

ABRIDGED VERSION

AUGUST 2015

DEDICATION

ΤO

THE WOMEN AND YOUTH IN THE CATCHMENT

REPORT CONTROL SHEET

CLIENT: Ministry of Water and Environment

CLIENT REPRESENTATIVE: Albert Orijabo (albert.orijabo@gmail.com)

PROJECT: Consulting Services for Review and Finalization of the Mpanga Catchment Management Plan

REPORT TITLE: Mpanga Catchment Management Plan – Abridged version.

PROJECT NUMBER: N/A

TEAM THAT REVIEWED AND FINALIZED THE CATCHMENT MANAGEMENT PLAN: Clovis Kabaseke, supported by Dr. Moses Muhumuza, Violet Kisakye, John Sekajugo and George Bwambale.

REPORT STATUS: Final copy

DATE: August 2015

DRAFT REVIEWED BY:

Ministry of Water and Environment

ACKNOWLEDGEMENT

The consultancy team that reviewed and finalized the Mpanga Catchment Management Plan acknowledges the immense work found in the draft Catchment Management Plan made by PROTOS. The review would have been difficult had it not been for the rich content found in the draft Catchment management Plan. The team also acknowledges the different reports from other consultancies which were used in the preparation of this final Catchment Management Plan. These include BRL, BASTEEL, Awoja CMP, Afromaison project report and all other as indicated in the annex. The team is indebted for the support from the Ministry of Water and Environment.

EXECUTIVE SUMMARY

The Mpanga catchment is shared between the districts of Kabarole, Kyenjojo, Kamwenge, Ibanda and Kiruhura Districts. The catchment area, estimated at approximately 4670 Km² lies within the Albertine Rift Montane Eco-region of African Rift Lakes within the Albert Water Management Zone. It covers a network of unprotected and protected areas. Among them are the world famous Kibale National Park, Queen Elizabeth National Park, The Rwenzori Mountains National Park and the Lake George RAMSAR site. The catchment is of high economic and biodiversity value to Uganda, and the world at large.

The Mpanga catchment has several socio-economic/land-use activities being undertaken within by both the public and the private sectors. These include subsistence to large scale commercial agriculture like tea; urbanization (towns and municipalities with resultant generation of sewage, solid waste and run-off from streets and garages); energy production (Hydro-electric power generation) and the Rwenzori Mountains Ranges. The major threats to the catchment include:

- increasing human population and high vulnerability of the population combined with a high dependency on ecosystems;
- weak governance of the natural resources, poor and unsustainable land use practices (deforestation, overgrazing, agriculture) and overall ecosystem degradation;
- river bank, lakeshore and wetland degradation;
- siltation of water bodies; pollution, both at commercial and community levels;
- deteriorating quality and quantity of lake and river waters;
- invasive plant species;
- Incomplete and unreliable data availability for adequate resources management
- weak institutional capacity for water resources management and
- weak governance for water resources management

In addition, the water abstraction through gravity flow schemes, industrial groundwater abstractions, small scale water groundwater abstraction points and others undertaken without proper hydrological survey and studies is posing a threat to the Basin downstream. Besides these threats, there are cross cutting issues namely; climate change and variability, high illiteracy rate and rampant poverty and disease that are posing additional threats to the catchment.

The River Mpanga Catchment Management Plan (RM-CMP) identifies and proposes suggestions of the possible interventions using the integrated water resources management approach. The plan takes into consideration the natural resources in the basin, their economic potential and identifies conservation threats from catchment wide processes by participatory decision and consensus making. The proposed integrated approach to conservation will promote sustainable livelihoods, create new socio-economic opportunities, harness existing ones and safeguard the conservation of the key natural resources. The plan proposes management strategies that take into account the natural ecological linkages, conservation

objectives and needs in designated areas and highlights targeted research to guide natural resource management and overall conservation of the basin while ensuring sustainable livelihoods.

The process of developing this catchment management plan involved stakeholders from the lowest level to ensure wide participation and ownership and success in its implementation. According the key principles of IWRM decisions were taken into account including the lowest possible levels in order to ensure that the interventions of the plan can indeed improve the quality of life of the most vulnerable communities within the catchment and enabling sustainable use of natural resources.

The Mpanga Catchment Management Plan (CMP) is an integrated catchment plan that identifies issues that need urgent consideration, proposes mitigation strategies and identifies appropriate stakeholders and their roles. The CMP has a timeframe of 25 years (2015 to 2040) in which to achieve the objectives of integrated water and other resources management. A log frame for executing the CMP components, means of verification, stakeholder responsibilities and approximate costs is included. The plan has inbuilt mechanisms for monitoring and evaluating its implementation. This plan is an adjustable blueprint upon which other programs within in the catchment can be based. It provides a framework for different stakeholders to identify areas where their interventions are needed and their linkages with other stakeholders.

TABLE OF CONTENTS

ACKNOV	WLEDGEMENT	ii
EXECUTI	IVE SUMMARY	iii
LIST OF F	FIGURES	vi
LIST OF T	TABLES	vii
ACRONY	YMS	viii
1 BACKG	GROUND AND INTRODUCTION	1
1.1.	Background to Catchment Planning	1
1.2.	Current plans for catchment management	1
1.3.	Rationale for catchment management planning	2
1.4.	Plans for Mpanga Catchment Management	3
1.5 Lo	ocation of Mpanga Catchment	6
1.6 Go	oal and Purpose of the Mpanga Catchment Management Plan	8
1.7 Oł	bjectives	9
1.7.	'.1 Short term objectives	9
1.7.	2.2 Long term objectives	9
2 OPTIO	ONS, INTERVENTIONS AND STRATEGIES	10
2.1 Pla	anning Vision and Objectives	10
2.2 Pr	roposed vision for Mpanga catchment by the stakeholders	10
2.3 St	rategic objectives	10
3 THE CA	ATCHMENT MANAGEMENT PLAN	12
3.1 M	Ionitoring and Evaluation Plan	
3.2 Im	nplementation of the Catchment Management Plan	41
3.2.	1 Management Structure and operationalization	41
3.2.	2.2 Stakeholder Coordination and integration of activities	44
4 BUDGE	ET ESTIMATES AND POTENTIAL FUNDING SOURCES	46

LIST OF FIGURES

Figure 1 Levels at which the water reform strategy operates	2
Figure 2 Mpanga Catchment Basin	8
Figure 3 Proposed Catchment Implementation Committee Structure	41

LIST OF TABLES

Table 1: showing ranked strategic interventions and options for upstream catchment	. 12
Table 2: Showing ranked strategic interventions and options for Midstream catchment	. 19
Table 3: Showing ranked strategic interventions and options for downstream catchment	. 25
Table 4: Showing ranked cross cutting strategic interventions and options	. 32
Table 5: Showing ranked strategic interventions and options for downstream catchment	. 37
Table 6: showing proposed management structure, composition and their roles	.42
Table 7: Stakeholder Responsibility Matrix	44

ACRONYMS

AWP	Annual Work Plan
AWMZ	Albert Water Management Zone
BMU	Beach Management Unit
BTC	Belgium Technical Corporation
CBO	Community Based Organization
CMC	Catchment Management Committee
CMP	Catchment Management Plan
CRS	Catholic Relief Services
DRC	Democratic Republic of Congo
DWO	District Water Officer
DWRM	Directorate of Water Resources Management
EIA	Environmental Impact Assessment
FIEFOC	Farm Income Enhancement & Forest Conservation
GDP	Gross Domestic Product
IGA	Income Generating Activities
IWRM	Integrated Water Resources Management
JESE	Joint Effort to Save the Environment
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MDG	Millennium Development Goals
MWE	Ministry of Water and Environment
NBI	Nile Basin Initiative
NEMA	National Environment Management Authority
NFA	National Forest Authority
NGO	Non-Governmental Organization
NWP	National Water Policy
NWSC	National Water and Sewerage Cooperation
SCMP	Sub Catchment Management Plan
SNV	Netherlands Development Agency
TBG	Toro Botanical Gardens
TSS	Total Suspended Solids
UNEP	United Nations Environment Program
UWA	Uganda Wildlife Authority
WHS	World Heritage Site
WUG	Water User Group
WWF	World Wild Fund for Nature

1 BACKGROUND AND INTRODUCTION

1.1. Background to Catchment Planning

River Mpanga is currently under intense anthropogenic pressure due to deforestation of the slopes of the Rwenzori Mountains where it draws its waters. Deforestation has led to soil erosion, landslides and siltation of the river. Human activities such as mining of sand, gravel and stones, although being important for livelihood and survival, have led to destabilisation of the river bank and hence have negatively impacted the river. Washing bays, slaughterhouses, and commercial businesses in Fort Portal have contributed waste which threaten the Flora and Fauna in the river. Anthropogenic activities pose a particular threat to the rare cycad plants whose only known habitat in the world is along the banks of the River Mpanga, near the Mpanga Falls. The declining water levels observed in the river, as well as Lake George where the river pours its waters, reduce the overall breeding capacity and are detrimental to nursery sites of some fish species which will in turn affect lake productivity (Water Resource Assessment for river Mpanga, 2009).

