PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	**REGULAR**
Country/ies:	**UGANDA**
Title of Project/Programme:	**ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT, UGANDA**
Type of Implementing Entity:	**NATIONAL IMPLEMENTING ENTITY**
Implementing Entity:	**MINISTRY OF WATER AND ENVIRONMENT**
Executing Entity/ies:	**WATER AID UGANDA**

Amount of Financing Requested: **9,504,600 U.S Dollars**

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ACRONYMS

AF	Adaptation Fund
CBOs	Community Based Organisations
CMC	Catchment Management Committee
CMO	Catchment Management Organisation
CMP	Catchment Management Plan
CSOs	Civil Society Organisations
DLG	District Local Governments
DLGs	District Local Governments
DWRM	Directorate of Water Resources Management
EE	Executing Entity
EIA	Environmental Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESP	Environnent and Social Policy of the Adaptation Fund
EUWS	Eastern Umbrella Water and Sanitation
FEWS	Flood Early Warning Systems
GP	Gender Policy of the Adaptation Fund
GRC	Grievance Redress Committee
GRM	Grievance Redress Nechanism
IGAs	Income Generating Activities
INDC	Intended Nationally Determined Contributions
KAPs	Knowledge, Attitudes and Practices
KWMZ	Kyoga Water Management Zone
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MGLSD	Ministry of Gender, Labour and Social Development

MLHUD	Ministry of Lands, Housing and Urban Development
MoE	Ministry of Education and Sports
MoFPED	Ministry of Finance Planning and Economic Development
MOH	Ministry of Health
MoLG	Ministry of Local Government
MoUs	Memorandum of Understanding
MWE	Ministry of Water and Environment
MWT	Ministry of Wildlife, Antiquities and Trade
NAP	National Adaptation Plan
NAPA	National Adaptation Programmes of Action
NDA	National Designated Authority
NDC	Nationally Determined Contributions
NDP	National Development Plan
NEMA	National Environment Management Authority
NFA	National Forestry Authority
NGOs	Non-Governmental Organisations
NIE	National Implementing Entity
OPM	Office of the Prime Minister
PAs	Protected Areas
PDM	Parish Development Model
PWDs	People with Disabilities
SCMP	Sub-Catchment Management Plan
SDG	Sustainable Development Goals
UBOS	Uganda Bureau of Statistics
UNBS	National Bureau of Standards
UNMA	Uganda National Meteorological Authority
UWA	Uganda Wildlife Authority
UWONET	Uganda Women Network
WASH	Water, Sanitation and Hygiene
WRI	Water Resources Institute
WSDF-East	Water and Sanitation Development Faciility East

