1	Yes	0.9	0	16335	16	7	66.0	0	80.0	25	37.0	10	85	10	90%	15	**67**
92	Ngora	1	Yes	1.8	3	119294		0	52.0	5	84.0	25	42.0	10	100	10	29%	10	**63**
93	Ntoroko	1	Yes	4.4	10	211342		0	60.0	5	66.7	20	11.9	5	3	5	12%	5	**50**
94	Ntungamo	1	Yes	-0.3	0	12970	10	10	50.0	5	94.9	25		0	13	5	20%	5	**50**
95	Nwoya	1	Yes	3.2	10	13749	12	7	49.0	10	74.8	25	12.9	5	19	5	19%	5	**67**
96	Otuke	1	Yes	2.8	5	32877		0	77.0	0	66.0	20	14.0	5	9	5	0%	0	**35**
97	Oyam	1	Yes	3.1	10	11899	8	10	60.0	5	89.9	25	29.0	10	20	5	0%	0	**65**
98	Pader	1	Yes	3.2	10	(500014)		0	50.0	5	51.0	20		0	36	8	24%	10	**53**
99	Pallisa	1	Yes	5.2	10	8124		0	60.0	5	87.0	25	36.0	10	236	10	53%	15	**75**
100	Rakai	1	Yes	-0.1	0	(91013)		0	55.0	5	84.0	25	65.0	15	16	5	12%	5	**55**
101	Rubirizi	1	Yes	2.5	5	26594		0	45.0	10	85.4	25	23.8	10	0	0	0%	0	**50**
102	Rukungiri	1	Yes	0.3	0	27748		0	60.0	5	98.9	25	51.1	15	28	8	100%	15	**68**
103	Sembabule	1	Yes	1.2	3	47238		0	67.0	0	70.0	25	16.1	5	8	5	27%	10	**48**
104	Serere	1	Yes	4.3	10	67691		0	70.0	0	85.0	25	53.0	15	163	10	49%	10	**70**
105	Sheema	1	Yes	1.5	3	213755		0	67.0	0	89.0	25	65.0	15	284	10	0%	0	**53**
106	Sironko	1	Yes	-0.8	0	25484		0	90.0	0	77.0	25	35.0	10	0	0	0%	0	**35**
107	Soroti	1	Yes	4.5	10	57069		0	94.0	0	83.2	25	53.9	15	138	10	0%	0	**60**
108	Tororo	1	Yes	2.7	5	58426		0	68.0	0	81.0	25	34.4	10	198	10	13%	5	**55**

109	Wakiso	1	Yes	0.2	0	5511		0	58.0	5	89.7	25	58.0	15	55	10	67%	15	**70**
110	Yumbe	1	Yes	2.4	5	14864	14	7	69.0	0	75.3	25	44.2	10	283	10	51%	10	**67**
111	Zombo	1	Yes	2.6	5	46017		0	84.0	0	80.0	25		0	154	10	0%	0	**40**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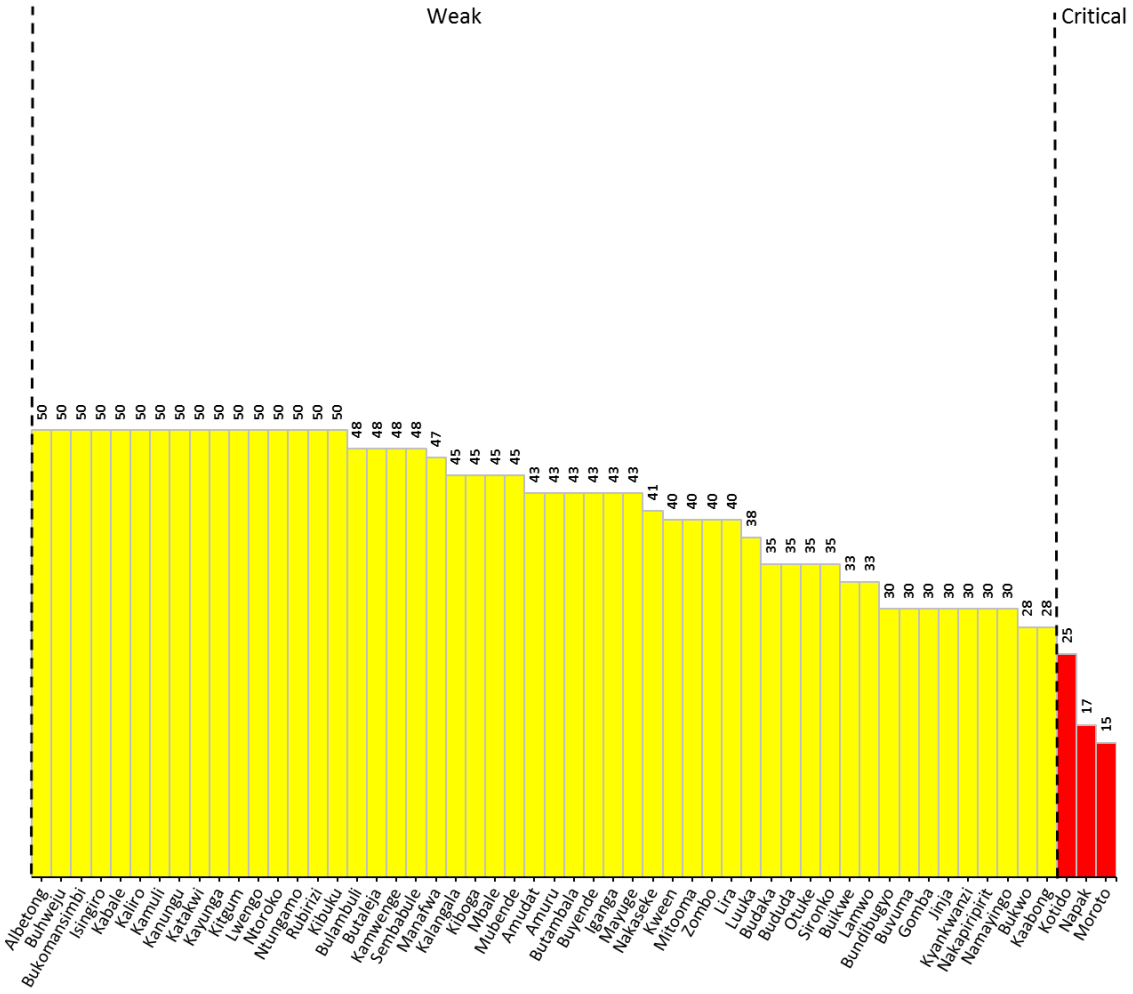
Bukedea Moyo Mbarara Gulu Pallisa Apac Ibanda Serere Wakiso Bulisa Kalungu Rukungiri Yumbe Nebbi Nyowa Lyantonde Agago Bushenyi Dokolo Hoima Kaberamaido Kyenjojo Maracha Oyam Masaka Mpigi Kiruhura Mukono Ngora Kiryandongo Kisoro Adjumani Amuria Kibaale Kumi Luwero Masindi Soroti Abim Nakasongola Amolatar Arua Kabalore Koboko Kole Mityana Rakai Tororo Bugiri Kasese Kyegegwa Namutumba Pader Sheema Busia Kapchorwa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Bukomansimbi
Isingiro
Kabale
Kaliro
Kamuli
Kanungu
Katakwi
Kayunga
Kitgum
Lwengo
Ntoroko
Ntungamo
Rubirizi
Kibuku
Bulambuli
Butaleja
Kamwenge
Sembabule
Manafwa
Kalangala
Kiboga
Mbale
Mubende
Amudat
Amuru
Butambala
Buyende
Iganga
Mayuge
Nakaseke
Kween
Mitooma
Zombo
Lira
Luuka
Budaka
Bududa
Otuke
Sironko
Bulkwe
Lamwo
Bundibugyo
Buvuma
Gomba
Jinja
Kyankwanzi
Nakapiripirit
Namayingo
Bukwo
Kaabong
Kotido
Napak
Moroto