1.2. Current plans for catchment management

Uganda adopted the principle of IWRM during the preparation of the Water Action Plan (WAP) in 1993-94. WAP mainly detailed activities that were associated with water resources development and management and defined the problems related to securing water of acceptable quality and quantity to sustain the health of the people of Uganda and for economic activities. The WAP finally expressed the need for an institutional framework within which priorities could be determined and optimal uses planned. Based on this, Uganda undertook a Water Resources Management Reform Study (WRM study) from 2003 to 2005 with the objective to establish an effective framework for Water Resource Management in Uganda to ensure that water resources are managed in an integrated and sustainable manner. The study led to the preparation of a WRM reform strategy whose key recommendation was a shift from centralized to catchment based WRM. As a result the country was divided into four Water Management Zones (WMZ) namely:

- 1. Albert Water Management Zone
- 2. Kyoga Water Management Zone
- 3. Victoria Water Management Zone
- 4. Upper Nile Water Management Zone.

The main driver to decentralize the previously centralized WRM structures was to maximize economic and social benefits for Ugandans from water related resources management and development. Three different levels where water resource management functions will be decentralized have been foreseen, namely the WMZ, catchment and district. Water Management Zone will operationalize as the central level will deconcentrate its functions in order to move closer to stakeholders and be able to support them better. Each WMZ comprises different catchments which can be national catchments (e.g. Lake George) or trans

boundary (e.g. Kagera). Each catchment is spread over the territory of several districts. The Catchment is the level that provides a platform for involvement of key stakeholders.



Figure 1 Levels at which the water reform strategy operates

The catchment management structure shows that each catchment will have a Catchment Management Organization (CMO). The CMO will be supported by the WMZ team of DWRM and/or NGOs. Each CMO will also have structures for stakeholder coordination that include Stakeholder Forum, Catchment Management Committee (CMC), Catchment Technical Committee (CTC) and Catchment Secretariat. The districts located within a certain catchment will be the next level of decentralization where actual implementation of activities will be carried out. The activities in the catchments are driven by a CMC which consists mainly of political leaders of the different districts within the catchment and representatives of other key stakeholders who ensure that activities are effectively implemented.

Each catchment is spread over the territory of various districts. At operational level the catchment is the level where different stakeholders get involved in the management for water resources. At each catchment there is a Catchment Management Organization (CMO) which is supported by WMZ team of Directorate of Water Resources Management and Non-governmental organization.

1.3. Rationale for catchment management planning

Directorate of Water Resources Management (DWRM) has developed a Catchment based water resources management framework where all water resources development and management functions will be performed following a basin or catchment. This will also follow IWRM principles that stress the importance

of cross-sector cooperation and water allocation, and the use of water in an economically effective manner, taking into account equity and sustainability of ecosystems. Implementation of the Catchment based water resources management framework has been on going in a number of catchments in Uganda, including Mpanga Catchment in the Lake George and Albert sub-basin in western Uganda. Catchment based Integrated Water Resources Management (IWRM) in Uganda is therefore seen as the best available mechanism of combating water resources issues.

1.4. Plans for Mpanga Catchment Management

The Mpanga Catchment is the area drained by the River Mpanga and is originating from the Rwenzori Mountains which empty their waters into Lake George. The Catchment has several socio-economic activities being undertaken within, by both public and private sectors. These include agriculture; industry; settlements/urbanization; energy production (Hydro-electric Power generation) and wildlife conservation. There are different threats to the water resources within the Catchment, including

- increasing human population,
- weak governance of the natural resources and destruction of crucial ecosystems,
- limited and unreliable availability of essential data,
- unsustainable land use practices (deforestation, overgrazing, agriculture),
- river bank, lakeshore and wetland degradation,
- siltation of water bodies,
- pollution (commercial and community level);
- deteriorating quality and quantity of river waters, and
- Weak institutional capacity and weak governance structures for water resources management for water resources management.

The Government of Uganda (GoU) through the Ministry of Water and Environment (Directorate of Water Resources Management) has been working in close collaboration with partners and stakeholders such as the riparian district Local Governments, Civil Society Organizations, the private sector and the communities in implementing the Mpanga Catchment and Water Resources Management Project aimed at promoting Integrated Water Resources Management (IWRM) within the entire river basin, with full participation of stakeholders.

For Mpanga Catchment, the CMC and the CTC were formed in 2010 but reconstituted in 2015. The CTC is responsible for supporting the CMC in its decision making process and is therefore mainly composed of local technical staff of participating districts and key stakeholders within the catchment. Also a draft catchment management plan was developed. A final catchment management plan (which is this document)

was needed in order to spell out the operationalization of the Mpanga catchment management, the logistics required and how the different stakeholders shall work together.

The DWRM under Procurement Ref No: MWE/WSDF-SWB/SRVCS/13-14/00005 of September 2014 called for consultancy services. The overall objective was to review, update and finalize the development of the Mpanga Catchment Management Plan. The specific objectives were:

- 1. To assess the current status of Mpanga catchment regarding natural resources and socio-economic structure.
- 2. To assess the availability and demand of water for both the present and future requirements.
- 3. Assess, through a participatory process, the current priority problems as identified by the community and also the community perception of reasons for the degradation and pollution.
- 4. Develop, through a participatory process, a catchment management plan to address the priority problems.
- 5. Finalize the development of the Mpanga catchment management plan.
- 6. Define arrangements for implementation (institutional, technical and financial) of catchment management plan with a monitoring and evaluation system.

The detailed tasks to be undertaken during the consultancy were:

1. Task 3-1 Baseline information

Reviewing the available Catchment management plan, reports and documents from previous studies. These included, but were not necessarily limited to, the reports and documentation relating to the catchment, institutional arrangements, water and related policies, and ongoing catchment management initiatives at regional, national and local levels. The review included profiles of broadly identified hot spot areas, outlined in the draft Mpanga Catchment management plan, delineating each of the hot spot areas in to micro-catchments of manageable size, and prioritizing them on the basis of criteria to be developed in consultation with AWMZ. Each delineated area was to be described in terms of socio-economic and biophysical characteristics through document review and field assessment.

2. Task 3-2. Problem identification and Analyses

The consultant, working together with AWMZ members and communities, through a process that, among other things, involves focused group discussions elicit a complete and ranked census of the real and perceived problems and their underlying causes. The consultant would also identify and assess key issues for sustainable IWRM, challenges and agro-ecological potentials for each of the delineated micro-catchments and the effectiveness of current actions and their delivery. The process also included

mapping of degraded areas by conducting transect walks to capture real water resources issues/challenges including geo-referencing of degraded hotspots.

3. Task 3-3. Solution Identification and delineation of intervention areas

Together with relevant agencies (AWMZ members, District officials & NGO's), facilitate the sub basin communities to formulate a series of actions to address the identified problems and seize available opportunities. The consultant was tasked to make use of best practices identified within the region and beyond, where applicable.

- Using the GIS tool, delineate areas of intervention with different colours/patterns corresponding to the various activities on e.g. forestland, grazing and range land, agricultural land (if possible by type of activity, i.e. horticulture, forage crops, agroforestry and field crops) and small scale irrigation, etc.
- Undertake an assessment of the capacity building needs of the beneficiary communities with respect to natural resource management and livelihood improvement activities in the Sub-Catchment. A capacity building program that incorporates individual and community needs including gender issues was to be developed and priced.
- Review the funding packages and other resources already available for the proposed actions.

The planning teams were to assist in the tabulation and explanation of the cost implications of the proposed interventions, including assignment of responsibilities. Cost-sharing arrangements including community contributions were to be considered. The planning teams would also review solutions and screen them based on: (i) correspondence with the problems; (ii) multiple effects (positive effect on both natural resources and rural livelihood); (iii) number of beneficiaries; (iv) cost of activities; and (v) demonstration effect and potential/ease of replicability.

4. Task 3-4. Consolidation and finalising of the Draft Catchment Management Plan

The consultant would finalize the development of the draft sub catchment management plan including the implementation matrix with work plan and budget and clearly indicating how the success of the initiative can be measured in a variety of ways e.g. by assigning time targets to actions where appropriate. The time targets should be set for the short (2 years), medium (3-5 years) and long term (5-10 years) and clearly assign roles and responsibilities. This should build on ongoing interventions and be shared with the communities. Links with other plans and processes should also be established.

5. Task 3-5. Preparation of the final Catchment Management Plan

Following comments on the draft CMP the consultant was to produce a final catchment management plan for dissemination and adoption and present this to the relevant stakeholders. The plan should include, but not be limited to, details of all technical interventions and investments with due consideration of the

intervention scope of the project for each project component. The plan should also indicate implementation/institutional arrangements as well as the monitoring and evaluation mechanism.

Investments are expected to utilize best-practice examples, including sustainable management and maintenance of soil conservation investments: gully stabilization, rehabilitation of degraded forests: afforestation, rehabilitation of degraded grazing land: rotational grazing, livestock drinking water for communal use, simple livestock shelters; livelihood investments on private land, small scale irrigation, and energy saving technologies for home use. The plan should include interventions for both environmental and livelihood improvements, whilst balancing both human and environmental needs.

