REPUBLIC OF UGANDA

Ministry of Water and Environment
Directorate of Water Resources Management

Victoria Water Management Zone

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KATONGA

CATCHMENT MANAGEMENT PLAN

POPULAR VERSION

KATONGA CMP POPULAR VERSION

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INTRODUCTION

1

The 13,837km2 Katonga catchment is located in the South-central part of Uganda and drains into Lake Victoria. The catchment faces pressure from rapid population growth and an agricultural sector suffering from increasing climate variability related to global climate change. Numerous IWRM issues abound in the Katonga catchment, key of which include; deforestation and forest degradation, degradation of wetlands, riverbanks and lakeshores, soil erosion, water stress, land conflicts, child marriages, teenage pregnancies, poverty, and domestic violence. Katonga water stress is exacerbated by severe droughts and climatic variations, impacting food security and greater health and life risks.

1.1 CATCHMENT INSTITUTIONAL FRAMEWORK

1.1.1 National and Regional Level

The Ministry of Water and Environment (MWE) is responsible for setting national policies and standards, managing and regulating water and environmental resources. The Direcotrate of Water Resources Management (DWRM) is the lead in developing the agenda for Catchment Based Integrated Water Resources Management (CBIWRM) and coordinates the Water Management Zones. The MWE coordinates with ministries, namely; Animal Industry and Fisheries, Trade and Industry, the Ministry of Agriculture, the Ministry of Tourism, the Ministry of Energy and Mineral Development, the Ministry of Health, the Ministry of Works and Transport, and the Ministry of Local Government.

1.1.2 Catchment level – Catchment Based Organisations

The Catchment Management Organisation (CMO) is core to the water management institutional structure. Katonga CMO was established with facilitation of Victoria WMZ as structures at the districts lack sufficient spatial jurisdiction to serve this purpose. The CMC is the technical arm of the CMO. The CMO structure as reflected in the CMO Procedures Manual (DWRM, 2019) is shown in Figure 1-1

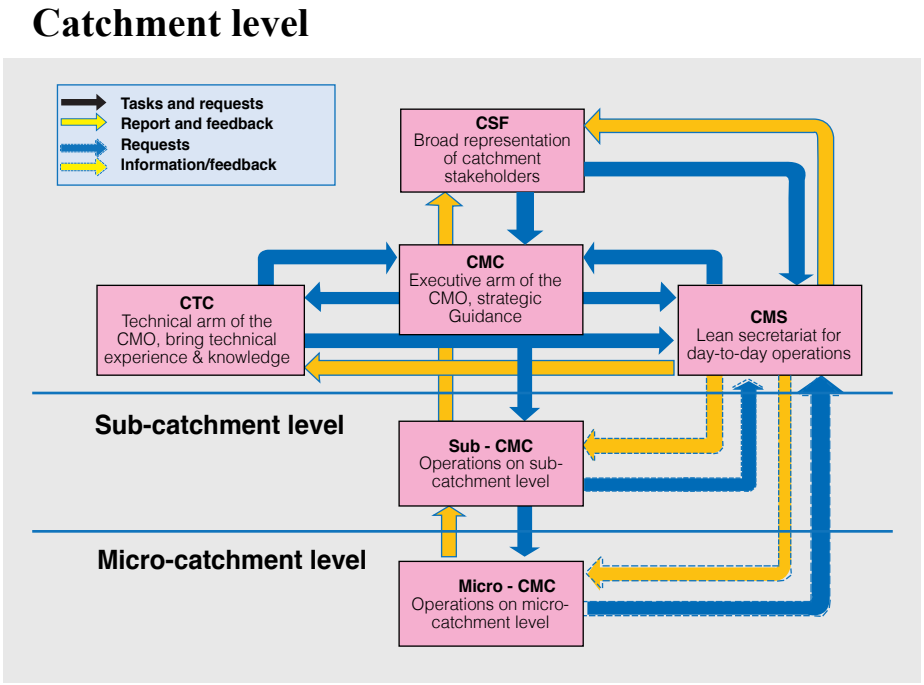


Figure 1-1: Structure of the Catchment management Organisation

1.2 Approach to developing Katonga Catchment Management Plan

The Catchment management planning process involves a series of steps, each with varying numbers of tasks. Some of these steps and tasks are sometimes iterative and neatly interdependent.

However, the Catchment Management Planning process is split into broad categories, within which the steps illustrated in Figure 1-2 are grouped, namely;

a) Collecting the right information, which is mainly contained in Step 1
b) Analysis and Assessment, which is captured by Steps 2, 3, 4, and 5.

These steps in Figure 1-2 provided a framework within which the Victoria WMZ team and other stakeholders refined and developed their approach in line with the needs and conditions in the Katonga catchment.

1.2.1 Collecting the right information

Step 1: Describe the Catchment and build the planning knowledge base; establish the information as the basis for the planning process. The step eased the delineation and description of the Catchment, and the compilation and organisation of data and information as the knowledge base needed to support the planning process.

1.2.2 Analysis and Assessment

Step 2: involves three interrelated steps that were carried out simultaneously. These are;

Step 2.1: Water Resources Planning Analysis: comprises water resources planning analysis, covering the assessment of water resources, water balance, the present and future water demand.

Step 2.2: Catchment Stakeholders Participation Framework is the framework for identifying, mapping, mobilising and consulting stakeholders in preparation of the Katonga CMP.

Step 2.3: Strategic Social and Environmental Assessment (SSEA) provided a comprehensive assessment of the critical vulnerabilities in the Catchment and linkages, cumulative impacts, and options for mitigation.

Step 3: Establishment of the framework for catchment water planning involved presentations to the CMC, and CTC, the overview of the IWRM issues and trends in the Catchment, and the options from the aspirations of stakeholders.

Step 4: Options and Scenario Analysis is an iterative and interactive step through which the analysis of identified options and scenarios was conducted within the framework for planning developed in Step 3. The CMC and CTC were walked through the process with a simplified presentation of results to easily understand a consensus draft Katonga CMP.

Step 5: covers progressive activities to prepare the agreed draft CMP complete with the Vision, strategic objectives, options, an implementation plan, and monitoring and evaluation.