Annex 12. Performance of District Forestry Services FY2015/16

No.	District	No of seedlings planted	Approx. area planted	Survival %	Area of LFR Planted/restored	Area of CFR planted / restored	No of farmers trained in forestry	No. of farmers monitored	No. of people trained in efficient energy technologies	No. of patrols / inspections conducted	Revenue from regulation of trade in forest products [mn UGX]	Length of forest boundary opened, maintained & managed/demarcated	Length of road planted with trees	No. of timber traders licensed	No.of radio talk shows participated in	Nursery supported and size	Sources of funds
1	Rubirizi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Masindi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Amolatar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	Arua	490,000	814	75	10	0	1,050	1,935	650	96	11	6	0	0	50	1 Nursery raised 2200,000 seedlings	UNHCR, PRDP,DRC /DAR. Alliance One, LTC
5	Budaka	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Bugiri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Buikwe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	Bukwo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	Bulambuli	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	Busia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	Ibanda	106,487	96	0.75	0	10	100	56	56	16	5.4	3	2	0	0	10(1ha)	Local revenue
12	Kaberamaido	3000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Masaka	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

No.	District	No of seedlings planted	Approx. area planted	Survival %	Area of LFR Planted/restored	Area of CFR planted / restored	No of farmers trained in forestry	No. of farmers monitored	No. of people trained in efficient energy technologies	No. of patrols / inspections conducted	Revenue from regulation of trade in forest products [mn UGX]	Length of forest boundary opened, maintained & managed/demarcated	Length of road planted with trees	No. of timber traders licensed	No.of radio talk shows participated in	Nursery supported and size	Sources of funds
14	Moyo	15,420	24.1	90	2	0	1420	70	140	365	30	2.4	1.5	0	12	3 (50 x 50 m)	PRDP, UC, LR
15	Kabale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	Tororo	94,000	61	0	50	0	0	0	0	0	0	0	0	0	0	0	PRDP
17	Kabarole	0	0	0	0	0	235	26	0	4	9	0	0	109	26	0	Local Revenue (District)
18	Kibuku	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	Mayuge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	Yumbe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	Bushenyi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	Kween	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	Pallisa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	Oyam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
25	Adjumani	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	Mbale	0	0	0	19	0	64	54	0	0	0	0	0	0	8	0	LR,WB,FAO(WWF), Welsh Assembly(Mbale CAP)
27	Bundibugyo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

No.	District	No of seedlings planted	Approx. area planted	Survival %	Area of LFR Planted/restored	Area of CFR planted / restored	No of farmers trained in forestry	No. of farmers monitored	No. of people trained in efficient energy technologies	No. of patrols / inspections conducted	Revenue from regulation of trade in forest products [mn UGX]	Length of forest boundary opened, maintained & managed/demarcated	Length of road planted with trees	No. of timber traders licensed	No.of radio talk shows participated in	Nursery supported and size	Sources of funds
28	Butaleja	286,000	15	70	0	0	120	42	20	48	2.5	0	8	0	0	3,10 sqm	LR/ WORLD VISION
29	Kaliro	40,000	60	60	0.7	0	120	50	0	10	2	0	0	0	0	5 each of 30,000 seedlings per season	LGMSD, PAF wetlands,
30	Kamwenge	120,000	65	80	0	0	4000	3000	35	48	2	0	0	0	12	15	Local revenue
31	Kasese	192000	150	50	5	0	121	33	230	12	10	0	2	0	3	1	Local Revenue & Developm ent partners
32	Nakasongola	0	0	0	0	0	120	0	0	0	55	0	0	0	6	0	Local revenue
33	Kiryandongo	400,000	300	60	0	0	100	70	0	0	74	0	13	0	12	2 Nursery Beds (25 x 25ft)	MEMD (Green Charcoal Project)
34	Kisoro	57,756	52	30	0	0	0	0	140	4	0	0	0.5	0	2	1 (2.5 square metres)	WWF, LG Managem ent Support for Dev't

No.	District	No of seedlings planted	Approx. area planted	Survival %	Area of LFR Planted/restored	Area of CFR planted / restored	No of farmers trained in forestry	No. of farmers monitored	No. of people trained in efficient energy technologies	No. of patrols / inspections conducted	Revenue from regulation of trade in forest products [mn UGX]	Length of forest boundary opened, maintained & managed/demarcated	Length of road planted with trees	No. of timber traders licensed	No.of radio talk shows participated in	Nursery supported and size	Sources of funds
35	Lyantonde	100000	40	70	15	17	200	100	100	5	3	10	43	0	0	1(50,000 seedlings per season)	CAIIP,LGM SDP,Envt
36	Mbarara	16000	6.4	90	0	0	0	0	0	0	0	0	0	0	0	0,04ha	local revenue
37	Mityana	22,820	91.3	60	0	0	80	80	12	36	12	0	20	0	0	Grevellea robusta at spacing of 4 x 4 m	The tree planting was funded by LGDPII
38	Rukungiri	100000	23	80	0	0	500	150	0	0	0	0	0	0	1	1	DLG
39	Wakiso	73,545	29	70	78	0	160	40	200+	15	6,120,00	47m	0	3	1	1- 400sq.m	LGMSD, UCG, L/R
40	Zombo	3,000	3	70	0	156	40	0	287	20	10.318	0	0	1	0	2	Unconditional grant and LGMSDP
	Total	**2,120,028**	**1,830**		**180**	**183**	**8,430**	**5,706**	**1,670**	**679**	**226**	**21**	**90**	**113**	**133**		