The expected principle output was a catchment management plan for Mpanga Catchment. The CMP is expected to include: 1) CMP implementation matrix with a work plan and budget, an M&E mechanism indicating time targets for the short (2 years), medium 3-5 years) and long terms (5-10 years). However, following subsequent discussions with stakeholders, the plan has been prepared for 25 years (2015 to 2040). 2) Community capacity building plan and 3) An Institutional set up for CMP Implementation.

1.5 Location of Mpanga Catchment

The Mpanga river flows over a distance of about 200 km, with an altitude ranging from 1,700 m (source area) to 914 m (Lake George), and crosses 3 different districts (Kabarole, Kyenjojo and Kamwenge) (Figure 1.2). Mpanga Catchment is bound by strong upstream – downstream relationships. The source area in the Rwenzori Mountains is currently under high pressure, mainly due to deforestation of their steep slopes. The loss of the tree cover is leading to severe soil erosion and the risk of landslides is increasing. More downstream, the mining of sand, gravel and stones has become an important income generating activity for the local communities. This however leads to important changes in the river bank characteristics and has started to impact on the river itself. The river flows through Fort Portal town, being one of the fastest growing urban areas in the country and planned to be developed into a tourism city by 2024. In this town, water is abstracted by National Water and Sewerage Corporation (NWSC) providing drinking water through a piped water system. Part of the waste water from Fort Portal town is discharged back in to the river (after sedimentation). Initiatives have been undertaken to improve the waste management within the town area. Waste water from different activities such as washing bays, slaughterhouse in Fort Portal are discharged directly into the river. The discharge of river Mpanga is being monitored downstream by the DWRM.

The Water Resource Assessment shows that the water quality in Mpanga River downstream from Fort Portal is heavily impacted by discharge of organic waste water. Further downstream, the water quality improves (due to the purification capacity of Kibale Forest), however in the Kamwenge area the turbidity is one of the highest in the country, with values up to 200 NTU.

From Fort Portal town, the Mpanga River flows through a rural area with various tea plantations (where large ground water abstractions are operational) into Kibale Forest. This ecosystem is one of the most important indigenous forests still present in Uganda today and has a high environmental value. The Mpanga River plays a key role in its existence and conservation. The river flows through different wetlands for which it also plays an important role in maintaining the environmental value.

As the river flows through Kamwenge District towards Lake George, the area is heavily deforested and especially river banks are threatened by the cultivation of crops. In Kamwenge town a new drinking water system has been recently installed using Mpanga River water. At present, there is no waste water discharge from this town (as there is no sewer present but this might change in the future). Also in Kamwenge District, irrigation systems have been planned, but at this stage no specific projects are in the pipeline. The Mpanga River then flows into Lake George over Mpanga falls. This site is a natural habitat for different species of fauna and flora and borders Queen Elizabeth National Park (the Dura wetland system is also classified as Ramsar site). The Mpanga Falls Gorge itself is known to be the world only habitat for rare cycad plants. At this site a hydropower dam was constructed and became operational in 2012.

Finally, Lake George itself faces several serious threats related to the rivers flowing into it and the management of its fisheries resource (overfishing etc.). Residents of all fishing villages on Lake George concede that the level of the lake has been going down over the years. No one is sure of the causes but it could partly be due to wider global issues such as climate change and partly due to environmental deterioration at the national or regional level. Whatever the cause, declining water levels reduce overall breeding or nursery sites for some fish species and may affect lake productivity (Water Resource Assessment for river Mpanga, 2009)



Figure 2: Mpanga Catchment Basin

1.6 Goal and Purpose of the Mpanga Catchment Management Plan

The overall goal of this catchment management plan is to ensure a well-managed Mpanga catchment providing equitable and wise use of social, ecological and environmental services to the local and international community. The purpose of the plan is to enhance provision of socio-economic and environmental services and products for the benefit of present and future generations for improvement of people's livelihoods, around and beyond the Mpanga catchment.

1.7 Objectives

To achieve the overall goal of the CMP, a set of short and long term objectives have been identified. The attainment of the short term will facilitate and create an enabling environment for achieving the long-term objectives.

1.7.1 Short term objectives

- Conserve and manage the environmental services and values of the sub catchment for sustainable development
- Provide a basis for diversification of benefit sharing and poverty alleviation by instituting sustainable land use practices, environmental conservation and natural resources management
- Secure support of local, national and international institutions in the conservation and development of Mpanga catchment
- Promote integration, collaboration and stakeholders participation in Integrated Water Resources Management
- Identify and implement feasible strategies that can enable communities to adapt to effects of climate change

1.7.2 Long term objectives

- Promote sustainable community socio-economic development
- Minimize threats and constraints that hinder sustainable conservation and development in the plan area
- Promote environmental education and awareness for effective stakeholder participation
- Minimize human-resource conflicts, threats and enhance compatible land use practices.
- Observe gender equity in the planning and implementation of the Mpanga Catchment Management Plan.

1.8 Approaches used in the review and finalization of the catchment management plan

Initially there was a draft catchment management plan developed by PROTOS. Both the draft and the final catchment management plan were developed following a highly consultative process with various stakeholders. The detailed process is described in Appendix 1. This Mpanga Catchment Management Plan was informed by information about the characteristics of the Mpanga Catchment (Appendix 2) and the water resource assessment (Appendix 3). Catchment issues including the problems and their drivers are described in Appendix 4. A shortlist of options to address the problems and how they were ranked to prioritize them is described in Appendix 5. Appendix 6 contains the detailed budget for implementation of the Mpanga Catchment Management Plan and the various stakeholders that are envisaged to support its implementation.

2 OPTIONS, INTERVENTIONS AND STRATEGIES

2.1 Planning Vision and Objectives

To develop a common direction and understanding for a sustainable integrated development of Mpanga and Rushango sub-catchment for the socio-economic benefit of its people, a vision and objectives to guide the strategic interventions was formulated. The vision was generated by working groups of the participants at the stakeholder workshop held at Toro Botanical gardens on 6th August, 2015. The process took into account the issues, strategic implications and catchment driving factors. The National vision, DWRM vision and the Kyoga WMZ vision were used as reference. The proposed visions from the workshop groups are summarised below:

2.2 Proposed vision for Mpanga catchment by the stakeholders

To have a sustainably managed eco-touristic catchment that meets the socio economic and ecological needs of current and future generations by 2040

2.3 Strategic objectives

Based on the vision, the following objectives were generated to guide the strategic interventions

To support catchment conservation through the promotion of sustainable practices

- 1. To support appropriate forest management
- 2. To promote sustainable agricultural and land use management
- 3. Develop a tourism attraction enterprise to diversify community livelihoods
- 4. Support the conservation of fragile ecosystems

To ensure water source protection

- 1. Reduce point source pollution through engagement with major polluters
- 2. Support waste reduction and improved disposal
- 3. To address both point and non-point water pollution sources
- 4. Promote water use efficiency technologies

To improve compliance and law enforcement

- 1. Improve resource monitoring of surface and ground water resources
- 2. Support efforts to formulate effluent discharge control plans

To ensure stakeholder sensitisation, capacity building and institutional development

- 1. Promote community awareness in environmental management issues
- 2. Enforce existing policies and regulations,
- 3. Revitalise and set up new institutional structures for effective implementation

To promote rights based approach to catchment management

- 1. Ensure gender mainstreaming in water resources management
- 2. Support the inclusion of vulnerable communities in all planning processes

To ensure sustainability in financial management

1. Enhance the capacity of stakeholders in sustainable financial management practices

3 THE CATCHMENT MANAGEMENT PLAN

This section presents the outcomes of the evaluation process and proposed intervention sites. The activities are presented per sub catchment

|--|

UPSTREAM		Evaluation criteria					
1.0 Catchment conservation	Pilot areas	ES;Range:0 to 800	SEO; Range: -125 to 125	C; Range: -200 to 200	CCAP; Range: - 100 to 200	RA Range: - 75 to 75	TOTAL; Max score: 1400
1.1. Promotion of appropriate forestry							640
Management							
Replacement of eucalyptus trees with more	Mugoma-Kasindikwa,						
appropriate trees like Grevillia robusta	Kalyango hills						
	Kanyankoko-Mbuzi						
	Rwengoma, Nyakimya						
	wetland						
		600	100	-200	200	-10	690
Encourage planting of fruit trees and coffee trees	Nyakitokoli and						
by households on the hills close to the water	Karangura hills, river						
source and adjacent households within the 100 m	stretch from Nyakitokoli						
buffer zone	to Kampala Rd bridge	800	100	-100	60	65	925
Establish water friendly and income generating							
tree nurseries making them readily available.							
Identified species include; EMIJUGANTARA							
(Polycius fulva), EMISIZI(Maesopsis							
eminii),GOVELIA (Grevillia robusta)		600	125	-40	60	30	775
Strict monitoring of activities within gazetted							
forest reserves to curb illegal deforestation and							
charcoal burning activities e.g Kibale forest							
reserve		200	125	-60	80	67	412
Prosecute through legal channels culprits involved							
in illegal lumbering activities and charcoal burning							
within gazetted areas		200	125	-80	70	70	385
		200	125		,0	,0	505