1. Project / Programme Background and Context

1.1 Project area context and climate change rationale

1. Uganda, occupies an area of 241,038 km^2, with water bodies and wetlands covering approximately a third of its total area, and standing astride the equator. Its tropical climate has an average temperature ranging from 18°C to 28°C. The country has a rich natural resource base. With an average fertility rate of 6 children per woman, Uganda has an annual growth rate of 3.2 per cent; and the population is expected to grow from the current 45.7 million to 93.4 million people in the 2040s. Over three quarters of the population is below the age of 30 years which makes Uganda one of the countries with the youngest population.
2. Uganda's economy is largely dependent on the services industry with agriculture employing 66% of the working population and contributing to nearly one fifth of the country's GDP[1]. With such a young and rapidly growing human population that is highly dependent on natural resources and subsistence rain-fed agriculture for livelihoods, it is evident that Uganda's economy and her population are vulnerable to climate change and variability.
3. Like other Least Developed Countries (LDCs) in East Africa, Uganda faces a major challenge of climate change characterized by changing weather patterns, drop in water levels, and increased frequency of extreme weather events. Based on the main Representative Concentration Pathways for climate change scenarios referred as low (RCP2.6); medium (RCP4.5) and high (RCP8.5) emission scenarios in this profile, Uganda's future climate change projections reveal that temperature increases are expected for East Africa and specifically for Uganda. Under the high-emission scenario, monthly temperature change is expected to increase by 1.8°C for the 2050s and 3.7°C by the 2090s. Increased temperatures will also impact increased aridity and the length and severity of the dry season (December to March).
4. Projected rates of warming are greatest in Uganda's coolest season: June to September, with temperatures expected to increase by 1.5 to 5.4°C by the end of the century. Temperature rise is therefore, projected to increase across all emission scenarios throughout the end of the century[2]. Under the high-emission scenario, monthly annual precipitation is expected to increase in some areas of the country, with deceases in others, notably the northern and north-eastern areas. Rainfall is predicted to increase significantly and consistently for the western shores of Lake Victoria and the central western region; the Mount Elgon region; and the region extending from Mount Rwenzori to the southern parts of Lake Kyoga (WBG, 2021).
5. Therefore, these climate projections for Uganda indicate that temperatures will rise, causing higher evaporation and consequent water stress; frequency and severity of floods and drought will also increase; and the variability of precipitation will increase too. The mean annual temperature across Uganda is projected to increase between 1.2°C and 2.3°C by 2050 and will increase to between 1.7°C and 5.6°C by 2100[34] considering the SSP1 1.9 and SSP8.5 low and high emission scenarios of the IPCC's six assessment report current (Figure 1) . In the last fifty years, Uganda has experienced significant changes in its climate with average temperatures increasing by 0.28°C per decade along with increases in the frequency of hot days. Rainfall has decreased and become more unreliable and less evenly distributed. Currently, Uganda faces high risk to natural disasters and continues to experience extreme weather events including Mudslides, landslides and flooding, especially in the mountain regions and related districts such as Mbale in the Mt Elgon region (WBG, 2021).
6. Prolonged droughts reportedly affect groundwater levels leading to drying up of boreholes and reduced lake levels consequently impeding water services provision and causing water stress to the most vulnerable among rural and urban communities. Reduction in rural water supplies, reduced flow in rivers, less dilution/increased concentration of pollutants in water and challenges to hygiene practices were the key impacts of climate change on the WASH sector following reductions in rainfall/drought identified[5]. Similarly, pollution of wells, inundation of wells, inaccessibility of water sources, flooding of latrines, damage to infrastructure, landslides around water sources, sedimentation and turbidity, challenges to sustainability of sanitation and hygiene behaviours and waterborne diseases are key impacts of increases in precipitation/flooding (UNICEF, GWP (2014, rev.2017).
7. The projected damage associated with climate change inaction for agriculture, water, road infrastructure and energy (2010-2050) is estimated to cost between US$273 and US$437 billion, equivalent to US$7-US$11 billion per annum (MWE, 2015). UNHS (2017) reported that the major cause of poverty rise from 19% to 36% was attributed to drought (75%), storms (25%) and floods (15%). Poor sanitation and hygiene remains a big health concern especially to the rural poor and those living in slums in towns. Lack of clean water and poor hygiene and sanitation are the leading causes of diarrheal related diseases, which are responsible for 17% of all deaths among children below five years[6]. In Uganda, 33% of children do not have access to safe water and 60% of children live 30 minutes walking distance from a water source. Three out of 10 Ugandans don't have a latrine[7].

[1] FAO, 2018. National gender profile of agriculture and rural livelihoods – Uganda. Country Gender Assessment Series, Kampala.
[2] WBG, (2021). Climate Risk Profile: Uganda (2021): The World Bank Group.
[3] World Bank (2015). Uganda Climate Profile.
[4] USAID (2013). Climate Change Vulnerability Assessment for Uganda
[5] UNICEF, GWP (2014, rev.2017). WASH Climate Resilient Development, Strategic Framework
[6] www.ugandavillage project.org
[7] www.unicef.org