Annex 13. Investments by CSOs in Water and Sanitation in FY2015/16

Name of NGO	Districts	Expenditure (UGX)
Abarilela Community Development Organization		
Action Africa Help (AAH)		
Action Against Hunger (ACF- International)		
Action Against Hunger (ACF)		
Action for Rural Women's Empowerment (ARUWE)		
Action For Slum Health And Development		
Action Line For Development (ALFOD)		
African Agency for Integrated Development (AAID)		
African Evangelistic Enterprise Uganda (AEE-U)		
African Medical and Research Foundation (AMREF)		
African Community Technical Service		
AFRICARE		
Agency For Accelerated Regional Development (AFARD)		
Agency For Capacity Development		
Agency For Community And Development Welfare		
Agency for Cooperation and Research in Development (ACORD)		
Agency For Integrated Rural Development (AFIRD)		
Agency For Integrated Rural Development		
All Nation Children's Care		
Alliance For Youth Achievement		

Name of NGO	Districts	Expenditure (UGX)
Allied Support For Rural Empowerment And Development(ASURED)		
AMREF Health Africa		
Ankole Diocese		
Apac Town Community Association	Apac	2,395,000
Appropriate Revival Initiative for Strategic Empowerment (ARISE)	Ntungamo	4,930,014
Aqua Fund	Gulu, Nwoya, Amuru	326,700,000
Appropriate Revival Initiative for Strategic Empowerment (ARISE)		
Aquafund International (U) LTD		
Arbeiter-Samariter Bund (ASB)		
Arua Rural Community Development (ARCOD)		
Association For Social Economic Development		
Associations of Uganda Professional Women in Agriculture and Environment (AUPWAE)		
AVSI FOUNDATION		
Ayivu Youth Effort For Development		
Brick by Brick Uganda	Masaka, Rakai	24,794,000
Buganda Cultural And Development Foundation (BUCADEF)		
Build Africa Uganda		
Bukedea Development Foundation		
Buso Foundation		
Busoga Trust		

Name of NGO	Districts	Expenditure (UGX)
Busoga volunteers for community development (Buvocod)		
Butakoola Village Association for Development (BUVAD)	Kayunga	11,188,000
Buvuma Islands LV & Community Protection Association (BULVECPA)		
Bwindi Mgahinga Conservation Trust(BMCT)		
Canadian Physicians For Aid And Relief (CPAR)		
Care International		
Care International –Lira		
Caritas Arua Diocese		
CARITAS Gulu diocese		
Caritas Kiyinda Mityana		
CARITAS Mbarara		
CARITAS Mityana SDD		
CARITAS Nebbi		
Caritas Kasanaensis	Luwero, Nakasongola, Nakaseke	182,000,040
Caritas Kasese	Kasese	256,820,000
CARITAS LIRA		9,750,000
CARITAS Masaka Diocesan Development Organisation (MADDO)	Masaka, Rakai, Bukomansimbi, Kalungu, Lwengo	183,400,000
Christ The King Health Support care center for the needy	Buikwe	20,350,015
Christian Engineers in Development (CED)	Kabale, Kanungu, Rukungiri, Ntungamo, Kiruhura, Kasese, Mityana, Gulu	852,504,423
Christian Women and Youth (CWAY) Development Alliance	Sironko, Mbale, Manafa and Bududa	1,258,000
Church of Uganda Teso Dioceses Planning and Development Office (COU-TEDDO)	Soroti, Amuria, Katakwi,, Kaberamaido, Serere, Ngora, Kumi, Bukedea	46,243,000

Name of NGO	Districts	Expenditure (UGX)
Centre for Governance and Economic Development (CEGED)		
CESVI		
CESVI UGANDA (Kaabong Field Office)		
Children Vision Uganda (CVU)		
Christian Children Fund		
Church Of Uganda -Karamoja Dioceses Development Alliance		
Ciforo Women's Association		
Clear Water Initiative		
Community Based Options for Social Welfare Responses (Open Palm COWESER)		
Community Development Action		
Community Efforts For Child Empowerment(CECE)		
Community Based Health Care Programme		
Community Empowerment for Rural Development (CEFORD)		
Community Health Concern		
Community Initiative for the empowerment of vulnerable people (CIFOVUP)		
Community Integrated Development Initiatives(CIDI)		
Community Shelters Uganda (CSU)		
Compassion international		

Name of NGO	Districts	Expenditure (UGX)
Conservation And Development Of Peoples Initiative (CODEP)		
Conservation Effort For Community Development (CECOD)		
Community Based Options For Social Welfare Responses (OPEN PALM COWESER)		16,284,000
Community Development Action		
Community Efforts For Child Empowerment(CECE)		
Community Based Health Care Programme		
Community Empowerment for Rural Development (CEFORD)		
Community Health Concern		
Community Initiative for the empowerment of vulnerable people (CIFOVUP)		
Community Integrated Development Initiatives (CIDI)		622,185,087
Community Shelters Uganda (CSU)		
Concern Worldwide		1,500,601,503
Conservation And Development Of Peoples Initiative (CODEP)		
Conservation Effort For Community Development (CECOD)		
Cooperaziona Internazionale		
Development Foundation For Rural Areas (DEFORA)	Kyenjojo, Kabarole, Kamwenge, Kyegegwa, Ntoroko	46,319,200
Divine Waters Uganda	Lira, Alebtong	497,300,140
Drop In The Bucket	Amuria, Bukedea, Kaberamaido, Katakwi, Kumi, Ngora, Serere and Soroti	1,063,628,000
Ecological Christian Organisation		

Name of NGO	Districts	Expenditure (UGX)
Efforts Integrated Development Foundation		
Emesco Development Foundation	Kibaale, Kakumiro, Kagadi	658,791,402
Environmental Teachers Association (ENVITA)		
Environmental Alert	Kampala	407,063,392
Evidence Action	Tororo	1,058,610,000
Fairland Foundation		
Faith Action Development Organisation Teso (FADO-T)		
FARD		
Faith Based Efforts Integrated Development Foundation		
FIRD Kotido		
Fontes Foundation Uganda	Gulu, Kitgum, Agago	72,500,005
Foundation for Rural Development (FORUD)		
Former Seminarians Initiative for Development (FOSID)	Ajia, Bileafe, Katrini and Rhino Camp	-
Gabula Attude Women's Group		
General Relief Services (GERES)		48,300,045
Gisoro Twibuke Association (GTA)		
Global Aim	Adjumani, Moyo	750,000
GOAL UGANDA	Bugiri, Namayingo, Agago, Abim, Kaabong	1,260,340,000
Good Hope Foundation For Rural Development		
Good Samaritan Community Development Programme (GOSAP)	Kisoro	34,060,010
Grassland Foundation		
Health Counterpart International (HCI)		