Identification and demarcation of heavily	Nyakitokoli next to						
deforested areas and plan for reforestation	Rwenzori NP, Kazingo						
	area and fringes of Kibale						
	forest	600	0	40	20	-10	650
1.2. Promotion of sustainable agricultural and							
Land use Management							820
Enforcing the Agricultural Act concerning	Nyakitokoli and						
cultivation on steep slopes which limits activities	Karangura hills,						
on hillslopes e.g establishment of soil conservation							
measures like terraces, contour bunds, strip							
cropping, agroforestry etc		600	125	-200	60	65	650
Establish demonstration farms to introduce new							
farming technologies		600	125	100	60	65	950
Encourage non-Traditional agricultural income							
activities at household level e.g Bee keeping,							
mushroom growing, etc to reduce							
overdependence on crop agriculture		600	125	-200	60	65	650
Promote reciprocal labour exchange systems							
among farmers' groups to address the limited							
farm labour in the area		600	125	50	60	65	900
Promote on-farm nutrient recycling using animal							
wastes to reinforce soil fertility		600	125	100	60	65	950
1.3. Develop a tourism attraction enterprise to							
diversify community livelihoods							810
Conduct an inventory of touristic attractions of	river stretch from						
importance right from Mpanga source e.g camping	Nyakitokoli hillslopes next						
sites, hiking trails, bird watching sites, cultural	to Rwenzori national park						
sites, etc	to Kibale National park						
		800	50	160	0	30	1040
Assess the possibility of introducing boat rides							
through Kibale National Park for tourists to view							
Flora and Fauna		800	50	160	0	30	

Create a mayors garden along the river stretch by	Fort Portal town river						
planting indigenous trees, flowers and cycads	stretch	800	50	160	0	30	1040
Liaise with existing tour companies to package and							
include identified sites in their brochures,							
websites etc.		800	50	160	0	30	1040
Channel an agreed percentage income from							
tourism to community development projects		600	50	100	150	20	020
1.4. Reduced river bank erosion and conservation		000	30	100	130	50	930
of riparian area							805
Enforcement of buffer zone management by e.g	along the river stretch						
demarcating the river reserve with concrete pillars	upstream to downstream						
		600	0	-200	200	-10	590
Establish demonstration sites/ vegetative cover	Kyabwire trading centre,						
for riverbank protection e,g planting cycads along	along Mpanga market,						
the buffer zone	mugunu	600	25	160	0	25	810
Support the activities of Kabarole bee keepers	Kazingo area and river						
association to set up apiary demonstration sites in	buffer areas						
the planted trees along the buffer zone		800	125	120	60	65	1170
The ministry should advise relevant authorities to							
revise the required 100 m riverbank buffer zone to							
a more practical distance especially in the urban							
centres		700	100	160	0	20	980
Promotion of livestock troughs away from river	along river stretch and						
course to prevent direct dumping of animal waste	tributaries						
into the river		600	25	-120	20	-50	475
1.5. Protection of Wetlands and reduction of							
wetland degradation							718

Support sustainable utilisation of wetlands for	Mugoma-Kasindikwa,						
adjacent communities by introducing fish farming,	Kitoba, Kalyango hills,						
duck rearing, regulate crop types grown in	Kamutebe,						
wetlands, limit agriculture to the wetland fringes	Kisa kyabairu-Kigere						
etc	village-Njuguta, Binanata,						
	Dura-Karago						
	Kainago-Mukikura-						
	Kitarasa,						
	Kanyankoko-Mbuzi						
	Rwengoma						
	Muchwangwazi-Ibonde,						
	Nyakimya	800	50	140	140	25	1155
Promote sustainable soil fertility management	communities adjacent to						
measures to increase farm productivity on dryland	Mugoma-Kasindikwa,						
e.g mulching, fallowing, use of organic manures,	Kitoba, Kalyango hills,						
use of green manures etc	Kamutebe,						
	Kisa kyabairu-Kigere						
	village-Njuguta, Binanata,						
	Dura-Karago						
	Kainago-Mukikura-						
	Kitarasa,						
	Kanyankoko-Mbuzi						
	Rwengoma						
	Muchwangwazi-Ibonde,						
	Nyakimya wetlands	600	130	40	140	-10	900
If possible, compensate land users on wetlands of	mostly in Fort Portal						
critical importance and embark on restoration							
		600	0	-200	-60	-75	265
Live fencing of wetlands	all wetlands mentioned						
	above	900	-125	-200	140	-10	705
Implement the policy and laws adequately e.g	all wetlands mentioned						
Enforcement of the integrity of the wetland area	above	800	-125	-200	140	-50	565
	1						

1.5. Promotion of eco-friendly energy saving initiative and efficient use of biomass							823
Identification of other service providers actors promoting the use of alternative energy sources and the use of more efficient energy production							
systems		600	0	160	0	75	835
Promotion of eco-friendly energy saving initiatives							
and alternative energy sources to reduce the							
demands for firewood and charcoal		600	100	60	200	25	985
2.0. Water source protection							
2.1. Reducing point source pollution through engagement with industry /mining,							697
Encouragement of eco-friendly effluent treatment	garages, washing bays,						
e.g. Garages and fuel stations should have a	hotels and slaughter						
component of water treatment e.g using	house in Fort Portal town						
constructed wetlands, treatment ponds etc		600	-25	140	20	-10	725
Set up demonstration sites on selected garages,							
washing bays, or any other major point source							
polluter to demonstrate ecofriendly and low cost							
effluent treatment system		600	-25	140	20	-10	725
Mobilize and engage point source polluters and	e.g. car washing bays,						
develop Effluent Discharge Control Plans (EDCPs)	Abattoir,, hotels,						
	restaurants, tea factories	COO	75	1.00	10	10	625
Mith states along manitor the implementation of	etc	600	-/5	160	-40	-10	635
EDCDs through routing water quality assessment							
EDCPS through routine water quality assessment		600	-75	160	20	-10	695
Facilitate the Relocation of main point source	Abattoir, washing bays,						
polluters located at critical areas within the	garages within Fort portal						
recommended buffer zone	Municipality	600	-75	80	150	30	785
Organize and regulate activities of sand miners.	Kyabwire trading center						
Draft strict bylaws and Introduce taxes and legal							
permits for sand miners		600	-125	80	20	40	615

2.2. Support improved processing reduction and disposal of solid waste									868
Survey existing dumping sites and source for new	Fort P	ortal	Municipal area						
potential dumping sites based on environmental									
impact studies				600	0	160	0	65	825
Liaise with municipal authorities on appropriate	Mugu	nu, Ka	aramaga						
solid waste disposal options	Mpan	ga ma	arket, Buhinga						
	playgr	ound	, Mpanga						
	marke	et brid	ge						
	Karam	naga a	nd Nyakimya						
				600	0	160	60	65	885
Support local organisations involved in the	e.g M	pang'a	ame club for						
production of biodegradable grocery bags as a	INRM								
replacement of polythene bags				600	100	160	20	25	905
Support the Establishment of a biogas production									
plant at the abattoir to generate clean energy									
from the animal wastes				600	50	60	200	-10	900
Source for investors to recycle plastics wastes into									
useful products e.g use plastic waste in production									
of other plastics, construction work, crafts etc				600	50	60	200	-10	900
Job –creation through entrepreneurship skills									
development				600	125	60	60	-50	795
2.4. Reduce household pollution from latrines									
and other domestic wastes									698
Promote the relocation of pit latrines away from	house	holds	within the						
water sources and Establish demonstration sites	buffer	. zone	e.g Kisenyi						
for eco sanitation facilities	Mugunu area		ea	600	-75	160	0	25	710
Support the expansion of the national water	Kiseny	∕i, Mu	gunu, general						
sewerage system grid to specifically include	F/P municiple area		ole area						
households close to the buffer zone				600	0	0	0	-10	590
Promotion of alternative use of organic wastes at	whole	upsti	ream area						
household level to reduce waste load at source e.g									
compositing to support backyard farming				400	100	160	60	75	795

3.0. Compliance and Enforcement							
3.1. Improve resource monitoring of SW/GW							
abstraction							710
Prepare inventory and list of illegal abstractors	whole upstream area	400	25	160	60	6E	710
Increase and monitor measuring devices installed	whole unstream area	400	25	100	00	05	/10
his pect and monitor measuring devices instaned	whole upstream area						
by abstractors and compare water applied for		COO	75	120	0	65	74.0
against abstracted		600	-/5	120	0	65	/10
3.2. Improvements to Water Use Efficiency							1048
Establish demonstration sites for low cost,	especially communities in						
domestic rainwater harvesting systems using	Nyakitokoli and						
locally available materials	Karangura hills	600	125	80	200	50	1055
Establish demonstration sites for improved water	Nyakitokoli and						
conservation techniques like utilisation of surface	Karangura hills						
runoff for small scale irrigation at household level	_						
		600	125	80	200	50	1055
Promote use of water efficient technologies e.g	newly proposed						
drip irrigation and water recycling techniques for	Rwengaju irrigation						
major water users	scheme, tea factories	600	125	80	200	30	1035
3.3. Linkages to Water Resource Protection in							
reduction of effluent pollution							823
Identification and engagement of point source							
polluters		700	-75	160	0	25	810
Support in their development of Effluent							
Discharge Control Plans (EDCPs), monitor							
implementation and compliance (DWRM and							
stakeholders)		600	25	160	20	30	835