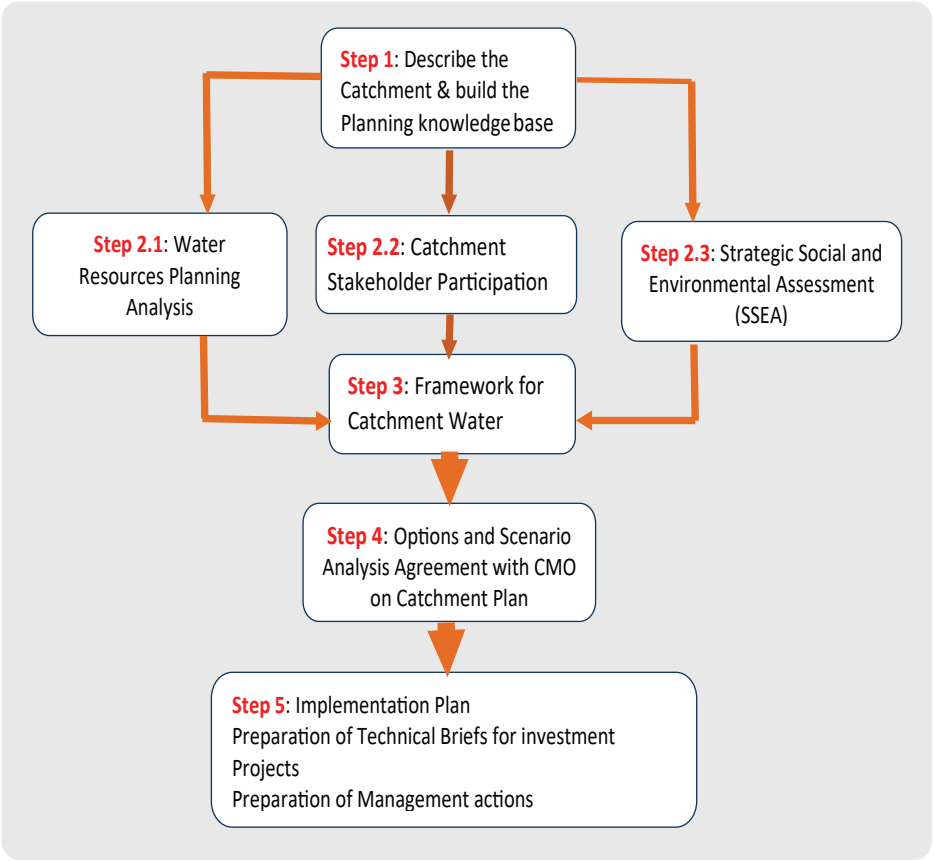


Figure 1-2: The catchment planning process

1.3 Katonga Catchment Stakeholders

Participation of stakeholders was vital in the preparation of Katonga CMP and remains critical in implementation. This was effected through reconnaissance survey, priority problem identification, ranking and analysis of agreed options. . Some of the key stakeholder identified in the Katonga Catchment are shown in Table 1-1.

Table 1-1: The stakeholders at the national level with their roles

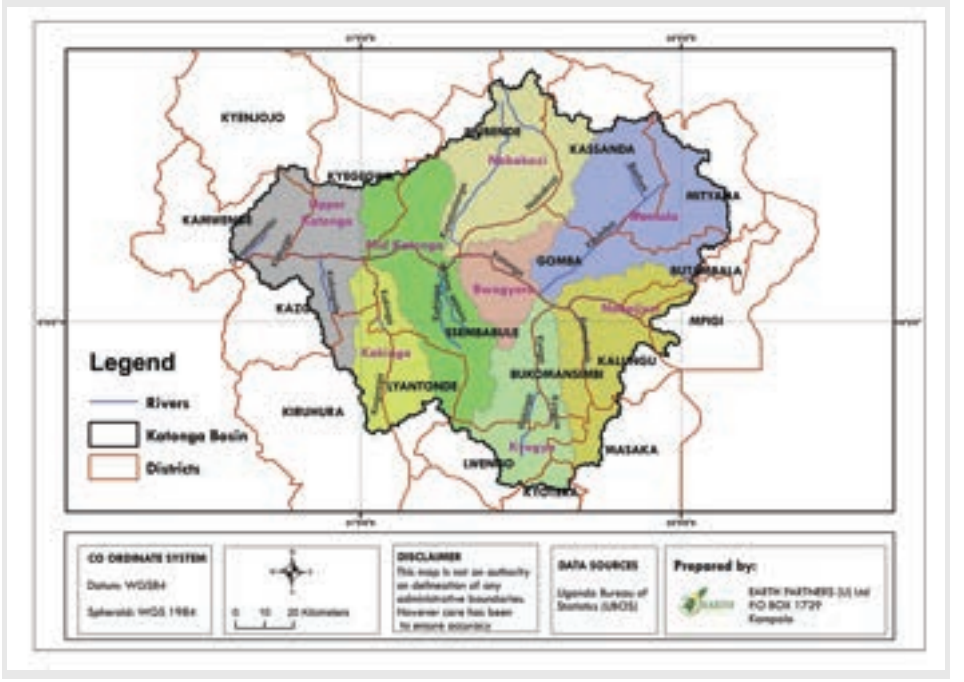
REF.	CATEGORY	SOME OF THE KEY STAKEHOLDERS	CATCHMENT DISTRICTS
1.0	State actors	National Water and Sewerage Corporation (NWSC)	Lyantonde, Mubende, Kiruhura, Kalungu, Mityana, Lwengo
		Ministry of Water and Environment	Catchment-Wide
		Directorate of Water Resources Management (DWRM)	
		National Environment Management Authority (NEMA)	
		Ministry of trade, Industry and cooperatives	
		Ministry of Agriculture and Animal Industries and Fisheries	
		National Forestry Authority(NFA)	
		Uganda Wild Life Authority(UWA)	Kyegegwa, Kiruhura, Kamwenge,
		National Agricultural Research Organization (NARO)	
2.0	Non-state actors	Uganda Water and Sanitation NGO Network (UWASNET)	Mityana, Ssembabule and Gomba
		Water for People	Kamwenge
		Child Aid Uganda	Lyantonde, Kyotera
		Forum for Women Democracy	
		Vi Agroforestry	Lyantonde, Lwengo, Kyotera, Masaka
		RACOBAO	Lyantonde, Kyotera
3.0	Multilateral Organisations	The World Bank through Lake Victoria Environmental Management Program, DFID, GIZ, FAO and UNDP	Kalungu, Masaka,
		European Union	Mubende, Ssembabule, Kiboga,
		The Food and Agriculture Organization of the United Nations (FAO) (in partnership with MAAIF and MWE)	Mubende, and Ssembabule
		Global Environmental Facility (GEF)(In partnership with UNDP and Government of Uganda).	General Cattle Corridor
		African Development Fund (ADF), Nordic Development Fund, (in partnership with the GoU) through the Farm Income Enhancement and Forest Conservation (FIEFOC) Project	Ssembabule, Mubende, Lyantonde, Kalungu

2 DESCRIPTION OF THE KATONGA CATCHMENT

River Katonga is located in the South-Central part of Uganda, and its Catchment lies about 0°13'N 30°39'E near the Katonga Wildlife Reserve, more than 120km from L. Victoria. Located in Victoria Water Management Zone, the river connects L. Victoria and L. George. The Catchment covers 18 districts (Kassanda and Kazo recently created) that span eight manageable sub-catchments of different sizes (Table 2-1). The Catchment previously drained into L. George but the regional uplifting events between the two lakes (the Albertine Rift) caused the swampy region to southwest Lake Wamala to become the new Catchment for the river, which now primarily flows East into L. Victoria augmented by several tributaries along its course. During wet seasons, raised water levels in the vicinity of its swampy watershed occasionally force some water to flow west into the Western section of R. Katonga which feeds L. George, but the bulk of the flow continues Eastwards into L. Victoria.