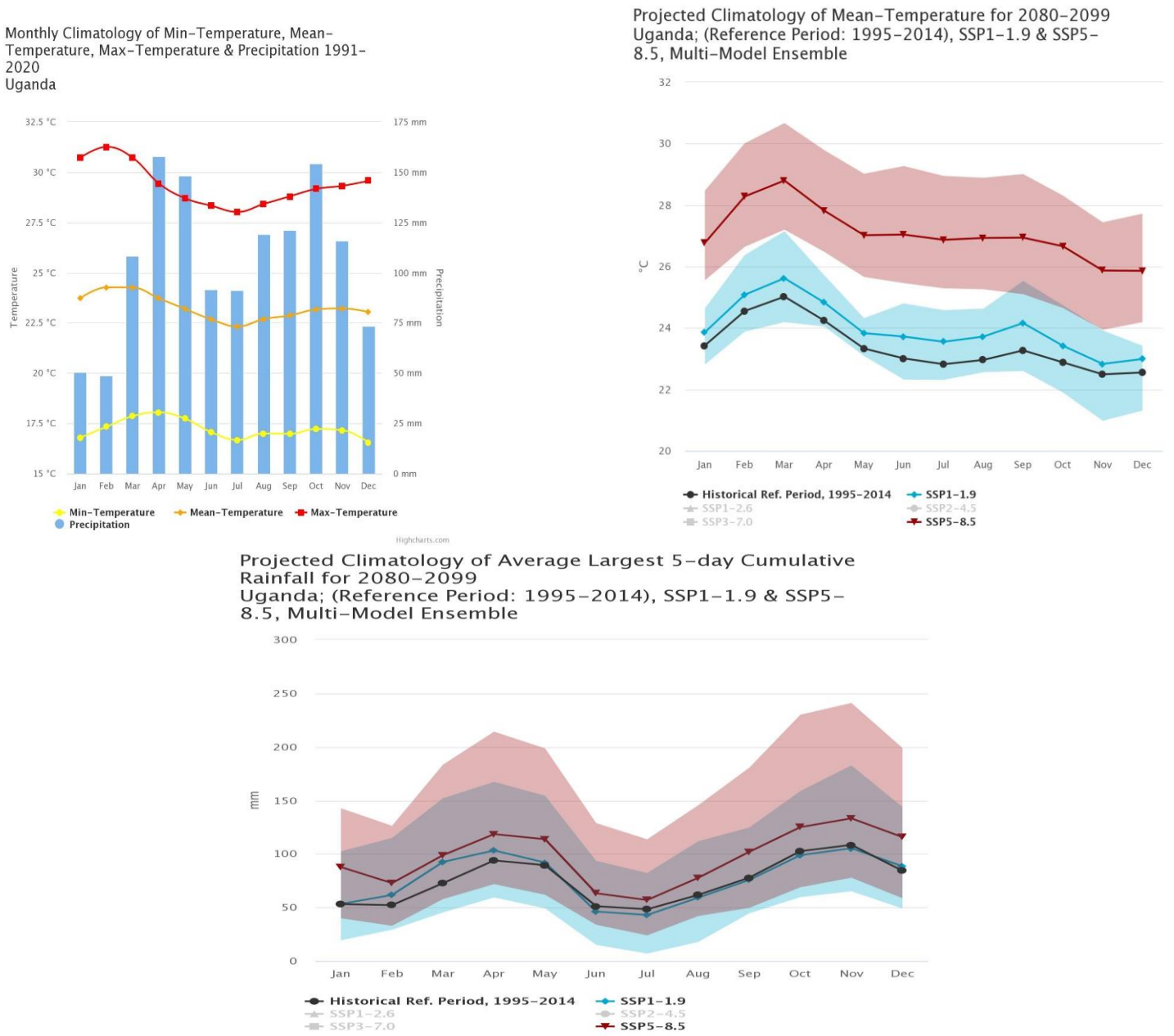

Figure 1: Historical and projected temperature and rainfall for the period 2080-2099 in Uganda