Table 2: Showing ranked strategic interventions and options for Midstream catchment

MIDSTREAM SECTION		Ca	atchment	Evaluation	Framewor	k Evaluatio	on criteria	Timeline
		ES	RA	SEO	C Range:	CCAP	Total	
		Range:0 to	Range: -	Range: -	-200 to 125	Range:	Max score:	
		800	/5 to /5	125 (0 125		200	1400	
1.0 Catchment conservation	Pilot area							
1.1. Promotion of appropriate forestry management							538	
Replacement of eucalyptus trees with more appropriate	Rwakahiira-							
trees like Grevillia robusta	Nyabuharwa,							
	Kanyaswisi-Nyaibanda							
	parish	200	30	100	100	-120	310	
Strict monitoring of activities within gazetted forest								
reserves to curb illegal deforestation and charcoal								
burning activities e.g Kibale forest reserve		200	125	-60	80	67	412	
Prosecute through legal channels culprits involved in								
illegal lumbering activities and charcoal burning within								
gazetted areas		200	125	-80	70	70	385	
Identification and demarcation of heavily deforested								
areas and plan for reforestation		600	0	40	20	-10	650	
Establish water friendly and income generating tree	areas adjacent to							
nurseries making them readily available. identified	Kibale National park							
species include; Omusambya (Markhamia lutea),								
Goveria (Grevillia robusta),Kalyadura (Calliandra								
corlythysus), Engote (Prunus africana), Kabaka								
anjagala(<i>Eleurites molucana</i>) & Emikinga (<i>Acacia spp</i>)		500	75	400	400	400	005	
		500	/5	100	100	160	935	
1.2. Promotion of sustainable agricultural and Land use Management							760	
Enforcing the Agricultural Act concerning cultivation on								
steep slopes which limits activities on hillslopes e.g								
establishment of soil conservation measures like		600	125	-200	60	65	650	

terraces, contour bunds, strip cropping, agroforestry etc								
Establish demonstration farms to introduce new farming		600	125	100	60	65	950	
Encourage non-agricultural diversification of income		000	125	100	00	00	300	
activities at household level to reduce vulnerability to								
crop failure		600	125	-200	60	65	650	
Promote reciprocal labour exchange systems among								
farmers to address the limited farm labour in the area		600	125	50	60	65	900	
Promote Mixed farming among the predominantly								
pastoral communities to enable nutrient recycling and								
diversify their livelihoods		600	125	100	60	65	950	
Promote appropriate livestock management practices								
e.g. reduction of overgrazing, appropriate stocking for								
maximum yield, planting improved pastures, formation								
of hay and silage etc		100	30	125	125	80	460	
Establish livestock demonstration farms with tolerant								
and high yielding breeds								
Support the establishment of community valley dams								
and train farmers on construction of valley dams								
1.3. Develop a tourism attraction enterprise to								
diversify community livelihoods							974	
Conduct an inventory of touristic attractions of	areas around KNP							
importance especially in areas close to the National								
Park e.g camping sites, hiking trails, bird watching sites,								
cultural sites, etc		800	50	160	0	30	1040	
Support the promotion of wetlands with important bird								
and butterfly species as community owned tourism								
projects e.g Bigodi wetland bird sanctuary		800	50	100	0	30	980	

Liaise with existing tour companies to package and include identified sites in their brochures, websites etc.		800	50	160	0	30	1040	
Engage communities and KNP authorities to work towards reviving the community tourist camp site. Activities include planting of palm trees, indigenous	Kataka/Nyamirono village, Kyakatwire parish, Kigarali S/C	700	10	00	405	40	005	
1.2. Reduced river bank erosion and conservation of riparian area		700	-10	60	125	-40	697	
Enforcement of buffer zone management by e.g demarcating the river with concrete pillars	all along the river stretch	200	-20	-125	-90	200	165	
Promote tree planting especially coffee along river banks.	Rwamutanikya- Rwamwanja	600	65	125	125	40	955	
Support adjacent households to Plant apiary friendly trees and set up beehives along the river banks which would also control against elephants from KNP	Rwamutanikya- Rwamwanja	800	0	125	0	0	925	
Establish demonstration sites/ vegetative cover for riverbank protection e,g planting cycads along the buffer zone	Rwakazingo, Rwamutanikya- Rwamwanja, Kigoro- Kyakatwire parish, Kagogo							
		700	25	25	25	60	835	
Establishment of valley dams specifically for livestock purposes to prevent direct dumping of animal waste into the river	Butiti S/C	600	-50	120	-125	60	605	
1.3. Protection of Wetlands and reduction of wetland degradation							510	
Support sustainable utilisation of wetlands for adjacent communities by introducing fish farming, duck rearing, regulate crop types grown in wetlands, limit agriculture to the wetland fringes etc	Rwenkuba, Kitoba, Kabasomba, Rwakahiira- Nyabuharwa	800	25	125	50	60	1060	

Promote sustainable soil fertility management measures to increase farm productivity on dryland e.g mulching, fallowing, use of organic manures, use of green manures, agroforestry etc	target communities surrounding; Rwenkuba, Kitoba, Kabasomba, Rwakahiira- Nyabuharwa wetlands, Tea estates etc							
		140	-10	120	50	60	360	
Compensation/resettlement of land owners whose entire lands fall in wetlands and embark on restoration of such areas		300	-75	-25	-25	-120	55	
Live fencing of wetlands to limit encroachment		600	-10	10	-125	140	615	
Implement the policy and laws adequately e.g Enforcement of the integrity of the wetland area		700	-50	-25	-125	-40	460	
1.4. Promotion of eco-friendly energy saving initiative and efficient use of biomass							810	
Identification of other service providers actors promoting the use of alternative energy sources and the use of more efficient energy production systems		0	75	200	0	160	435	
Promotion of eco-friendly energy saving initiatives and alternative energy sources to reduce the demands for firewood and charcoal		200	25	800	100	60	1185	
2.0. Water Source Protection								

2.1. Reducing point source pollution through engagement with industry /mining,							559	
Encouragement of eco-friendly effluent treatment e.g. garages and fuel stations should have a component of water treatment e.g using constructed wetlands,	Nyabuhoiho							
treatment ponds etc		400	-10	0	100	60	550	
Engage point source polluters (e.g. car washing bays , garages, tea factories etc) and develop Effluent Discharge Control Plans (EDCPs)	Nyabuhoiho	500	10	0	25	60	575	
With stakeholders monitor the implementation of EDCPs		500	-10	0	23	00	575	
through routine water quality assessment		300	-10	50	25	140	505	
Organize and regulate activities of sand miners. Draft strict bylaws and introduce taxes and legal permits for sand miners.	Rwenkuba	600	30	-125	80	20	605	
2.2. Support improved processing and disposal of solid waste							590	
Consult with Local Authorities and survey existing and potential dumping sites.		100	65	125	-75	160	375	
Support local community organizations involved in the production of biodegradable grocery bags as a replacement for polythene bags	e.g Butiiti Kwerwanaho Farmer Family Learning Group	600	25	100	160	20	905	
Identify opportunities for improved collection and disposal of solid waste.	· · ·	200	25	125	0	60	410	
Source for investors to recycle plastic wastes into useful products e.g use plastic waste in production of other plastics, construction work, crafts etc		600	-10	50	60	200	900	
Job creation through entrepreneurship skills development		100	-50	125	125	60	360	
2.4. Reduce household pollution from latrines and oth	er waste						795	

Support the relocation of pit latrines away from water	Rwakazingo							
sources and establish demonstration sites for eco		600	25	-75	160	0	710	
Promotion of alternative use of organic wastes at	whole midstream area							
household level to reduce waste load at source e.g use								
of compost pits to support backyard farming		400	75	100	160	60	795	
Create awareness on composting and promotion of								
		400	75	125	100	180	880	
3.0. compliance and enforcement								
3.1. Improve resource monitoring of SW/GW abstraction							255	
Prepare inventory and list of illegal abstractors and								
publicize their activities		60	65	0	25	160	310	
Inspect and monitor measuring devices installed by								
abstractors and compare water applied for against water		0	65	50	75	160	200	
3.3 Improvements to Water Use Efficiency		0	05	50	-75	100	200	
							995	
Establish demonstration sites for low cost, domestic	especially communities							
rainwater harvesting systems using locally available	in Butiiti S/C	600	10	105	00	200	005	
Establish demonstration sites for improved water	Mhale narish Butiiti S/C	000	-10	120	00	200	990	
conservation techniques like utilization of surface runoff								
for small scale irrigation at household level		600	10	125	80	200	005	
Promote use of water efficient technologies e g drip	tea factories	000	-10	125	00	200	333	
irrigation and water recycling techniques for major water								
users		600	-10	125	80	200	995	
3.4. Linkages to Water Resource Protection in								
reduction of effluent pollution							598	
Identification and engagement of point source polluters		400	25	100	-75	140	590	