Name of NGO	Districts	Expenditure (UGX)
Healthy Environment For All (HEFA)		
Health Through Water and Sanitation(HEWESA)Program, DSSD Caritas for Fort Portal		232,460,344
Hope for Orphan (HOFO)		
Hope for youth		
HORIZONT3OOO		
HOW Uganda		
Institute For International Cooperation And Development		
Integrated Family Care Support Uganda (IFACASU)		
Integrated Family Development Initiatives (IFDI)		
Integrated Health And Development Organization		
Integrated Rural Development Initiative		
International Aid Services (IAS)	Pader, Agago, Abim, Arua	124,374,035
International Institute of Rural Reconstruction (IIRR)		173,400,000
International Lifeline Fund (ILF)	Apac Amuru, Lira	386,750,120
IRC International Water and Sanitation Centre	Kabarole and Lira	211,000,000
International Rescue Committee		
IsraAID Uganda	Gulu, Lamwo, Alebtong, Lira, Oyam	122,410,519
J.O.Y Drilling Deliverance Church Uganda		27,300,052
Joint Efforts to Save the Environment (JESE)	Kabarole, Kyenjojo, Kyemwenge, Kyegegwa, Mubenda, Buliisa, Ntoroko	505,865,662
Jinja Area Communities Federation(JIACOFE)	Jinja, Kamuli, Mayuge	4,903,750
Kagadi Women And Development Association (KWDA)		
Kagando Rural Development Centre (KARUDEC)	Rubirizi, Kasese	10,570,040

Name of NGO	Districts	Expenditure (UGX)
Kamuli Community Development Foundation	Kamuli, Kaliro, Mayuge, Jinja	159,836,030
Kampala Area Federation of Communities With Funding From Child Fund International		
Kamwokya Community Health And Environmental Association (KACHERA)		
Kaproron PHC Programme	Kween	-
Karambi Action for Life Improvement	Kasese, Kamwenge	60,000,000
Katosi Women Development Trust	Mukono	89,030,809
Karamoja Agro-pastoral Development programme		
Karamoja Dioceses Development Services		
Kasanga PHC/CBHC		
Kibaale Youth and Women Development Agency		
Kibuka Rural development Initiative		
Kigezi Diocese Water and Sanitation Programme	Kabale.	1,383,252,767
Kinkiizi Diocese Integrated Rural Development Programme		
Kirinda Youth Environment Management and Poverty Alleviation Program Uganda-KYEMPAPU		143,590,000
Kisenyi Community Health Workers Association (KICHWA)		
Kisomoro Tweyombeke Farmers Association		
Kitovu Mobile AIDS Program	Masaka, Kalungu, Bukomansimbi, Rakai, Lwengo, Lyantonde, Sembabule	39,450,008
Kokwech Agro Based Youth Project (KABYP)		
Knowledge Support and Research Centre (KSRC)	Tororo	6,480,000
Kumi Human Rights Initiative(KHRI)	Kumi, Bukedea, Ngora	-

Name of NGO	Districts	Expenditure (UGX)
Kyosiga Community Christian Association for Development	Wakiso, Gomba	5,800,000
Kokwech Agro Based Youth Project		
Kumi Human Rights Initiative		
Kyakulumbye Development Foundation		
Kyera Farm Training Centre		
Kyetume Community Based Health Care Programme (KCBHCP)		
Lango Child and Community Development Federation		100,450,000
Living water International Uganda		
Lodoi Development Fund		
Lutheran World Federation, Katakwi Sub Program		
LifeWater International	Kaliro	12,168,500
Link To Progress (LTP)	Amuria, Alebtong, Lira, Kole, Apac, Oyam, Pader	553,234,210
Literacy Action and Development Agency (LADA)	Rukungiri, Kanungu, Kabale, Mitooma	28,660,015
Livelihood Improvement Programme of Uganda (LIPRO UGANDA)	Bushenyi, Sheema, Mitooma, Rubirizi, Mbarara, Isingiro	269,000,012
Maganjo Farmers Association	Luwero, Wakiso, Kampala	72,763,000
Makondo Health Centre		
Mariam Foundation Centre		
Mbale Area Federation of Communities		
Mbarara District Farmers Association		
Medical Assistance Programme (MAP)		

Name of NGO	Districts	Expenditure (UGX)
Medicins Sans Frontieres Holland (MSF-H)		
Mission For Water		
Mt Elgon Christian Development Foundation (MECDEF)		
Mpolyabigere RC		
Mubende Rural Development Association		
Mukono Multipurpose Youth Organisation(MUMYO)		
Map International Uganda Country Office Wash Alliance and Joac Projects	Kotido	454,673,605
Masindi Child Development Federation	Kiryandongo, Masindi	205,288,157
Masiyompo Elgon Movement for Integral Development		1,740,000
Mbarara District Farmers Association (MBADIFA)	Mbarara	34,400,000
Multi-community Based Development Initiative Ltd (MUCOBADI)		91,486,500
MUMYO		4,152,000
Nagongera Youth Development Programme (NAYODEP)	Tororo	7,690,000
National Association for Women's Action in Development		
National Association of Professional Environmentalists (NAPE)		
Nature For Life Conservation Initiatives(NALCO)		
Ndeeba Parish Youth Association (NPYA)		
Needy kids Uganda		
Network For Holistic Community Development (NEFHCOD)		

Name of NGO	Districts	Expenditure (UGX)
Network for Water and Sanitation (NETWAS) Uganda	Nebbi, Kampala, Kamwenge, Kabarole, Mayuge, Mpigi, Ntungamo, Lira, Gulu, Luwero, Kamuli, Tororo	129,851,000
Ngonge Development Foundation (NDF)	Kapchorwa, Kween, Bukwo	17,932,280
Noah's Ark Children's Ministry (NACMU)		
North Ankole Diocese Rainwater Harvest (NADS)		
North Kigezi and Kinkiizi Diocese Water and Sanitation Programme	Rukungiri, Kanungu	398,435,945
Nutricare International		37,414,123
Off To Mission		
Open Palm COWESER		
Organisation For Development and Sociality	Amuria, Soroti	21,860,000
Orungo Integrated Development Organisation(OIDO)		
Oxfam GB-Uganda		
PAG-Soroti Mission Development Department		
Paidha Water And Sanitation Association		
Pakele Women's Association		
Pakwach Development Forum		
Pamo Volunteers		
Partners for Community Health and Development Organization (PACHEDO)		76,620,022
Pentecostal Assemblies of God-Planning and Development Secretariat Kumi(PAG-PDS Kumi)		28,101,011
PICOT		1,024,000
Plan International Uganda		1,058,007,180
Participatory Rural Development Organisation (PRDO)		

Name of NGO	Districts	Expenditure (UGX)
Programme For Accessible Health, Communication And Education (PACE-formerly PSI Uganda)		
Protos-Uganda		
Rakai Counsellors' Association (RACA)		
Rakai-CBHP		
Relief International Uganda		
Reach The Unreached Ministry	Wakiso	226,850,000
Rotary Club Of Kalisizo		110,516,542
Rotary Club Of Masaka		105,370,000
Rural Gender And Development Association		
Rukungiri Women Integrated Development Foundation	Rukungiri, Mitooma	182,700,000
Rural Community Strategy For Development (RUCOSDE)		
Rural Country Development Organization		
Rural Country Integrated Development Association (RUCIDA)		
Rural Health Care Foundation Uganda		240,800,039
Rural Initiative for Community Empowerment (RICE)	Koboko, Maracha	43,263,229
Rural Welfare Improvement For Development (RWIDE)		
Rwenzori African Development Foundation	Kasese, Bundibugyo	5,000,020
Save the Vulnerable And Orphaned Children Initiative	Bugiri	1,650,005
Rwenzori African Development Foundation		
Rwenzori Youth Concern Association (RYCA)		
Safe Water Works Association (SAWA)		
Safer World International		