8. With the increasing human population and rapid urbanization that leads to high concentration of people in urban centres such as small towns and rural growth centres, climate change impacts pose an enormous challenges especially floods (and landslides) that have reportedly led to pollution of wells, inundation of wells, inaccessibility of water sources, flooding of latrines, damage to infrastructure, landslides around water sources, sedimentation and turbidity, challenges to sustainability of sanitation and hygiene. Such challenges are aggravated by lack of and inadequate Flood Early Warning Systems (FEWS) and strategies to fore warn the human populations against such vagaries.
9. Unfortunately, climate change impacts are most felt by the poorest and most marginalised in society whose vulnerability is often exacerbated by reduced access to reliable and safe WASH services[8 9], inadequate FEWS and technologies, over-dependency on climate sensitive subsistence agriculture and degraded natural resources and ecosystems as well as limited sources of alternative sources of incomes. Recently, Uganda experienced beyond normal rainfall that unfortunately resulted in loss of lives, destruction of property and

[8] Everyone Everywhere 2030 – Water Aid Global Strategy 2015-2022
[9] Water Aid (2019) Policy brief for the 2019 High Level Political Forum

brought businesses and livelihoods to a standstill. These rains caused extreme landslides and flooding in parts of western and eastern Uganda10. The impacts of climate change (droughts, floods, storms, heat waves and landslides) will most likely reduce the benefits derived from the natural resource base and this will have serious consequences on overall development. Since 2010, rainfall variability in Uganda alone has caused crop yield losses worth an annual equivalent of US$6 billion/year (MWE 2015).

10. One of the areas that is severely affected and highly vulnerable to extreme landslides and flooding is Eastern Uganda in Mpologoma catchment. Mpologoma catchment covers 7,862 square kilometres of land area and 1,127 square kilometres of water area. It is one of the catchments within the Kyoga Water Management Zone (KWMZ) that is bordered on the south by a narrow strip of the Victoria Water Management Zone (VWMZ) that forms a boundary with Lake Victoria. At the extreme north east, it boarders Mount Elgon (Figure 2).