Support in their development of Effluent Discharge							
Control Plans (EDCPs), monitor implementation and							
compliance (DWRM and stakeholders)							
	500	30	70	-75	80	605	

Time line	description	color code
short term	1-5 Years	
medium term	6-10 years	
Long term	10 and Above	
Continuous		

Table 3: Showing ranked strategic interventions and options for downstream catchment

DOWNSTREAM	Catchment Evaluation Framework Evaluation criteria									
		ES Range:0 to 800	RA Range: - 75 to 75	SEO Range: - 125 to 125	C Range: - 200 to 200	CCAP; Range: - 100 to 200	TOTAL; Max score: 1400			
1.0 Catchment conservation	Focus area									
1.1. Promotion of appropriate forest and land							550			
use management										
Replacement of eucalyptus trees with more										
appropriate trees like Grevillia robusta		400	0	-20	30	160	570			
Establish water friendly and income	Kiburara									
generating tree nurseries making them readily	area									
available. identified species include; Albizia										
spp, Acacia spp, Calliandra corlythursus,										
Grevillia robusta and Emisizi(Maesopsis										
eminii)		400	75	160	75	200	910			
Recognition of key tree planters and offer										
them medals/certificates to encourage others										
to plant trees		0	75	160	75	60	370			

Strict monitoring of activities within gazetted	Kiburara						
forest reserves to curb illegal deforestation	area						
and charcoal burning activities e.g Kibale							
National park and any neighboring forest							
reserves		200	125	-60	80	67	412
Prosecute through legal channels culprits							
involved in illegal lumbering activities and							
charcoal burning within gazetted areas		200	125	-80	70	70	385
Identification and demarcation of heavily							
deforested areas and plan for reforestation		600	0	40	20	-10	650
1.2. Promotion of sustainable agricultural							
and Land use Management							
							760
Enforcing the Agricultural Act concerning	Kiburara,						
cultivation on steep slopes which limits	Mpanga						
activities on hill slopes e.g establishment of	nyakahama						
soil conservation measures like terraces,	,						
contour bunds, strip cropping, agroforestry	Rushango						
etc		600	125	-200	60	65	650
Establish demonstration farms to introduce							
new farming technologies		600	125	100	60	65	950
Encourage non-agricultural diversification of							
income activities at household level to reduce							
vulnerability to crop failure		600	125	-200	60	65	650
Promote reciprocal labour exchange systems							
among farmers to address the limited farm							
labour in the area		600	125	50	60	65	900
Promote Mixed farming among the							
predominantly pastoral communities to							
enable nutrient recycling and diversify their							
livelihoods		600	125	100	60	65	950

Promote appropriate livestock management practices e.g. reduction of overgrazing, appropriate stocking for maximum vield.							
planting improved pastures, formation of hay							
and silage etc		100	30	125	125	80	460
Establish livestock demonstration farms with tolerant and high yielding breeds							
Support the establishment of community valley dams and train farmers on construction of valley dams							
1.3. Develop a tourism attraction enterprise							
to diversify community livelihoods							931
Support the restoration of the cycads around	lake						
Lake George Gorge	George						
	Gorge	700	25	60	-10	150	925
Involve communities in the establishment of camping sites, hiking and outdoor activities							
near the gorge to target both local and foreign							
tourists		700	25	60	-10	150	925
Liaise with existing tour companies to properly package cycads in their brochures, websites							
etc.		800	50	160	0	30	1040
Reemit realized revenue to community							
development projects e.g establishment and							
maintenance of communal water points etc		700	-10	60	125	-40	835
1.4. Reduced river bank erosion and							
conservation of riparian area							552
Sensitization about the required buffer zone							
distance on river banks and wetlands and							
appropriate activities within the buffer zone		400	0	160	25	20	605
Enforcement of buffer zone management by							
e.g demarcating the river reserve		200	-75	40	-50	0	115

	-						
Plant fruit trees along river banks e.g							
mangoes, avocadoes etc		600	75	40	75	200	990
Encourage commercial farmers and other	e.g						
companies like HEP to invest in nature	Kiburara						
conservation as part of social responsibility	prisons						
	and						
	Hydropowe						
	r plant						
	promised						
	to offer						
	seedlings	400	75	90	40	60	665
Establish demonstration sites/ vegetative	Kiburara,						
cover for riverbank protection e,g planting	Mpanga						
cycads along the buffer zone	nyakahama						
	, Rwambu,	600	25	140	-10	20	775
	Rushango						
Resettlement of settlers from Tanzania away	Rwamwanj						
from river banks to alternative land elsewhere	a Refugee						
and restoration of vacated areas	resettleme						
	nt scheme	600	-75	-100	-75	90	440
Promotion of livestock troughs away from							
river course		400	-75	-20	-50	20	275
1.5. Protection of Wetlands and reduction of							
wetland degradation							520
Support sustainable utilisation of wetlands for							
adjacent communities by introducing fish							
farming, duck rearing, regulate crop types							
grown in wetlands, limit agriculture to the							
wetland fringes etc		400	75	140	75	140	830
Promote sustainable soil fertility management							
measures to increase farm productivity on							
dryland e.g mulching, fallowing, use of organic		400	0	160	-50	140	650

manures, use of green manures, agroforestry etc						
Compensation/resettlement of land owners	400	25	20	75	60	270
Live fencing of wetlands	400	25	-20	-75	-00	270
	600	-75	-20	-50	140	595
Implement the policy and laws adequately e.g Enforcement of the integrity of the wetland area	200	-75	-20	-75	140	170
Support Mpanga Environment Management						
an NGO aimed at wetlands conservation	400	70	0	75	60	605
1.6. Promotion of eco-friendly energy saving initiative and efficient use of biomass						713
Identification of other service providers actors promoting the use of alternative energy sources and the use of more efficient energy production systems	400	0	180	65	0	645
Promotion of eco-friendly energy saving initiatives and alternative energy sources to reduce the demands for firewood and charcoal	400	75	80	25	200	780
2.0. Water Source Protection						
2.1. Reducing point source pollution through engagement with industry /mining,						505
Encouragement of eco-friendly effluent						
treatment e.g. garages and fuel stations						
should have a component of water treatment	400	75	-20	25	20	500
Engage point source polluters (e.g. processing plants,) and develop Effluent Discharge Control Plans (EDCPs)	400	75	0	25	-40	460

With stakeholders monitor the							
implementation of EDCPs through routine							
water quality assessment of discharged							
effluent		400	0	60	75	20	555
2.2. Support improved processing and disposal of solid waste							648
Consult with Local Authorities in survey							
existing and potential dumping sites guided by							
environmental impact assessment studies		400	0	160	75	0	635
Identify opportunities for improved collection							
and disposal of solid waste.		400	0	180	20	20	620
Support local community organizations	Mpan'gam						
involved in the production of biodegradable	e club for						
grocery bags as a replacement of polythene	INRM						
bags		600	25	100	160	20	905
Source for investors to recycle plastic wastes							
into useful products e.g use plastic waste in							
production of other plastics, construction							
work, crafts etc		600	-10	50	60	200	900
Job –creation through entrepreneurship skills							
development		0	75	80	-35	60	180
2.4. Reduce household pollution from							
latrines and other waste							1050
Support the relocation of pit latrines away	Rwakazingo						
from water sources and Establish							
demonstration sites for eco sanitation							
facilities		800	25	-75	180	50	980
Promotion of alternative use of organic	whole						
wastes at household level to reduce waste	downstrea						
load at source e.g use of compost pits to	m area						
support backyard farming		800	75	160	25	60	1120
3.0. Compliance and Enforcement							
3.1. Improve resource monitoring of SW/GW							
abstraction							288

Prepare inventory and list of illegal abstractors						
and publicize their activities	100	0	160	65	60	385
Inspect and monitor measuring devices						
installed by abstractors and compare water						
applied for against abstracted	100	0	60	30	0	190
3.3. Improvements to Water Use Efficiency						995
Establish demonstration sites for low cost,						
domestic rainwater harvesting systems using						
locally available materials	600	-10	125	80	200	995
Establish demonstration sites for improved						
water conservation techniques like utilization						
of surface runoff for small scale irrigation at						
household level	600	-10	125	80	200	995
Promote use of water efficient technologies						
e.g drip irrigation and water recycling						
techniques for major water users	600	-10	125	80	200	995
3.4. Linkages to Water Resource Protection in						
reduction of effluent pollution						670
Identification and engagement of point						
source polluters	500	75	140	-50	0	665
Support in their development of Effluent						
Discharge Control Plans (EDCPs), monitor						
implementation and compliance (DWRM and						
stakeholders)	500	70	60	25	20	675