Name of NGO	Districts	Expenditure (UGX)
Samaritan's International Relief		
Samaritan's Purse International Relief		
Save the Vulnerable and Orphaned Children Initiative		
SHUUKU Development Foundation	Sheema	58,445,015
Sigulu Women AIDS Awareness Organization (SIWAAO)	Namayingo	875,000
SNV	Arua, Nebbi, Moyo Maracha, Koboko, Yumbe, Zombo, Kyenjojo, Kibaale, Kabarole, Kasese, Bundibugyo, Kamwenge, Lira, Alebtong, Dokolo, Apac, Mubende, Kyegegwa	497,772,350
Sole Integrated Development Organisation (SIDO)		
Soroti Catholic Diocese Integrated Development Organisation(SOCADIDO)	Amuria,Katakwi,Ngora,Kaberamaido,Soroti,Serere,Kumi	306,932,225
Sule Integrated Development Organisation (SIDO)	Tororo	1,899,654,000
Sustainable Sanitation and Water Renewal Systems (SSWARS)		
Temele Development Organisation(TEMEDO)	Amuria and Soroti	120,720,000
Teso Environmental Sanitation And Hygiene Improvement Initiative		
The Environment And Community Development Organization		
Toro Development Agency (Kabarole)		
The Busoga Trust	Nakaseke, Nakasongola, Luwero, Mpigi, Kamuli, Kaliro, Iganga, Namutumba, Luuka, Bugiri and Mayuge	615,901,900
Tororo District NGO Forum (TONGOF)		
Two Wings Agro-forestry Network (TWAN)		

Name of NGO	Districts	Expenditure (UGX)
Uganda Association For Social Economic Progress(USEP)	Buikwe	4,191,500
Uganda Cooperative Consultancy Firm		
Uganda Domestic Sanitation Services (UGDOSS)		
Uganda Environmental Education Foundation		
Uganda Japan Association (UJA)		
Uganda Muslim Rural Development Association (AMURDA)	Bugiri, Namayingo, Iganga, Busia, Tororo, Mbale, Manafwa, Bududa, Sironko, Butaleja, Kubuku, Pallisa, Bukwo, Kween, Kapchorwa	1,054,371,144
Uganda Rainwater Association (URWA)		19,500,000
Uganda Red Cross Society		
Uganda Rural Development and Training Programme		153,000,000
Uganda Society Of Hidden Talents		
UMREF		
Union of Community Development Volunteers		321,370,600
UWESO Masaka/Rakai		
Voluntary Action For Development	Wakiso in Central and Amuria in North Eastern region	1,204,530,000
Water Aid Uganda		5,686,161,790
Water For People		2,889,331,035
Water For Production Relief		
Water Mission Uganda	Adjumani, Arua, Nebbi, Kiryandongo, Mayuge, Jinja, Iganga, Luuka, Kamuli, Buyende, Namayingo, Buikwe, Mukono, Kamwenge and Sironko	2,218,184,318
Water School Uganda		
Welthungerhilfe (Moroto & Napak)	Moroto, Nakapiripirit, Napak	248,594,000

Name of NGO	Districts	Expenditure (UGX)
Welthungerhilfe (Nakapiripirit)	Nakapiripirit	331,701,500
Welthungerhilfe (West Nile)	Adjumani, Arua	546,516,782
Wera Development Agency(WEDA)	Amuria, Katakwi, Kibuku, Pallisa	133,204,060
Whave Solutions Ltd-Karamoja	Kaabong, Kotido	48,516,824
Whave Solutions ltd	Luuka, Iganga, Kamuli, Nakaseke, Mayuge	403
Women Alliance And Children Affairs(WAACHA)	Kaliro	-
World Vision	Gulu, Amuru, Kitgum, Pader, Agago, Oyam and Kole	357,338,000
World Vision		5,047,029,960
YES Busia		
Youth Alive		
Youth Development Organisation (YODEO)		
Youth Environment Service (YES) Busia	Kasese	23,120,020
Youth Initiative For Development Association (YIFODA)		
Youth Social Work Association Uganda (YSA)		
ZOA Uganda		
Total		**44,406,988,412**

Key to colours

No report submitted for FY 2015/16

Report submitted for FY 2015/16

Annex 14. ENR CSO Recommendations to address sub-sector challenges

Thematic Area	Challenges	Recommendations
Forestry	• Preference for exotic, fast growing species. • Dwindling sources of tree seed for tree nursery establishment and seedlings raising especially for indigenous trees. • Forest tenure issues, illegal logging, charcoal and unclear boundaries of CFRs • Increased level of involvement of forest resources managers in illegal activities. • Land uptake by the Southern By-pass, oil pipeline and the Standard Gauge Railway that are designed to go through CFRs (Kajjansi and Mabira CFR). • Fresh controversial claims by Bunyoro Kingdom over forest reserves located within Bunyoro (claiming the right to manage these reserves).	• The national tree seed centre needs to lobby government for increase in funds • The FSSD, DFS and NFA need to fast track work on demarcation of forest boundaries to reduce level of illegalities in forest reserves. • Increase support to strengthen and fast track implementation of CFM arrangements. • Proper planning that takes consideration of ecosystem values enshrined in the areas to be taken up for development. • NFA needs to insist on its mandate to maintain a permanent forest estate as opposed to creating avenues within the law that paves way for degazettement of the reserves in Bunyoro.
Wetlands	• Complicated land tenure system where some people still claim to own land in wetlands • Increased agricultural encroachment on wetlands • High investment influx by foreigners on these areas considered marginal land	• Government should find a lasting solution to land titles located in wetlands • Environment Impact Assessments should be strongly emphasized before carrying out activities in wetlands. • It is critical that GoU undertakes a study leading to valuation of wetlands and engages the communities to understand the commensurate importance.
Environment	• Low level of government investment in the sector which compromises the state mandate to manage the environment sustainably. • Low penalties for encroachment • Increased levels of development and investment that have a toll on the non-green environment • Few districts in Uganda, save for those in the Albertine region, have operation Environment Action Plans (DEAPs)	• Government should develop and investment guideline to guide developers on environment and natural resources concerns. • The Uganda Investment Authority needs to review investment licenses for foreign investors to reflect environment and social mitigation measures. • Review the institutional arrangement for environmental police to streamline irregularities relating to their engagement in illegalities. • NEMA should support DLGs to update DEAPs and find resources for implementation of priorities
Weather, Climate and	• Lack of information and data on accessible and readily available weather data	• GoU and therefore UNMA should ensure accurate and frequent release of information on weather and

Thematic Area	Challenges	Recommendations
Climate Change	• Low levels of agricultural productivity and crop survival due to climate change impacts (Harsh weather conditions, long dry spells and torrential rains) • Lack of capacity, equipment and tools for early warning systems of potential weather related to catastrophes.	climate changes issues and concerns need to be mainstreamed in district development planning process and find commensurate funding
Governance	• There is lack of guidelines to investors on how to address environmental issues in the era of increased development. • There is a decline in enforce of environmental laws even with increasing number of personnel in the environmental police. • DLGs have new leaders that have limited appreciation of legal and policy issues related to environment and natural resources.	• GoU should develop a guide to protect sovereign interests in environment and biodiversity from chauvinistic investors. • Government of Uganda should revisit the composition of the Environment Police for purposes of weeding out irregularities.