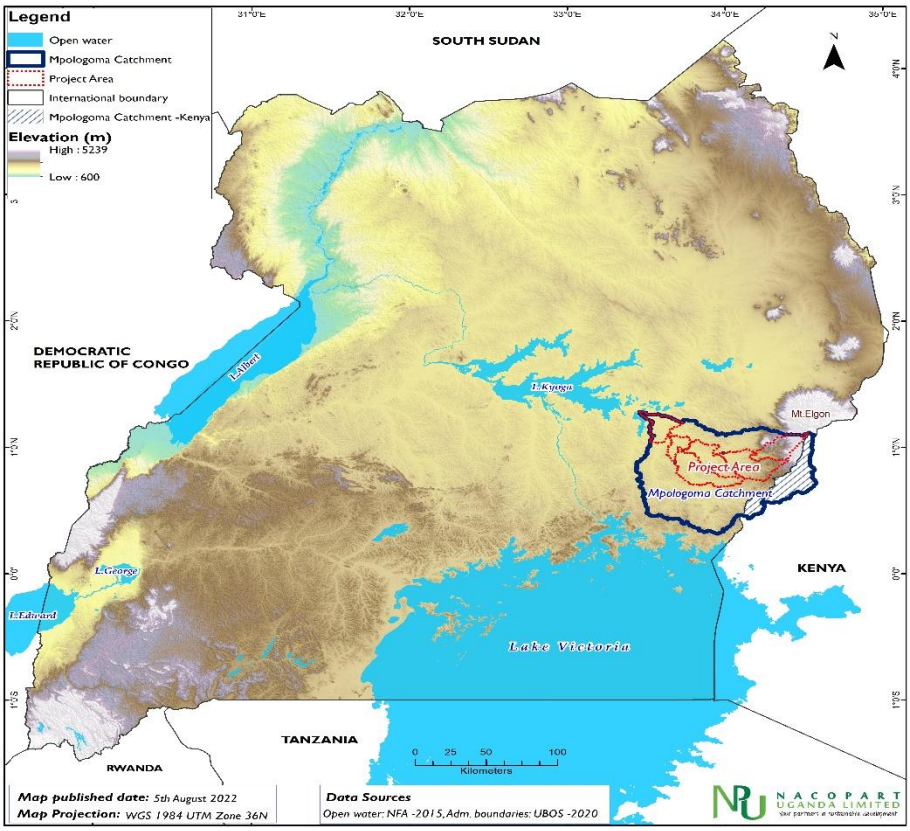

Figure 2: Location of Mpologoma Catchment

11. Rainfall is spatially distributed, with a more pronounced gradient in the eastern Mpologoma Catchment, between the foothills of Mount Elgon (Upper Manafwa Sub Catchment) and the area around Tororo. Upper Manafwa sub catchment receives the highest amount of rainfall while Lower Mpologoma and Lower Manafwa receive the least. The rainfall patterns over the years for the six sub catchments is irregular, with 2005 having the lowest mean rainfall and 2020 having the highest (Figure 3). The mean temperature across the sub catchments in Mpologoma since 2000 reveals that the upper Manafwa sub catchment has the lowest mean annual temperature (20^{o}C), and lower Mpologoma the highest (24.7^{o}C) (Figure 3). In the year 2016 the mean temperatures were the highest (25.3^{o}C for lower Mpologoma), though variations between years within respective sub catchments were minimally gradual.
12. The catchment is also characterized by a variety of ecosystems such as wetlands, farmlands, bush land, and forest land. It is relatively a flat area with about 16% of the total area covered by wetlands. Wetlands act as silt filters, so that much of the transported sediments are retained within the wetlands and other vegetated areas, but some transported silt is also deposited in the piedmont where the slope becomes less steep, creating flood-prone zones and flood hazards in the Manafwa and Mbale areas. Furthermore, Mpologoma catchment is reportedly experiencing more erratic and unpredictable rainfalls, both in amount, duration, and intensity in recent years all attributed to climate change[11].

[10] NEMA, 2019. Floods in Parts of Uganda. http://www.nema.go.ug/media/floods-parts-uganda. Accessed December 20th, 2019.
[11] Ministry of Water and Environment, 2018. Mpologoma Catchment Management Plan. Kampala.