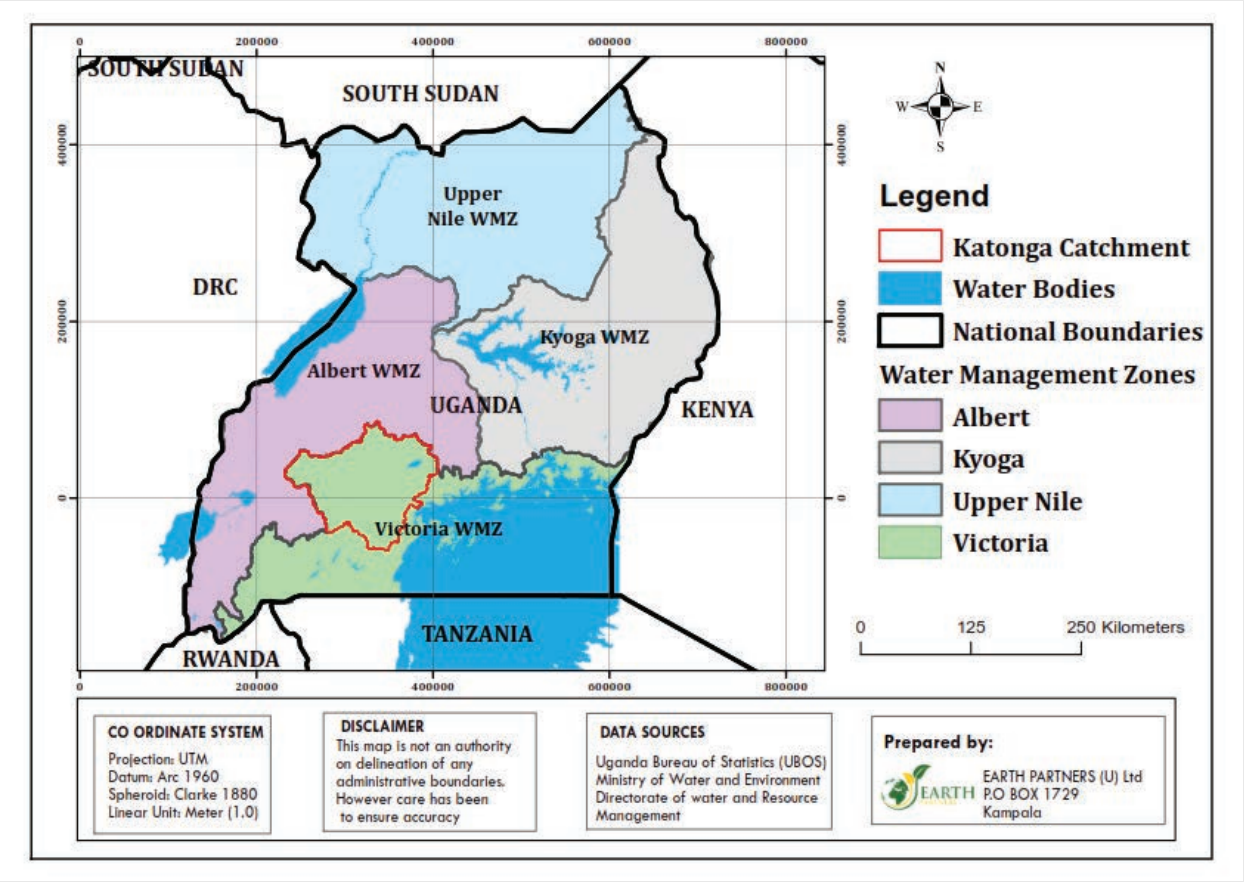
Table 2-1: Sub-Catchment names and area size

Code Name	Sub-Catchment Name	Area size (SqKm)
KAT1	Nabakazi	2116.1
KAT2	Upper Katonga	1750.6
KAT3	Mid-Katonga	2211.9
KAT4	Kakinga	1129.2
KAT5	Bwogero	806.2
KAT6	Wamala	2575.6
KAT7	Kyogya	1497.9
KAT8	Nabajjuzi	1749.5



Map 2-1: Katonga Sub-Catchments

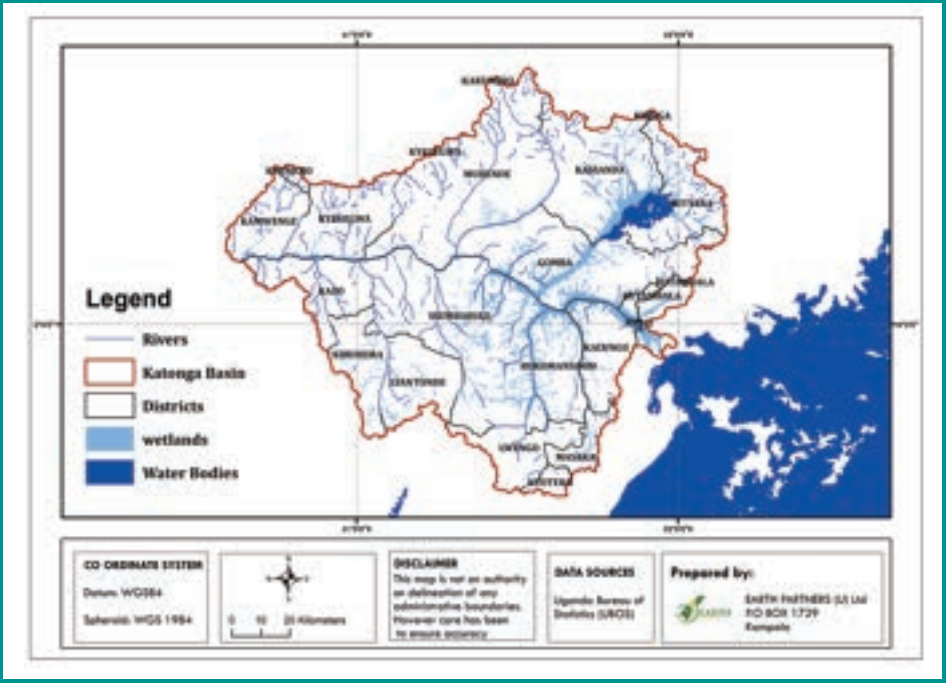
The principal mouth of the river enters L. Victoria near Lukaya in Kalungu District (0°07.3'S 31°54.8'E). The Catchment is generally flat, allowing satellite wetlands that dominate an area of about 2,478km^2



Map 2-2: Location of Katonga Catchment in Uganda

2.1 Drainage in Katonga Catchment

Lake Wamala is the largest surface water body in the Catchment. Along the main Katonga River are permanently flooded papyrus and grass swamps forming the greater Katonga wetland system.



Map 2-3: Drainage in the Katonga catchment

2.2 Demography

Demographic patterns show population increase with about 4,156,774 people in 2040. The highest population growth (946,483) is expected in Mubende, and the lowest (26,159) in Kyenjojo District (Figure 2-3). The population may double by 2040, with more than half of them below 14 years.