Annex 15. Good governance

Annex 15.1 Revised allocation formula for DWSDCG in 2012

In order to ensure equity between districts and within districts, the allocations are made basing on:

- sub-county safe water coverage (as at June 2009),
- Population of the sub-county (and thus the un served population)
- Projected population by 2012
- Average Investment Cost in the district over the last 3 financial years (taking care of the technology mix into consideration) to determine the amount of money required to serve the un-served in a particular district.
- Resources required to raise the sub-counties whose coverages (by June 2009) are below the national average to the catch up to national average by 2012 [A district with more sub-counties with coverages lower than the national coverage is allocated more funds, proportionately, than a district with less or no sub-counties below the national coverage].
- Old districts do not go below a minimum of UGX 300,000,000 (given the overheads involved).

The annual district allocation formula therefore can be stated as follows:

Da = Dmin + 1/5∑1 ADPCC[(SC1P2012 x NSWCV2009 – SC1CV2009 x SC1P2009) + ….. + (SCnP2012 x NSWCV2009 – SCnCV2009 x SCnP2009)]

Where:

Dmin	=	*District basic minimum allocation to cover the cost of office operations, overheads, operation and maintenance follow up, and some basic minimum new investments.*
ADPCC	=	*Average district per capita cost for delivery of water and sanitation services (averaged over the last 3 years from sector performance analysis)*
SC1P2012	=	*Sub-County population in June 2012*
NSWCV2009	=	*National safe water coverage as at June 2009 analysed from District Water and Sanitation Conditional Grants (DWSCG) allocations to districts*
SC1CV2009	=	*Sub-County safe water Coverage at as June 2009*
SC1P2009	=	*Sub-County population as at June 2009*
1	=	*Sub-county number one*
n	=	*Nth Sub-county*

Note: Only sub-counties whose safe water coverage is below the National Safe water Coverage are allocated funds by the above formula. Sub-counties whose coverages are above the national average are allocated zero funds.

Note: Maximum district allocation was capped at UGX 400,000,000. Since the funds available would go to only few districts, the maximum one can get from the above was capped. This was to up hold the principle for “some for all not all for some” the balance was allocated to the rest sharing proportionally. Giving a minimum to each district as UGX 213,689,949

Therefore, a district total would be the amount allocated to the sub counties in that district below the national average plus the basic minimum shared equally by all districts.

Annex 15.2 Grant Allocation Formula by MoFPED

The proposed grant allocation variables are outlined in the table below. These are different for the two vote functions in recognition of the very different objectives they serve.

For the Water Supply and Sanitation Vote Function, the proposed water variables and weightings for use in the allocation formula are:

Variable	Weighting			Justification
	RWS NW	NRM NW	Devt.	
Fixed Allocation	82	0	30	To cover the fixed costs of a District Water Office and ensure a minimum investment allocation for each local government.
Rural Served Population	0	0	20	To cover the operation, maintenance and rehabilitation of existing water supplies
Rural Unserved Population for SCs with Coverage below 77 percent capped at 50,000	0	0	45	This adds weight to the most under-served areas within a local government, to target funding to areas which are most lagging behind the sector target. The figures are capped, to limit the total availability of funding to LGs and ensure absorption of funds.
Estimated Cost of Providing Water Per Capita	0	0	5	The cost of delivering water facilities varies greatly across the country due to geographical and other factors. This indicator compensates for these variations.
Land Area	10	5	0	Land area is considered a proxy for the scale of natural resources management activities
Population in Hard to Reach Hard to Stay Areas	3	2	0	Those areas which are hard to reach are more costly to deliver services and therefore are given priority.
Rural Population	5	83	0	Indicator of scale of rural water and sanitation services required. Similarly for the environment sector. The higher the population the more people requiring services.
Poverty Headcount	0	10	0	This is used as a proxy for need for natural resource management services, targeting allocations on the poorest areas.

Allocations under the **support services grant** would remain ad-hoc, and not formula based. The support services grant is current comprised of:

Item	Allocation Basis
o/w Support Services Non-Wage Recurrent - Urban Water	2015/16 allocations
o/w Transitional Development - Sanitation	2015/16 allocations

The above formulae will be phased in over the medium term. This formula itself and the **medium term allocations and phase in plan** for the allocation formulae is available on the budget website: www.budget.go.ug/fiscal_transfers. An individual local government's allocation can also be found on the site.

Annex 15.3 List of Proposed Governance Indicators

	SDG Target + Indicator	GG Process	Good Governance Indicator	Report Name	Data provider
1	**Indicator 6.1.1:**	*Management of water schemes and oversight by water boards*	** % of water service providers that provide Public Stand Pipes where the tariff is less than or equal to the home connection tariff*	UPMIS	WURD/ NWSC
2	**Indicator 6.b.1:**	*Community Participation*	** % of catchments that have Catchment Management Plans*	WRPR Report	DWRM
3			** % of CSOs that plan jointly with the Districts.* ** % of districts that engage CSOs in the budget conference.*	UWASNET /Districts Report	UWASNET RWSD
4	***Indicator 16.6.2:***	*Consumer protection*	** For small towns: % of written customer complaints responded to in time*	*UPMIS*	*WURD*
5			** For NWSC served areas: Level of satisfaction with the time [NWSC takes] to respond to or resolve customer queries*	*Annual Customer satisfaction survey report*	*NWSC*
6			*% of water abstraction and discharge permits that comply with permit conditions*	*SPR*	*WRPR*
7		*Monitoring and Reporting and sector coordination*	*% of districts, and Water schemes that submit complete and acceptable reports in time*	*UPMIS/ District reports*	*RWSD/ WURD*
8			*% of budget released against the sub-sector planned budgets in the sector investment plan*	*SPR*	*WESLD*
9		*Financial management and accountability*	*% of total sector budget allocation expended to sanitation*	*SPR*	*Internal Audit*
10			*% of sanitation budget released for the year*	*SPR*	*Internal Audit*
11			*% of audit recommendations implemented (MWE, DPs & NWSC) from annual financial audits*	*OAG report*	*Internal Audit or webpage*
12			*Financial performance of the MWE based on the annual financial audits of MWE through the auditor response (unqualified, qualified, adverse, disclaimer)*	*OAG report*	*Internal Audit*
13			*% of approved budget released to the water and sanitation sub-sector*	*SPR*	*Internal Audit*
14			*Wasteful/nugatory expenditure [by MWE] as compared to previous year*	*OAG report*	*Internal Audit*
15	***SDG target 16.6 continued***	*Procurement*	*Average weighed procurement performance [of MWE]*	*PPDA*	*PDU/ MWE*
16			*% of total procurement volume that was procured with (In)appropriate methods of procurement as viewed by the PPDA and OAG.*	*PPDA/ OAG*	*PDU/ (MWE NWSC)*