RANKING OF CROSS CUTTING INTERVENTIONS

Table 4: Showing ranked cross cutting strategic interventions and options

4.0 Awareness creation, institutional	ES Range:0 to 800	RA Range: - 75 to 75	SEO Range: - 125 to 125	C Range: - 200 to 200	CCAP; Range: - 100 to 200	TOTAL; Max score: 1400
development and capacity building						
4.1. CMC Management Structure and operationalization						1263
Meetings to discuss plans, progress, budgets and fund use	800	65	125	160	60	1210
Training of CMC Committee members in respect to their role and responsibilities	800	65	125	160	130	1280
Facilitate the CMC to oversee implementation of the catchment management plan	800	65	125	160	150	1300
4.2. Water User Groups (WUG) Capacity Building						1181
Support towards formation and establishment of WUGs at village level observing gender, socio-economic status and ethnic diversity	800	65	125	160	150	1300
Conduct mobilization and sensitization of community members and stakeholders on roles and responsibilities of a WUG in water resources management	800	65	125	160	60	1210
Support WUGs through establishment of income generating activities and circulate communication materials	 800	65	125	160	60	1210

Capacity building for WUG on rehabilitation						
of wetlands, soil fertility management, water						
use efficiency measures and sustainable use of						
environmental resources	600	75	40	140	60	915
Organize and undertake exchange tours to						
successful WUG for skills acquisition.						
Recognize best performing WUGs.	800	65	125	160	70	1220
Support regular meetings between the CMC						
and the WUGs to update and share						
information regarding pertinent issues related						
to catchment management	800	65	125	160	80	1230
4.3. Stakeholder Coordination, information						
sharing and integration of activities						1243
Support Stakeholder coordination forums	800	65	125	160	70	1220
Facilitate information sharing by different						
stakeholders (MAAIF, DWRM, Local govt NGOs						
etc) on pertinent issues affecting the						
catchment e.g. soil and water conservation						
along hill slopes, soil fertility management,						
water resource management, deforestation						
etc.	800	65	125	160	150	1300
Provide information and facilitate						
communities to access quality tree seedlings,						
available markets for different products,						
payment for ecosystem services etc.	800	65	125	160	60	1210
4.4. Increase knowledge base within the						
catchment						688
Contract an expert to develop a Soil and water						
conservation plan	600	-10	125	80	0	795
Preparation of erosion and sediment survey to						
develop erosion risk maps for the catchment	600	-50	0	160	0	710

Assess and establish pollution loads for major	Fort Portal						
industrial and business activities located	Municipal						
within the river buffer zone	area	0	0	0	0	0	0
Develop TOR and procure a consultant to							
develop a water allocation plan which can be							
adopted at a stakeholders workshop		400	0	-75	160	0	485
4.5 Awareness creation, training and							
sensitization campaigns	1	1					1078
Awareness creation on impact of eucalyptus							
on water and promotion of alternative trees,							
training in tree nursery management for							
indigenous species		600	-10	-25	160	0	725
Sensitization of stakeholders and community							
on existing laws and policies regarding forest,							
wetlands, rivers, lakes and hillslope cultivation		800	65	125	160	60	1210
Hands-on training of communities, especially							
rural women, elderly and vulnerable groups							
regarding technologies of transformation of							
plastic wastes into useful products		800	65	125	160	60	1210
Training the stakeholders and sensitization of							
the communities on pertinent issue like waste							
segregation (sorting waste at source),							
household sanitation, environmental							
conservation etc.		600	65	100	140	0	905
Sensitization on the linkages between							
environmental sustainability and community							
livelihoods		800	65	125	160	60	1210
Mainstream the activities of women into all							
catchment planning processes		800	65	125	160	60	1210
5.0. Right Based Approach							
5.1. Forum for Water Conflicts							1240
Training of CMC and WUGs in conflict							
resolution		800	65	125	160	90	1240

Set up an arbitration committee under the						
CMC that oversees the resolution of conflicts						
within the WUGs related to water resource						
management in the catchment	800	65	125	160	60	1210
5.2. Gender Inclusion						1240
Training in gender mainstreaming provided to						
WUGs and CMCs	800	65	125	160	70	1220
Deliberate efforts to ensure the inclusion of at						
least 30% women in all committees, meetings						
and activities related to water resources						
management.	800	65	125	160	60	1210
5.3. Special programs for the most						
marginalized/Sustainable Livelihood						1280
Inclusion of a representative of the disabled,						
Youths and the elderly on the Catchment						
management committees and ensure						
representation in the WUGs	800	65	125	160	150	1300
Market vulnerable groups as the first priority						
beneficiaries for implementation interventions						
e.g rainwater harvesting tanks for disabled,						
drip irrigation systems trials and other water						
use efficiency	800	65	125	160	180	1330
Deliberate efforts to initiate economic						
activities most beneficial to the vulnerable						
groups e.g tree planting and bee keeping for						
the youth, making paper bags and crafts for						
the elderly and disabled etc.	800	65	125	160	60	1210
6.0. WUG financial planning / Capacity to						
attract/apply for financing enhanced						1177
Preparation of a business plan for sustainable						
management of WUG	 800	65	125	1 <mark>60</mark>	40	1190
Conduct membership recruitment drive	800	65	125	160	30	1180
Call an annual general meeting to approve	 800	65	125	160	10	1160

membership contributions						
6.1. Capacity in procurement, financial management enhanced						1160
Establishment of simple financial management and reporting systems	800	65	125	160	10	1160
6.2. Training in procurement and financial management						1173
Training in reporting on CMP progress reporting	800	65	125	160	10	1160
Support in the development of simple marketing techniques	800	65	125	160	20	1170
Training of members on procurement, tendering and financial management systems	800	65	125	160	40	1190

3.1 Monitoring and Evaluation Plan

This section presents the strategy for monitoring the Mpanga Catchment Management Plan implementation, the indicators and the means of verification for some of the proposed interventions.

Strategic interventions	Indicators	Means of verification
1.0 Catchment conservation		
1.1. Promotion of appropriate forest	Number of meetings/ workshops	On farm visits, documents
and land use management		minutes
1.2. Reduced river bank erosion and		
conservation of riparian area	Size of area demarcated	Documents/ on-site visits
	Number of planted trees	On site visits
	Number of households supported, number of beehives	
	set up	On site/household visit, record documents
	Number of demonstration sites established	On site visits.
	Number of community meetings conducted	minutes of meetings
1.3. Protection of Wetlands and		
reduction of wetland degradation	Number or training/ workshops	minutes of training
	armer training conducted	On farm visits
	Number of land owners compensated and resettled	official records, documents
	Number of fencing material planted, perimeter fenced	On site visits, documents
	Number of culprits prosecuted, amount of money	
	accrued from fines etc.	record documents
1.4. Promotion of eco-friendly energy	Acreage of areas identified, demarcated and planned for	
saving initiative and efficient use of	reforestation	On site visits/documents
biomass	Number of service providers identified	Documents
	Number of eco-friendly energy saving initiatives and	
	alternative sources of energy.	Household visits
2.0. Water Source rotection		

2.1. Reducing point source pollution	Number of eco-friendly effluent treatment facilities.	Community visits
through engagement with industry		
/mining,	Number of point source polluters.	On site visits.
	Number of stakeholders.	Documents
	Number of sand miners groups organized.	On site visits/documents
2.2. Support improved processing	Potential sites identified	Documents
and disposal of solid waste	Number of meetings with municipal authorities.	Minutes
	Number of local organizations supported.	Documents
	Number of opportunities identified	Documents/ on-site visits
	Number of investors sourced	Documents
	Number of workshops	Minutes
	Skills training workshops conducted	Documents
2.4. Reduce household pollution from latrines and other waste	Number of pit latrines. Demonstration sites	On site visits / documents
	Number of alternative uses of organic wastes	Household visits
	Number of workshops held	Minutes
3.0. compliance and enforcement		
3.1. Improve resource monitoring of	Number of illegal abstractors	Documents
SW/GW abstraction	Number of measuring devices inspected and monitored.	Documents
3.3. Improvements to Water Use	Number of cross visits	Documents
Efficiency	Number of new water conservation techniques and new	
	technologies demonstrated.	Documents.
	Number of sensitization meetings.	Minutes

3.4. Linkages to Water Resource Protection in reduction of effluent	Number of point source pollutors	Decumenta/ en eite vieite
pollution		
	Number of effluent discharge control plans supported.	Documents.
4.0 Awareness creation institutional		
development and capacity building		
4.1. CMC Management Structure and	Number of meetings/ workshops	Minutes
operationalization	Number of trainings	Minutes
•	Number of times facilitated	Documents.
4.2. Water User Groups (WUG)	Number of WUGs established	Community visit/ documents
Capacity Building	Number of community members sensitizes/ workshops	Community visits/ documents/minutes
	Number of income generating activities available	Documents/ community visits
	Number of WUGs Workshops	Minutes
	Number of exchange tours undertaken	Documents/ minutes
	Number of regular meetings supported	Minutes
4.3. Stakeholder Coordination,	Number of forums supported	Minutes
information sharing and integration of activities	Number of workshops facilitated.	Documents/ minutes.
4.4. Increase knowledge base within	Contract awarded and signed by consultant	Documents
the catchment	Number of surveys	Documents/ on-site visits
4.5 Awareness creation, training and	Number of workshops and trainings.	
sensitization campaigns		Minutes
5.0. Right Based Approach		
5.1. Forum for Water Conflicts	Number of trainings conducted	Training materials and reports
	Arbitration Committee set up	Minutes , documents