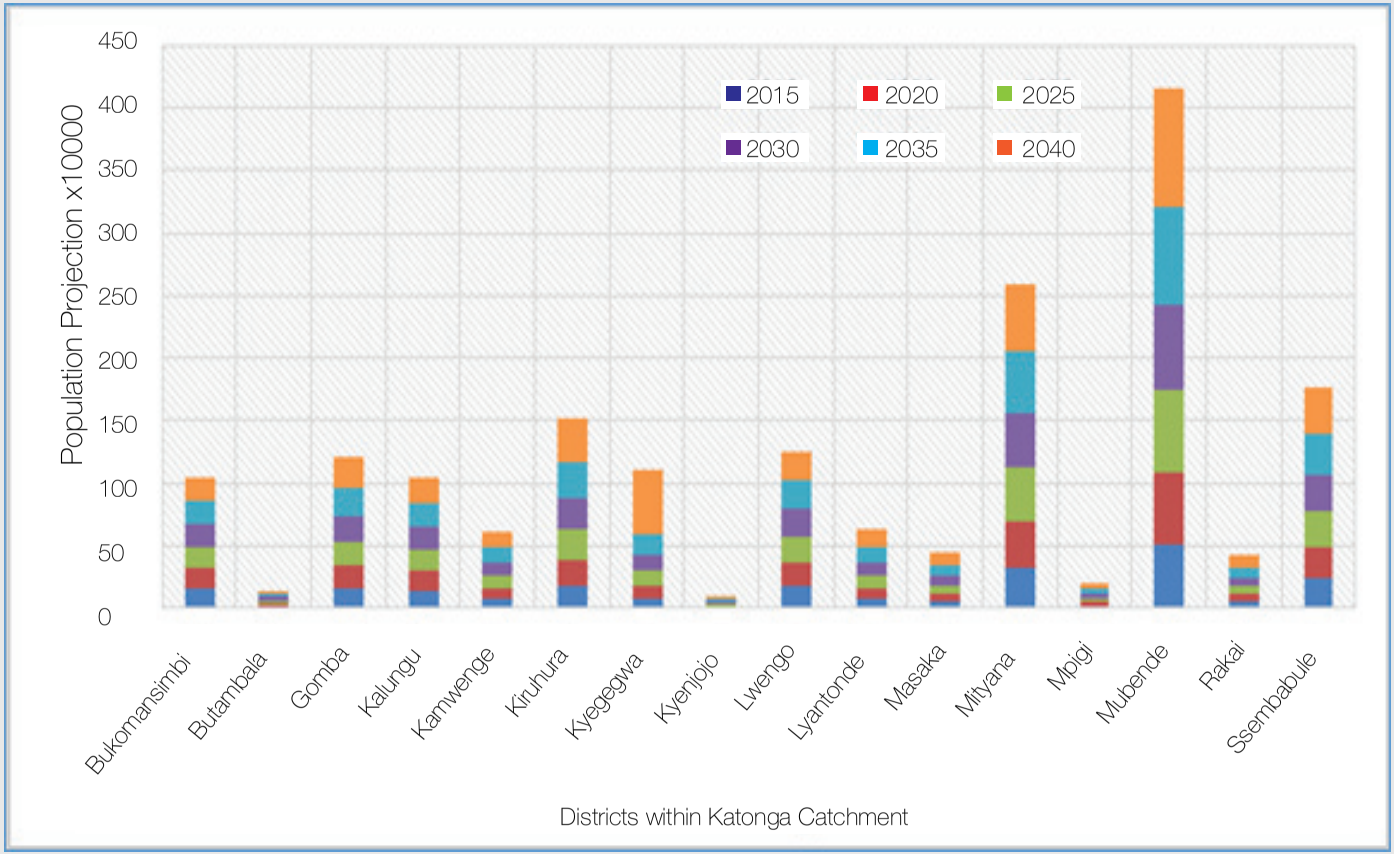


Figure 2-1: population projection for districts in Katonga catchment

2.5 Water Resources: Water Demand and Water balance

The Katonga River's mean annual maximum for the 1997 to 2010-time series was 14.94m3/s, and available data shows a general decline in discharge values, especially the 2000's series, due to prolonged droughts and wetland degradation. Meanwhile, a bigger part of the catchment is characterised by low transmissivity, making groundwater abstraction spatially limited.

The current combined water demand is 53.71MCM, with Domestic, Agriculture, and Industry demanding 41.9%, 57.9%, and 0.2% of the total demand. The projected combined water demand for 2030 is 80.64MCM, an increment of about 50% from the baseline. As for 2040, the projected combined water demand is 110.16MCM, an increment of about 105% from the baseline.

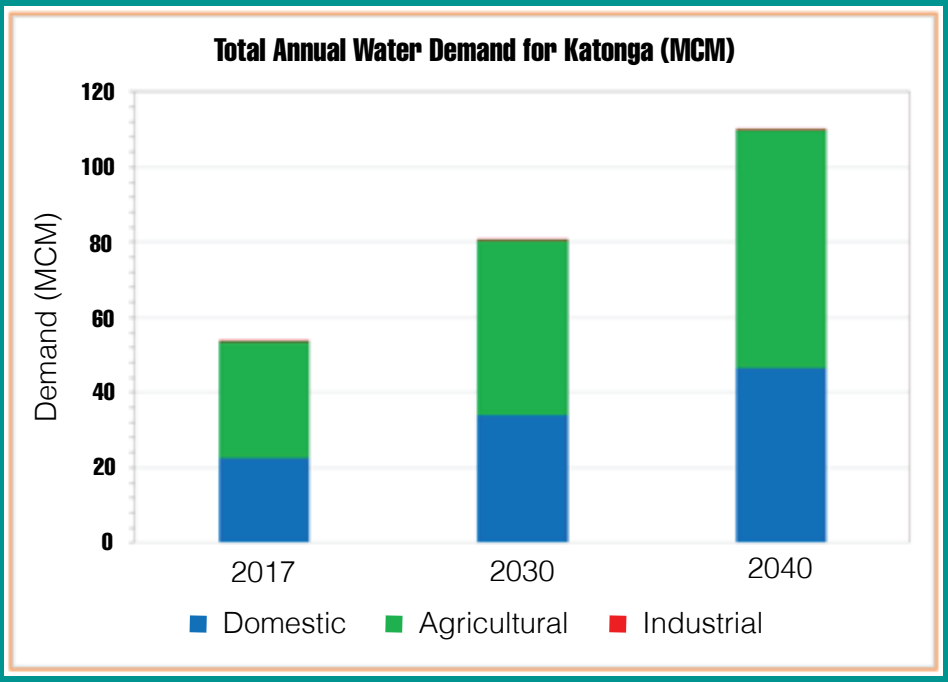


Figure 2-2: Mean annual rainfall of Katonga Catchment

Domestic water use is higher than the other three categories as farming relies on rain, and irrigation requirements are only supplemental. Industrial water demand takes a small percentage (0.21%) of the total water demand. Water demand for fisheries is higher than the other demand aggregated under agriculture and irrigation, which has only 0.2% of the total agricultural requirement.

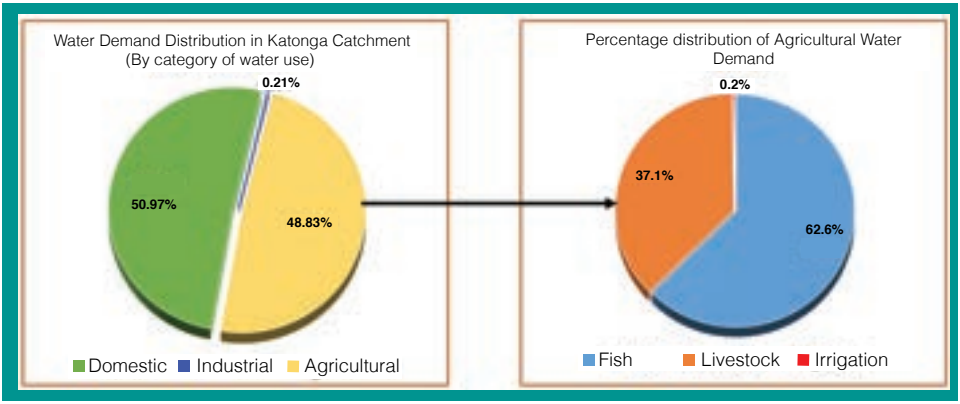


Figure 2-3: Water Demand Distribution by Water Use category

The water demand deficit/unmet demand computed monthly for all the sub-catchments shows that KAT3, KAT6, KAT7, and KAT8 have comparatively more deficits.