Note:

* = *This indicator will be used in reporting on SDGs*

Indicator 6.1.1: *Proportion of population using safely managed drinking water services*

Indicator 6.b.1: *Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management*

SDG target 16.6 *Effective, transparent and accountable institutions*

Indicator 16.6.2: *Percentage of the population satisfied with their last experience of public service*

Annex 15.4 Good Governance Action Plan, update June 2016

Progress on the Good Governance Action Plan FY 2014/15 – 2016/17

Progress Measurement:

+ means: positive developments (progress);

= means: no progress, but also not getting worse (stagnation)

- means: negative developments (getting worse);

Progress monitoring date: 30.06.2016

Recommendation	Actions	Responsible	Expected Action FY 2014/15 or proposed strategy	Progress as at end of June 2016	Progress (+, =, -)	Remark/ Comment	Source of Action
Objective 1: Governance Oversight Strengthened							
1.1.Raise political will so that GoU commits itself to drive the reform process	1.1.1Keep progress of GGAP on the agenda for the WESWG and top policy meetings, as well as JTR and JSR	GGWG/ PS/ WESLD	Progress reported Quarterly to WESWG, and rolling audit action plan on agenda for WSSSWG meetings	GGWG has been represented by the chairperson and other members in all subsequent meeting of the WSSWG and the WESWG.	On course +	The rolling audit Action Plan of 2009 was completed. Need to see this continued in coming years.	GGAP/09/1/1.1
	1.1.2 Include a progress GGWG report in SPR	GGWG/ PS/ WESLD	A comprehensive section on Good Governance included in SPR 2016	A comprehensive section on Good Governance has been included in SPR 2016	Done +		GGAP/09/1/1.2
1.2.Link water sector with anti-corruption institutions, policies and laws	1.2.1 Ensure adequate representation of oversight agencies (e.g. DEI, PPDA, AG, IG etc.) in GGWG	GGWG/ WESLD	Representative of DEI, PPDA, AG, IG take part in GGWG meetings and activities as well as Head PDU, Principal Internal Auditor, Public Relations Officer.	The Principle Internal Auditor represents the OAG, while the concerns of PPDA are taken care of by the PDU. Both the Internal Audit office and the PDU are active members of the GGWG.	On course +	PDU and Internal audit office need to attend all meetings, esp. the GGWG quarterly meetings.	GGAP/09/1/2.1
1.3. Monitor the efficiency and use of the conditional grants and other existing funds.	1.3.1 Conduct a survey on efficiency and effectiveness of the Urban water grant.	Regulatory Department (RD)	Survey conducted and recommendations availed.	The study was done and some recommendations are published in the sector performance report of 2016. The report will be presented to the WSSWG to draft the final plan to implement the recommendations.	Done	Recommendations will be discussed in the WSSWG.	JSR 2014
	1.3.2 Conduct a survey on efficiency and effectiveness of the district sanitation grant.	WESLD	Survey conducted and recommendations availed.	The ToR where developed but there were no funds for it.	Stagnant -	Funding source not yet identified. To be prioritized next year.	JSR 2014
	1.3.3 Conduct periodic internal and external financial and technical audits.	PIA/ OAG/ PS/ RD/ FMA	Principal Internal Auditor and the office of the Auditor General provides audit reports to the MWE	The Internal Audit section carries out periodic internal financial and technical audits. The publicity of these audit reports is done by the MoFPED.	On course +	There is need for public awareness on these reports	GGAP/09/2/6.3

	1.3.4 New instruments to appraise and monitor full cost of investment.	Urban Water Department	Update the design manual and the WSDF operational manual to incorporate optimization of full cost.	All WSDFs are supposed to use Cost Center Accounting, a mechanism that inputs and sums all the cost incurred towards a utility. However, some costs like administration costs cannot be traced to a particular water utility/system.	On course +	Need to find out how and if all WSDFs comply with it.	GGAP/09/2/6.3
1.4. Enforce sector guidelines.	1.4.1 Create incentives for better management and governance. E.g. Public recognition for good performers, and an Integrity Award.	All ministry department / ULGA	Award best performers of the year at JSR, IDMS, District Water Officers meetings and bringing out those that are not compliant.	All ministry departments do not have a concrete measure for incentives and Sanctions. The available sanction to ministry staff is through staff appraisals and reprimands by writing to the staff. In the Rural dept, attention is made to the CAO and copied to the political leadership where a district is not meeting performance standards. The regulation dept is equally challenged given the institutional arrangement. The "Name & Shame" may be the only available sanction given the technicalities in the institutional arrangement. Regulation department will need support from GIZ-RUWASS	Stagnant -	Design a mechanism that collects and records governance issues as a basis for Name and Shame, and recognition of good performance. ULGA to take part	GGAP/09/1/3.3
	1.4.2 Impose penalties and sanctions, e.g. withhold funds to non performing districts, publicize non-compliant actors.	All ministry department / ULGA	GGWG receives compliance reports from commissioners on sanctions imposed in 2014/2015.		Stagnant -		GGAP/09/1/3.1
1.5. Improve the capacity of both institutions and individuals to strengthen the oversight role.	1.5.1 Training WAs on institution & monitoring.	PTO	Trained WAs	WSDFs train Water Authorities when handing over a town and WDSF-C contracted a consultant to develop a training manual, tools and material necessary to conduct an effective training for both new and old Water Authorities. The tools are used by both WSDFs and the Umbrella Organisations.	Complete +	Need to have a look into the manual and training material to ensure they achieve the desired objectives.	GGAP/09/2/6.1
	1.5.2 Build District Local Government capacity on certification of works	Rural Water & San Dept.	Districts are supported to effectively monitor and supervise the works	Rural Water and Sanitation Department conducted trainings to build the capacity of the local government with support from ULGA.	Complete +	Districts need support from TSUs. Need to involve ULGA	GGAP/09/10.4
1.9 Improve planning and management of water supplies.	1.9.9 Implement and report on the district grant allocation formula that was developed to address equity in hard to reach areas.	RWSD	Implement formula	A new formula was introduced by MoFPED	Complete +		GGAP/09/3/11.3
1.6 Strengthen the GGWG and avail sufficient resources to support its activities	1.6.1 Provide specific budget line for GGWG activities under JPF sector program support	WESLD	Ongoing annually from GoU and DPs	The GGWG activities are being implemented under the JPF sector program support. The Urban Water Grant survey was funded under this support.	On course +	Some activities couldn't be taken on due to lack of finances.	GGAP/09/1/5.2
	1.6.2 Review the TOR for the group	GGWG	Review and operationalize GGWG TOR	The ToR where developed and approved by the GGWG and are being implemented.	Complete +		New