5.2. Gender Inclusion	Number of trainings conducted	Minutes and reports
	Number of women on committees	Minutes and reports
5.3. Special programmes for the most	Representatives elected	Minutes and reports
marginalized/Sustainable Livelihood	Number of beneficiaries	Field visits, report records
	Number of income activities supported	Report records and minutes of meetings
		· · · · · · · · · · · · · · · · · · ·
6.0. Financial Management for		
sustainability		
6.1. WUG financial planning /	Business Plan in Place	Document
Capacity to attract/apply for financing enhanced	List of members	Report records and minutes of meetings
	Meeting held	Minutes of the meeting
6.2. Capacity in procurement,	Training workshops held	Report documents
financial management enhanced		
6.3. Training in procurement and		
financial management	Trainings conducted	Report records and minutes of meetings
	Materials developed	Printed marketing fliers
	Trainings held	Report records and minutes of meetings

3.2 Implementation of the Catchment Management Plan

3.2.1 Management Structure and operationalization

The CMP is cross cutting and it brings on board all the stakeholders involved in integrated water resource management. The resources required to implement are also shared between various players thus the need to have a team that will co-ordinate the plan.

The structure of the team to implement this plan is proposed below. This structure has been modified from the structure proposed by the Ministry and merged with the proposed structure in the draft management plan.



Figure 3: Proposed Catchment Implementation Committee Structure

The following is a description of the proposed roles and responsibilities of the different stakeholders critical to implementation. These roles and responsibilities can be discussed and modified as need arises.

Structure	Composition	Main roles and responsibilities
Catchment	Representatives from water user	Advocacy, Lobbying, resource mobilization,
Management	groups, NGO representatives, CMC,	Joint planning, activity coordination,
Organization	Key actors in Natural and water	
	resources	
Catchment	District Top political leaders	Develop a framework defining its
Management	Chief Administrative Officers	operations
Committee	Representatives of NGOs	Constitute a catchment technical
	Representatives of the Private Sector	committee and a secretariat
	Technical Officers at District level	Interpret the sub catchment management
	Representative of Academic	plan for purposes of implementation
	Institutions	Co-ordinate the implementation of the plan
	Representative of Youth Platforms	Mobilize resources for the plan
	Representative of the Media	implementation
		Co-ordinate research
		Evaluate the progress of activities within
		the plan area
		In collaboration with other stakeholders,
		develop a code of conduct, regulation
		guidelines or by laws of the forum
		Identify constraints in the processes of
		plan implementation
		Identifying and integrating IWRM issues in
		Development plans
		Produce annual work plans based on the
		management plan
		Implementation of IWRM interventions
		Supervision and monitoring
		Documentation and information exchange
		Recommend review of SCMP plans
		Form an arbitration committee to resolve
		conflicts
Catchment	Hydrologist, environmental experts,	Review reports form secretariat
Technical	water engineer, natural resource	Approve implementation plans
Committee	expert, anthropologist, legal expert	Provide technical guidance to secretariat
		and CMO
Catchment	Coordinator, administrative assistant,	Running the day to day operations of the
Secretariat	tinance officer, M & E officer	CMO
Stakeholder	Members of the CMO, NGO	Discussions and consultations
Forum	community, WUGs, Local leaders	
District	District Environment Officer	Liaise with secretariat in activity
Environmental		implementation
Office		Support implementation of the CMP in

Table 6: showing proposed management structure, composition and their roles

		his/her district
Local leaders in intervention zones	LC 1, LC 3,	Community mobilization, Work with the secretariat in monitoring Act as whistle blowers of any issues affecting the catchment integrity Forward issues generated from the WUGs to the responsible authorities
Water User Groups	At most 30 community members at village level with common concerns and objectives. At least 30% of whom are women, LC 1 chairman, a representative of the elderly, disabled, outh	Hold discussions analyze common community problems and try to formulate solutions/strategies Arbitrate and resolve conflicts that may arise from the use of water resources at community level Undertake communal monitoring and maintenance of water points
Water User Group Forum	Representatives from different WUGs at sub county level, Sub County Chief, Community Development Facilitator	Arbitrate conflicts forwarded from different water use groups Provide guidance to WUGs

D2: WUG Capacity Building

Membership Sensitization

There is need to have the community participate in the conservation and management of the water resources. One such grass root institution is Water Users Group that would bring together all user groups within a sub catchment. This would take the lead in advocating for the community interest at various meetings but it would also be a vehicle through which lead government agencies would educate the public on various Acts that are related to water conservation and management. The WUG could be inducted into participating in the resource management through capacity building trainings, not forgetting having them understand their roles and responsibilities.

Mobilization

The community is aware of some of their roles in matters of water conservation. With the help of other players, especially DWRM/AWMZ, the community members are taking up initiatives that address catchment degradation and river bank rehabilitation from the three segments of the sub catchment. Continued mobilization is thus encouraged so that it builds a strong membership base.

Human Resource Development

The association has put in place the leadership structure as part of its human resources development with the office bearers starting on a voluntary basis. This should be structured so that there is effective representation to the lowest level.

Facilities

Some of the facilities which the WUG would have should include; a secretariat, an executive, a bank account, records among others. With the magnitude of water resources management it is important these facilities be available.

3.2.2 Stakeholder Coordination and integration of activities

PROTOS identified the most important stakeholders in the implementation of the management plan. Most of these stakeholders are still valid. This section therefore is based on information derived from the draft catchment management plan. A few adjustments were made to include some stakeholders deemed crucial for this purpose.

Enhancing cooperation/integration and related roles and Responsibilities

The identification of stakeholder roles and responsibilities was based on experiences from those the community and PROTOS have been collaborating and partnering with. In this regard, the stakeholders indicated during one of the SCMP development workshops, that they collaborate with various stakeholders and partners. Some of them and their roles are listed in table below

Stake holder	Responsibility
Water Service Providers	Water service provision
	Ensure water use efficiently
	Participate in water resource management
Schools and other institutions	Users and part of direct beneficiaries
	Participate in implementation of the SCMP
	Training on water resources management
Ministry of Water and	Policy formulation
Environment	Enforcement of the Water Act
	Issues water permit
National Environmental	
Authority, NEMA	In charge of environmental legislation and enforcement
	Issue EIA certificates for major developments
National Forestry Authority	Mandate of managing all the Central Forest Reserves in the country
(NFA)	Policy formulation for forest resource management and exploitation
(Ministry of Water &	Technical advice on forest oriented ventures
Environment)	Tree planting in degraded areas
Ministry of Agriculture Animal	Policy formulation on land use and conservation
Industry and Fisheries	Farm planning methods
	Enforcing the Agriculture Act
Protos	Capacity building and assist in putting up soil conservation structures
	Provision of baseline data
	Partner in the implementation of CMP
	Support the process for reserve flow establishment and water allocation
	plans
	Support stakeholder mobilization and awareness
	Support the setting up of demonstration sites for best management
	practices on land use and water conservation issues
	Support documentation of best practices and sharing of lessons learnt

Table 7: Stakeholder Responsibility Matrix

Town and District councils	Delivery of services to residents Infrastructure development Provision of water supply and sanitation Provide residents with goods and services including waste management Spring protection within the municipal locality By-laws development for water resources management
Uganda Wildlife Authority, UWA	Protection of wildlife in the protected areas
Health centers and hospitals	Ensure safe disposal of medical waste Participate in WUG activities
Institutions of higher learning	Collaborate with other stakeholders to develop proposals for funding Undertake research activities in collaboration with stakeholders Develop and assist in monitoring trends in the catchment Provide technical support to the implementing team especially on emerging issues Undertake training as resource persons and enhance capacity building for specific stakeholders

The table shows that there are many stakeholders within the catchment undertaking different levels of activities. These activities are seen in the myriad roles, ranging from water resources management, water service provision, legislation on water and environment and harmonization of laws and procedures.

It will be important that stakeholder coordination be undertaken recognizing their roles and responsibilities. The mechanism of coordination will encompass annual stakeholder meetings to encourage them to participate in water resources management.

4 BUDGET ESTIMATES AND POTENTIAL FUNDING SOURCES

This section summarizes the budget estimates for the implementation of each option in the budget per subcatchment. The main potential funders are also highlighted. The budget is a rough estimate and is hence subject for review. The budget is estimated at thirty one billion, six hundred and forty eight million and thirty thousand Uganda shillings. This is approximately nine million, five hundred and ninety thousand three hundred and twelve US dollars.



The potential sources of funds that can support the implementation of the plan include:

- Africa Climate Change Resilience Alliance
- Local governments district and sub counties
- Communities
- NGOs and CBOs, including faith-based organizations
- Private sector
- Carbon trade.

The detailed breakdown of the budget and the funders per item of the budget are shown in Appendix 6