Based on the water resources assessment, it has been observed that;

- Prolonged droughts and continued degradation of wetlands underlie the general decline of discharge values, especially 2000's series;
- Low transmissivity makes groundwater abstraction spatially limited, underlines the biggest part of the catchment - groundwater abstraction is not utterly based on recharge but transmissivity;
- Water demand results show that domestic water use draws more water than agricultural and industrial water demand categories, as farming practices are reliant on rain, and irrigation requirements are minimal, only supplemental;
- The percentage distribution of the water demand in the sub-catchments for each category of water use shows that KAT6 has the highest water demand in the entire Katonga catchment.

3 INTEGRATED WATER RESOURCES MANAGEMENT ISSUES, VISION AND OBJECTIVES

3.1 Priority IWRM issues in the Katonga Catchment

IWRM issues were gathered through participatory problem identification and priority ranking, water resources assessment, land use assessment, and a review of relevant literature. Various IWRM issues are interconnected and evolve through a complex interplay. For instance, in Kiruhura District is the linkage between the infestation of acaricides resistant ticks, loss of local incomes and deforestation;

"…with the infestation of blue and red resistant ticks, herds of cattle have been lost as acaricides do not protect livestock from tick-borne protozoa infections. Many families dependant on income from cattle products such as milk and ghee have become desperate from economic devastation with limited options. They have opted to clear all the trees and shrubs to destroy the habitats ad bleeding grounds for ticks." Assistant CAO, Kiruhura District, 2018.

Table 3-1: Summary of IWRM issues in the Katonga Catchment

IWRM Issue	Description	Causes
Deforestation and forest degradation	• In 1999 forests covered about 8739km^2, 63% of the catchment area. It then reduced to 8524km^2 (62%) in 2010 and further to 734.3km^2 - about 5% of the total catchment area – in 2017	• Wood extraction and charcoal production for urban markets –Mbarara and Kampala. • Expansion of agricultural land • Promoting "Farm/land clearing" as a good farm management practice by the District Department of Production.
Severe Water Stress	• Water deficit, varying between and within sub-catchments • Many boreholes completely dry • KAT 7 sub-catchment is the most affected, with only 64% of domestic water demand met	• Prolonged droughts • Mechanical breakdown of boreholes; • Poor sanitation & surface water pollution: open defecation, direct cattle watering; • Low transmissivity makes groundwater abstraction spatially limited
Wetland reclamation	• Wetlands reclaimed for expansion of agricultural land - crops and livestock; • Illegal land titling in wetlands	• Expansion of agricultural land; • Mechanised industrial-scale sand mining for the international and local market; • Policy failure/limited institutional control
Poor Solid Waste management	• Lack of appropriate solid waste infrastructure; • Visual blight effects, surface water contamination.	• Limited funding: Low local revenues and budget allocation by Central Government; • Local attitude to waste management;
Poor wastewater management	• Lack of effluent treatment plants • Private Cessipool emptiers discharge directly in wetlands;	• Lack of funding for investment in sewage treatment infrastructure; • Weak urban development planning;
Soil erosion	• Severe soil erosion in low-lying and hilly areas; • Sedimentation of valley tanks and valley dams;	• Overstocking around water sources; • Excessive deforestation; • Overgrazing; • Lack of soil and water conservation.
Food insecurity	• Decline in yields of staple foods, or even total crop failure; • Variability in precipitation timing and droughts alter soil moisture availability and scotch pastures	• Prolonged droughts; • High food prices triggered by food exports; • Livestock and crop pests and diseases • The rush to enhance food production;

3.2 Catchment Vision and Strategic Objectives

Development of the catchment vision was a vital component of the planning process of Katonga Catchment. The Vision responds to the priority IWRM issues identified, forge a common direction ad among the stakeholders, and align the Catchment interventions with the Uganda Vision, 2040 .

Katonga Catchment Vision: “Sustainably managed water and related natural resources in Katonga Catchment for improved and sustainable livelihoods of the present and future generations.”

Successful realisation of the catchment Vision will be based on the following set of strategic objectives;

- To promote and effectively enhance equitable access to adequate and safe water for human consumption and productive use;
- To streamline practical measures for the restoration of environmental integrity and stimulate an attitudinal behavioural shift to reverse environmental degradation;
- To improve governance systems and stimulate the improvement of socially sustainable livelihoods

4 OPTIONS AND SCENARIOS

4.1 Options

Several types of development options and management actions contribute to the realisation of the Katonga catchment Vision and strategic objectives. The options were drawn from the stakeholders' opinions, the consultant's considerations and best industry practices involve managing the hydrologic and ecological processes to prevent degradation, conserve water, protect water sources.

4.2 From Options to Scenarios

Scenarios are a combination of options structured to fully consider possible future resource development opportunities, risks, and interactions.

S 1: Improved access to adequate and safe water through investment in water storage and supply infrastructure, by rehabilitating malfunctioning water infrastructure and establishing new water infrastructure;

S 2: Protection and restoration of Catchment health through proper management of natural resources including native forests, wetlands, riverbanks and lakeshores;

S 3: Streamline water and sanitation management via structural investments in sanitation, including sewage and faecal sludge treatment facilities, and regulate water access and utilisation;

The three scenarios present alternative ways of meeting all the planning objectives while maximising the objective function in each case.

Scenario 1 (S 1) focuses on improving safe water coverage in the catchment and includes investment in multipurpose valley tanks, valley dams, drilling of boreholes and rehabilitation of dilapidated boreholes. This scenario has various impacts, including loss of land and vegetation from backwater buildup during construction of valley dams, but it will enable improved safe water coverage and reduced travel distance to water sources.