	1.6.3 Deepen the analysis of relevant golden indicators that have governance implications and report progress in SPR annually.	GGWG	Develop measures, guidelines and indicators to be used in determining good governance in the water sector.	16 indicators are so far proposed to be governance indicators. It is proposed that one indicator that states " % of audit recommendations implemented" should be added to and reported as Golden Indicator number 12 of the SPR.	On course +	Test run of the indicators will take on next year.	JSR 2014
	1.6.5 Training for members to appreciate governance principles	PTO/ IGG/ DPP	Identify high profile people with good knowledge of the JLOS to make speeches (Water as a human right).	The Administration and Finance Department together with the Principle Training Officer of MWE are organizing governance event during the Friday teas with guest speakers on good governance. Invite speakers from IGG, ACCU, Prison and others.	Stagnant -	Not yet done	New
		PTO/PDU	Conduct training on procurement planning and contracts management	An online training on Application of Water Governance was conducted with 45 active participants. Participants included the Local Governments, the de-concentrated units of the Ministry and the central government, Civil Society Organizations and NGOs, the Private Sector and members from Development Agencies in the Water and sanitation sub-Sector.	On course +	This was a pilot course and will be prioritized next year if funds allow.	
1.7 Improve data and record management	1.7.1 Review management model of rural water supplies to address poor financial record keeping with community contributions; pilot alternative model based on review outcomes	Comm. Rural Water Dept./ SNV	Ongoing review of Community Based Management System to inform actions on the way forward on operation and maintenance.	SNV is piloting a new management model on behalf of the Rural Water and Sanitation Dept. The model aims at promoting Sub-County Water and Sanitation Boards (SWSB) to improve on reporting especially on the non-functionality of water sources. Project area is Lira, Alebtong and Dokolo Districts. The key model pillars at the sub-county, community and private sector have been formed and trained. Currently the pillars are being linked and coached to operationalise the model.	On course +	SNV is promoting Village Saving and Loan Association to minimize liquid cash with the treasurer for a water source, and increase the interest of the members.	GGAP/09/11.2
	1.7.2 Dedicate staff to follow up on documentation of completed works to strengthen certification of rural water service processes	Comm. Rural Water Dept.	TSUs should back up soft copy documentation / record which should ensure that records have gone up to water resources management. Evaluate performance of district water office as regards documentation of completed works	The department may not be able to dedicate staff to follow on the documentation of completed works, however, TSUs has been providing support when need arises. Verification of works of all completed sources is done by the districts and a report on permits by the contractors is given to the DWRM.	Stagnant -	This should be taken on by the District Local government with support from ULGA.	GGAP/09/10.1
	1.7.3 Include records management as part of the MoU between MWE and Local Government	MWE	MoU clause should be drafted and endorsed by stakeholders	The Rural Dept can only enter into an MOU where the funding is given from the center. But in cases where the Local Government is using DWSCG or support from NGOs, then this MOU cannot be in place.	Stagnant -	Clauses on record mgt can be included where possible.	GGAP/09/3/9.2

Objective 2: Improvement in procurement processes, Project Implementation and contract management within the sector							
2.1. Improvement in procurement processes and control measures.	2.1.1 Conduct regular procurement audits, at least every two years	PPDA/ Principal Internal Auditor	PPDA responsible to keep on track and encouraged to publish on their web site	The Internal Audit section carries out procurement audits every year. The publicity of these audit reports is done by the MoFPED and also on the PPDA website.	On course +	The need for public awareness on these reports	GGAP/09/12.2
	2.3.2 Information should be made publicly available on procedures for appointment of members of Evaluation Committees	PDU	PPDA should commit to undertake this.	The procedures are laid in the PPDA Act of 2003(37). The procedures for appointing members of Evaluation Committees were shared in the GGWG meeting. More publication was done with the GGWG newsletter of 2015.	On course +	Provided in the law / under the act	GGAP/09/15.3
Objective 3. Bridging the implementation gap through access to information and empowerment of water users							
3.1 Enhance and increase constructive involvement by media using findings from CSOs and sector actors.	3.1.1 Conduct frequent dialogue in Water and sanitation subsector and social accountability	GGWG/ UWASNET/ TIU/ IGG/ ENR	Governance Workshop, Formation of the Good Governance Week or Day	UWASNET did a budget analysis on the Budget Framework Paper and presented at the SPR 2015. They further developed a policy brief and a documentary on increasing sector financing for O&M and a documentary on citizen participation in planning and budgeting. WATERAID made a presentation on the HRWS during the JSR 2015/16.	On course +		New
	3.1.2 LGs and CSOs have access to reliable information on flow of funds	MoFPED - BMAU, CSBAG	MoFPED to provide accurate funding flow figures on water & sanitation from national to S/C level	UWASNET disseminates budget releases to the districts and do quarterly monitoring of these budgets.	On course +	The CSOs are now able to access the information easily	GGAP/09/19.1
3.2. Improve record keeping at District, regional and national level	3.2.1Districts to prepare and store technical and financial completion reports in soft and hard copies	Rural Water & San Dept.	Assess infrastructure at district level for record keeping. Those who do not have computers and cabinets make proposal and budgets for computers, cabinets and staffing for record keeping	Districts report to the ministry in hard copy form yet they all have computers to send a softcopy of the same report. Rural water department has engaged a consultant to start the process of a web based reporting.	On course +	Reports from districts are performance reports and not completion reports.	GGAP/09/9.1
3.3. Implementing NGOs become transparent and accountable using QA in operations	3.3.2 CSOs provide information on funding flows and budget performance to the NGO board and UWASNET	UWASNET	Performance report by UWASNET, which is then reported in the Sector Performance Report.	UWASNET called for reports from all its members on funding flows and budget performance.	On course +	We are yet to see the response from the members in this report.	GGAP/09/18.2
3.4 Ensure that CSOs capacity is built to have a respected position and their voice taken seriously by all stakeholders	3.4.4 CSOs supported to demand for, analyse and report on sector funding flows and utilisation	CSBAG	Capacity building in budget tracking and resource monitoring.	UWASNET gave three trainings in budget advocacy. NETWAS has further trained CSOs in social accountability tools, and the districts in the use of Gantt charts when developing their work plans, in addition to the use of report cards, and score cards in reporting and monitoring performance respectively.	On course +		GGAP/09/19.2