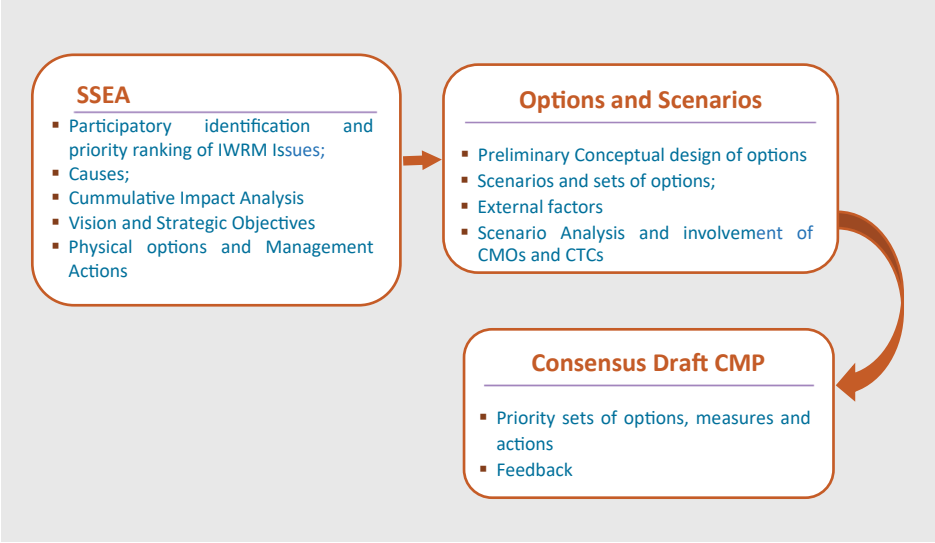


Figure 4-1: Linkages between SSEA, Scenario Analysis and the Consensus Draft CMP

Scenario 2 (S 2) addresses restoration of the catchment ecological integrity through reforestation and forest rehabilitation. This entails restoring riverbanks, lakeshores and wetlands, promoting soil and water conservation in crop production, and integrating land use. The cost of this scenario is born out of the involuntary displacement of encroachers in Central Forest Reserves and wetlands that could severe the livelihoods of the vulnerable groups. Yet, ecological restoration will recover ecosystem services, reduce droughts' frequency and duration, and improve soil productivity and rural livelihoods.

Scenario 3 (S 3) focuses on streamlining water and sanitation through investment in sewage and faecal sludge treatment facilities, waste management facilities and water source protection. The impact of is potential land take and pungent smell released, but it will improve access to safe water, contain sedimentation of valley tanks and valley dams and outbreak water bone diseases.

4.3 The maximum benefit scenario

The scenarios and inherent options were evaluated using the offline screening tool, which combines socio-economic, environmental, financial criteria. The maximum benefit scenario was the restoration of the catchments ecological integrity which gathered the maximum scores. Scenario 2 focuses on restoring deforested and forest degraded areas on public and private land, riverbanks, lakeshores and wetlands. The outcomes of the benefits and costs of the three scenarios demonstrate that no single scenario with its inherently defined set of options can meet the catchment Vision and supporting strategic objectives. Thus, the three scenarios are expected to collectively meet the needs and aspirations of the catchment stakeholders while sustaining the water and allied resources.

5 STRATEGIES AND ACTIONS

The strategies and actions developed are consistent with the strategic objectives of the Katonga CMP and outcomes of scenario analysis which are summarised into;

i. Institutional Capacity development
ii. Restoration and management of degraded ecosystems;
iii. Water and Sanitation

The three categories above summarise a generic framework within which investment options and management actions are defined.

5.1 Institutional Capacity Development

Sustainable implementation of investment options and management actions requires that responsible institutions are strengthened to meet inherent demands. This entails building clearcut cross-sector coordination mechanisms for policy and law enforcement and active stakeholders involvement in critical decision-making processes. It also involves activities and strategies to improve the abilities of individuals, groups and organisations to address IWRM issues and risks.

Table 5-1: Capacity development interventions

Capacity development area	Intervention Actions
Grassroots Communities	▪ Stakeholders identification with delineated sub-catchments; ▪ Training in soil and water conservation techniques; ▪ Access to information from climate applications e,g, seasonal weather forecasts, monitoring and early warning products for drought, floods and pests and disease surveillance. ▪ Train the tree nursery managers to raise quality seedlings
Catchment Management Organisation	▪ Facilitate and operationalise the CMO to streamline its effectiveness ▪ Broaden the CMO to include Kiruhura, Kazo and Kassanda districts ▪ All relevant technical departments in District LGs are part of the CMC. ▪ Review the CMO in Monitoring and evaluation of CMP implementation;
Resource Mobilisation	▪ Prepare a resource mobilisation mechanism to source funds from the government, development partners and CSOs. ▪ Integrate options into district local governments' budget framework;
Logistical and infrastructure needs	▪ Install new gauging stations in each sub-catchment. ▪ Restore old gauging stations ▪ Install new weather stations in each sub-catchment. ▪ Restore old weather stations ▪ Install sediment monitoring stations
District Local Governments	▪ Train and orient extension staff in IWRM activities; ▪ Provide funding for supplementary implementation activities

5.2 Restore the degraded fragile ecosystems

The degraded fragile ecosystems include wetlands, forests and, riverbanks and hillslopes.

5.2.1 Wetlands, Riverbanks and Lakeshores

For wetlands, restoration implies stimulating the return of wetlands and their functions to a close approximation of their original conditions as they were before disturbance of hydrology, vegetation and soils. This participatory process shall be aligned with relevant laws and regulations to conserve biodiversity and restore the ecological integrity of the impaired systems in the catchment.

Table 5-2: Wetlands, riverbanks, and Lakeshores restoration activities in selected districts.

Table 5-2: Wetlands, riverbanks, and Lakeshores restoration activities in selected districts

District	Priority Wetland/River Banks for Restoration		Selected Wetland Restoration Activities
	Wetland	Riverbank, Lakeshore	
Lyantonde	Kakyela Wetland	Katonga River bank protection	• Prepare the Catchment Wetlands Action Plan (CWAP) - clear detail of wetlands protection and management activities with defined roles of actors. • Halt wetland reclamation, e.g. diversion of water, backfilling with spoil material, agriculture etc.; • Minimal Works - manual restoration of modified river alignment, removal of diversions, and clearing non-native vegetation spp, including eucalyptus trees to ensure that the hydrodynamics and hydroperiod of the area closely approximate the conditions before alteration; limited use of equipment that impact soil density, infiltration and structure. • Enter MoU between the local government authorities and individual landowners to plant native tree species within the 100-meter river buffer. Landowners can be facilitated with free seedlings and secure native vegetative buffers for their ecological functioning. • Facilitate the local governments to monitor, and prepare wetland management/restoration plans. • Sensitise local communities on sustainable wetland use practices, including the timing and methods for fertilizers, pesticides, prescribed burning, etc. • Survey and demarcate wetlands and allow natural recovery with protection from human interference
Kiruhura and Kazo	Katonga Wetland		
Kyegegwa			
Bukomansimbi, Ssembabule	Katonga and, Nabajuzi wetlands (Ramser Sites & home to endangered *Spp*)		
Lwengo	Kiyanja Wetland Kyogya Wetland		
Gomba, Masaka, Kalungu, Mpigi and Butambala	Nabajuzzi Wetland System		
Kassanda, Mityana.		Lake Wamala	

5.2.2 Restoration and rehabilitation of deforested and forest degraded areas

This option covers Central Forest Reserves (CFRs) and a significant part of private land in the Katonga Catchment. Forest restoration aims to restore a degraded forest to its original state – to re-establish the presumed structure, productivity and species diversity of the forest initially present at a site. Forest rehabilitation is purposed to restore the capacity of degraded forest land to deliver forest products and services. It is assumed that 60% of the total deforested private land (Table 5-3) and all deforested CFRs can be rehabilitated and restored.

Table 5-3: Estimated target area for forest restoration and rehabilitation on private land

Sub catchment	Area (ha) of Forest cover lost 1999-2017	Private land	
		Degraded forest area on private land (Non-PA)	60% target of deforested private land
Nabakazi	151,176	126,366	75,820
Upper-Katonga	103,565	103,151	61,891
Mid-Katonga	134,541	120,037	72,022
Kakinga	60,907	60,907	36,544
Bwogero	53,723	50,920	30,552
Wamala	177,345	79,948	47,969
Kyogya	49,369	48,235	28,941
Nabajjuzi	69,596	67,890	40,734

Comprehensive forest restoration and rehabilitation activities include;

- Landscape selection and site availability (Secure forestland by evicting encroachers)
- Strictly address the ongoing primary drivers of deforestation
- Prepare forest restoration/rehabilitation management plans
- Tree seed collection and seedling production
- Establish realistic time schedules
- Monitoring and Maintenance Requirements

5.3 Water and Sanitation

Low safe water coverage is an issue. Most of the water for production (WfP) facilities face immense rehabilitation needs due to deficiencies in "software" – i.e., management systems associated with the protection of reservoirs, e.g. fencing off, soil erosion control, control against deforestation.

Effluent treatment reduces surface and groundwater contamination risks in rapidly growing and densely populated Town Councils and Municipalities. The biosolids from sludge treatment and treated effluent from wastewater treatment plants, as illustrated in Figure 5-1, can be made available to farmers at an affordable rate for soil conditioning and fertilisation. The interventions include;

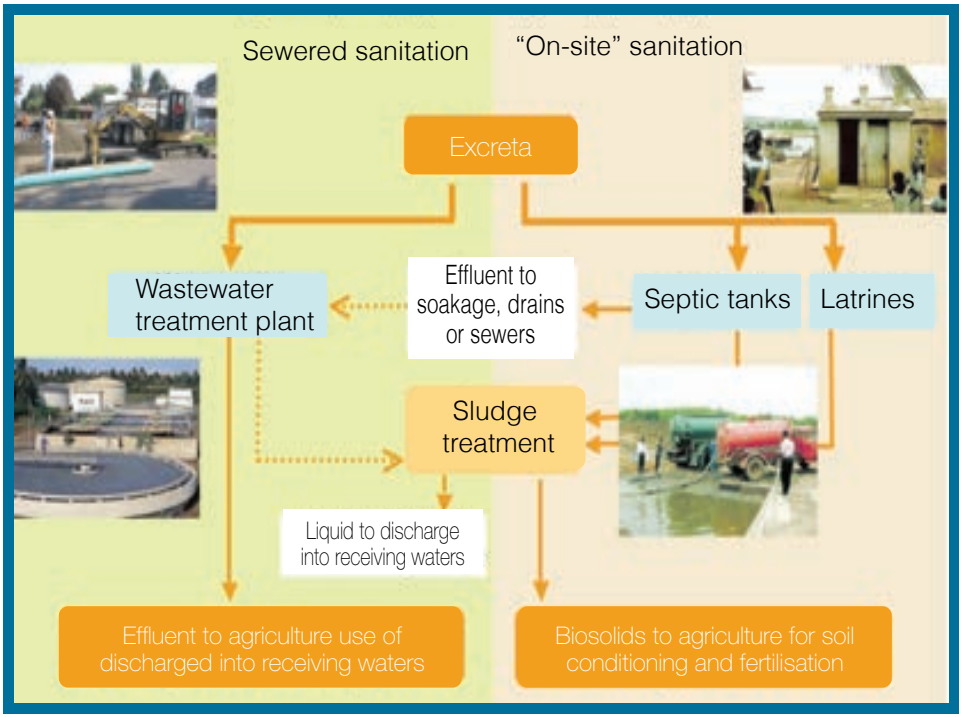


Figure 5-1: Faecal sludge and wastewater management side-by-side in urban environmental sanita¬tion and their potential links
Source: Adopted from Eawag/Sandec, (2008)

Siting, designing and construction of valley tanks, valley dams, and boreholes concurrently supplement the rehabilitation of dilapidated boreholes, valley tanks and valley dams to address severe water stress in the catchment

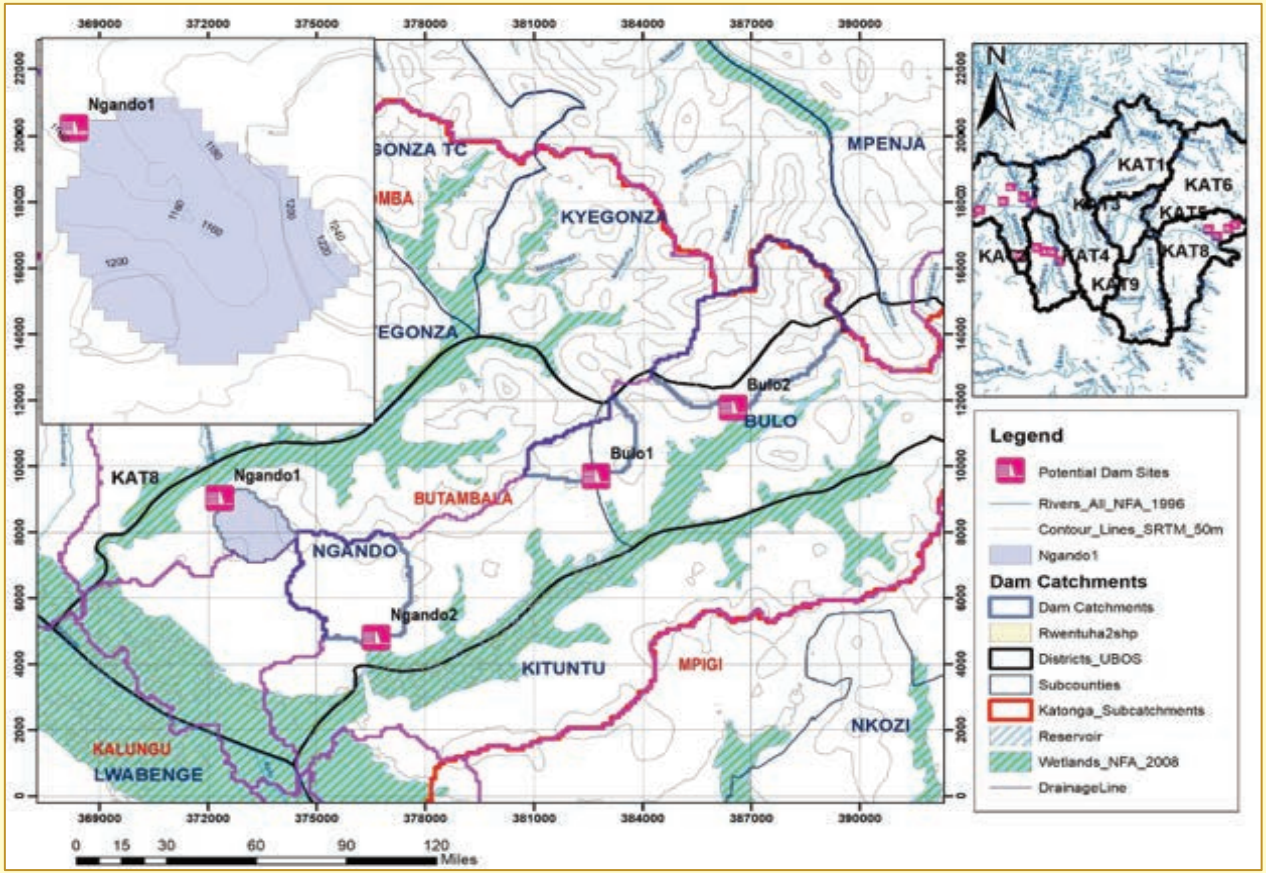


Figure 5-2: Potential dam sites in the Katonga Catchment

5.4 Climate-Smart Agriculture (CSA)

Agriculture faces climate-related vulnerabilities, including droughts, floods, and pests. Agriculture also contributes to climate change through enteric fermentation, manure deposited on pasture, synthetic fertilizer, paddy rice cultivation and biomass burning. CSA points agricultural systems to the utilization of ecosystem services to support productivity, adaptation and mitigation. Key examples are integrated crop, livestock, aquaculture and agroforestry systems; improved pest, water and nutrient management; reduced tillage; restoring degraded lands; manure management (Table 5-4).

Table 5-4: Selected priority areas for promotion of soil and water conservation technologies

District	Key areas for Intervention	Interventions
Masaka	Buwunga, Mukungwe and Kabonera Sub Counties	• Slope-treatment measures, e.g. retention and infiltration ditches, terraces, wattles, fascines and staking in the eroded areas • Agro-forestry practices • Immediate stabilization of sheet and rill erosion, • Stabilize the incipient gullies forming in the catchment before they enlarge, elongate or deepen
Kalungu	**Lwabenge S/County** - Bwesa, Kilaga, Bugomola, and Kibisi. Kyamulibwa – Busoga, Kitosi, Bakijulula, Kigasa.	
Ssembabule	Makole, Rubaale, Lwemiyaga Sub County	• Soil erosion control – construct contour bunds where the slope is less than 10% and contour trenches along the slope of 12-15%; • Soil nutrient enrichment with compost and organic manure; • Promotion of agroforestry and tree planting practices; • Regulate cattle watering to avoid overstocking and soil erosion
Mubende	Lusiba and Kigando in Kigando Sub County, Kiyita, Muyinayina in Nabingoola Sub County.	
Kamwenge District	Biguri Sub County	• Restore gullies, water retention drains, contours and contour bands.

6 IMPLEMENTATION PLAN

The implementation of the Katonga CMP is detailed in the main Catchment Management Plan, presenting the investment options and management actions, location, and indicative budget for implementation.

6.1 Prioritisation and sequencing of investment and management actions

The Implementation Plan covers investment and management actions, and is resource-intensive in time; finances and logistics which are sequenced in space and time. The implementation phase is sequenced in four time periods, namely; 2022-2025 (short-term), 2026-2029, 2030-2034 (Medium-term) and, 2035-2040 (Long term).

The strategic investment interventions, some of which have been assessed to the pre-feasibility level, constitute numerous strategic activities and are preceded by enabling actions that ease the smooth transition into actualisation of agreed measures.

6.2 Roles and responsibilities

The Katonga CMP implementation is a shared responsibility and involves the public sector, private sector, Civil Society Organisations, donors, and grassroots communities. The Katonga Catchment Management Organisation plays a leading role in the implementation process, in collaboration with the Victoria WMZ. Table 6-1 summarises the roles and responsibilities of the key stakeholders

Table 6-1: The roles and responsibilities of various stakeholders in the implementation

Stakeholder	Roles and responsibilities
Victoria Water Management Zone	▪ Facilitate greater "buy-in" of the catchment stakeholders to the agreed plans for water management and development ▪ Mobilise financial resources (MTEF, budget, donors, private sector) and coordinate implementation activities, facilitate implementation and installation of upgraded and expanded monitoring network and WIS,; monitor hydrologic and meteorological conditions, compliance with regulations, and implementation of the CMP
Katonga CMO (Catchment management Committee – CMC, and Catchment Technical Committee – CTC)	▪ Promote and facilitate the implementation of the catchment management plan; and inclusion of plan projects and programs into District development plans. ▪ Monitor plan implementation
District Local Government	▪ Facilitate and provide political and technical support to the implementation of the final catchment plan ▪ Incorporate priority projects and programs into the District development plan as appropriate
Donor partners & CSOs	▪ Mobise resources and implement priority projects and program in collaboration with the Victoria WMZ and stakeholders
Grassroots Communities	▪ Train in soil and water conservation technologies and implement them at the farm level, provide local support in implementing the priority projects in the catchment.

6.3 Indicative Costs of Sequenced Interventions and Management Actions

Table 6-2: Sequenced total costs for investment in the implementation of Katonga Catchment Management Plan

Intervention	Type	20%	40%	30%	10%
		2022-2025	2026-2029	2030-2033	2034-2040
1.0	Valley Tank Rehabilitation	1,242,598,000	2,485,196,001	1,863,897,001	621,299,000
2.0	New Valley Dam establishment	705,410,000	1,410,820,000	1,058,115,000	352,705,000
3.0	Borehole wells	70,840,000	141,680,000	106,260,000	35,420,000
4.0	Multipurpose Storage - Earth Dam	7,343,670,000	14,687,340,000	11,015,505,000	3,671,835,000
5.0	Multipurpose Storage - Valley Dam	3,279,570,000	6,559,140,000	4,919,355,000	1,639,785,000
6.0	Soil and Water conservation	690,000,000	1,380,000,000	1,035,000,000	345,000,000
7.0	Wetland Demarcation	2,940,800,700	5,881,601,400	4,411,201,050	1,470,400,350
8.0	Solid Waste Treatment System (Landfill Facility)	2,703,925,366	5,407,850,733	4,055,888,050	1,351,962,683
9.0	Solid waste compost facility	276,000,000	552,000,000	414,000,000	138,000,000
10.0	Forest Regeneration	15,771,396,984	31,542,793,967	23,657,095,475	7,885,698,492
11.0	Improve Institutional Cookstoves (Schools)	33,589,200	67,178,400	50,383,800	16,794,600
12.0	Climate intervention (Bamboo)	1,209,447,987	2,418,895,975	1,814,171,981	604,723,994

The sequencing of the investment, planning and implementation of Katonga CMP as shown in Table 6 2 has been organised in varying percentages, of 20% of the costs for the period 2019-2024, 40% for 2025-2030, 30% for 2031-2034, and 10% for 2035-2040.

6.4 Funding options for implantation of the Katonga Catchment Management Plan

The implementation of the sequenced interventions and management actions require considerable amount of resources. The government is the primary source of funds. However, Government allocations to the Water and Environment Sector Budget alone is insufficient to meet the catchment's intervention needs. Aggressive mobilisation of resources from different sources by the Victoria WMZ and the Katonga CMC is paramount to supplement government funding.

In sum, the potential funding options are identified from the budget allocations from The Ministry of Water and Environment, Government and Development Partners through the Joint Partnership Fund; Carbon Trading/Carbon credit market; Biodiversity Finance Initiative—BIOFIN; Korea International Cooperation Agency (KOICA); Funding Opportunities from Powering Agriculture, NGOs and Lead Agencies for commercial bamboo plantation; Optimization of funding opportunities at International Network for Bamboo & Rattan (INBAR); and Civil Society Organisations (CSOs).

ADDITIONAL INFORMATION

This popular version of the Katonga Catchment Management Plan (CMP) presents a summary of the primary content of findings and messages. The detailed description of the biophysical and socio-economic conditions of the catchment, the hotspots analysis, detailed discussion of the investment interventions and management actions, implementation plan, and monitoring and evaluation, among others, are referred to in the main Katonga Catchment Management Plan, Water Resources Assessment Report, Catchment Situational Diagnostic report, and the Stakeholder analysis report.

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