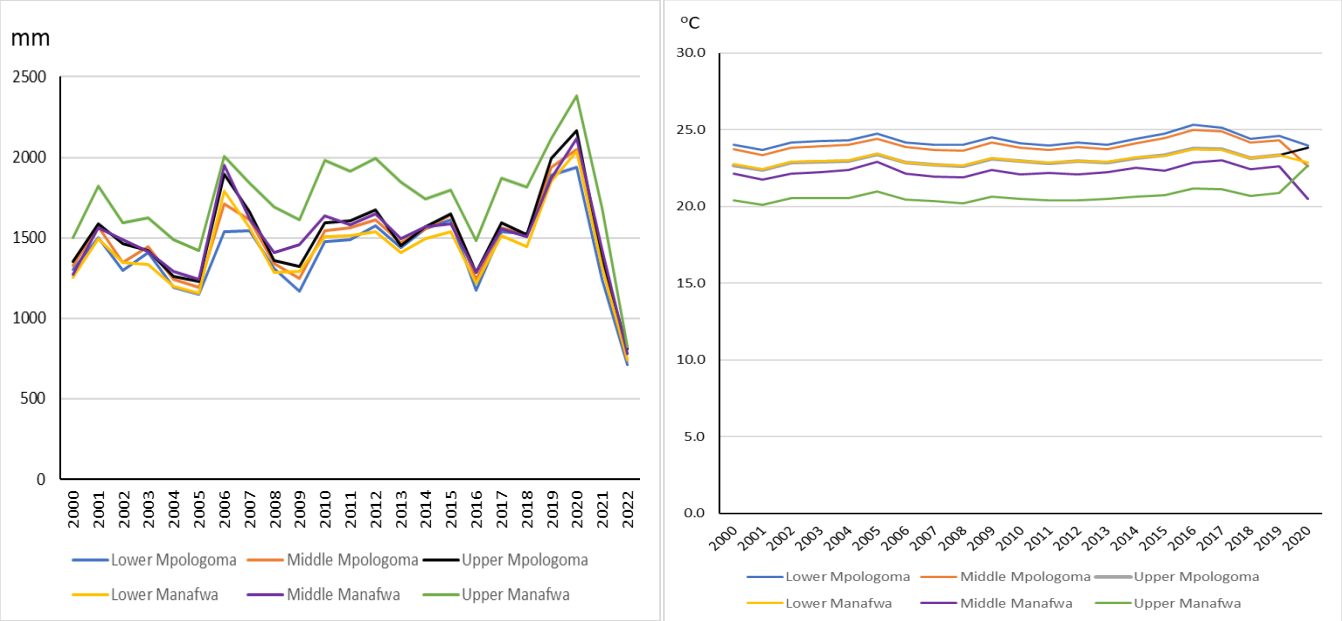

Figure 3: Spatial rainfall distribution within the Sub-Catchments in Mpologoma

1.2 Socio-economic context

13. The human population in the catchment estimated to be 4,093,340 people and growing at a rate of 3.2% per annum[12] is vulnerable to the impacts of climate change (MWE, 2018). As with other parts of Uganda, the human population in the catchment is highly dependent on climate sensitive subsistence rain-fed agriculture and a multitude of natural resources (Figure 4). This population exerts increasing pressure on water and land resources, resulting in tremendous degradation of the environment. The high population also leads to over-exploitation and destruction of ecosystem resources for instance there is noticeable encroachment wetlands and marshy areas for rice growing and cultivation of other food crops including maize and bananas (Figure 3). Such dependency on climate sensitive subsistence rain-fed agriculture leads to degradation of natural resources that eventually impedes the coping ability of populations against climate change and renders the people therein especially those inhabiting fragile ecosystems highly vulnerable to landslides uphill and floods in lowlands following high rainfall events.

[12] UBOS, 2014. National Population and Housing Census 2014

Figure 4: Water and land resources on which people in the catchment depend

14. Extreme weather events coupled with natural resources degradation, subsistence rain-fed agriculture and limited livelihoods have not only led to landslides and floods but also resulted in increased pollution of water resources, unsafe water sources and outbreak of waterborne diseases such as diarrhoea, typhoid and cholera and land conflicts related to competition for arable land. Therefore, climate change not only exacerbates health, food security, water scarcity, water insecurity and water quality problems in drought prone areas but also equally impairs similar attributes and water quality in areas susceptible to floods and landslides that equally negatively impact on water and sanitation facilities.

15. The human population in Mpologoma catchment is susceptible to water and sanitation related diseases due to floods and landslides aggravated by limited, unsustainable and unreliable Flood Early Warning systems and strategies. The current FEWS involving the sensor monitoring systems that were installed by the Ministry of Water and Environment on River Manafwa (Figure 4) are inadequate resulting in continued destruction of water infrastructure, flooding of water supply pipes, flooding of latrines with high occurrence of water borne diseases, loss of assets, properties, lives and general water insecurity due to pollution and contamination and food insecurity due to crop losses in the catchment.
16. The current FEWS is dysfunctional because of limited capacity of MWE, partners and communities to maintain the system. Consequently, the batteries run out and faces the great risk of being vandalised. This system was installed between the years 2014 and 2015 to detect the river levels that have the potential of causing floods downstream. The MWE worked on the installation of the equipment while Uganda National Meteorological Authority (UNMA) was to package the early warning information. However, information from FEWS is not easily accessible by the flood vulnerable communities later alone the stakeholders such as the District Local Government Authorities cannot utilize such information.
17. The data collected are not in forms easily used by the relevant district and sub-county officials for real time use and sensitization of communities about preparation and adequate response the floods. Although there water level gauges (Figure 5) have been established in the catchment, majority are largely inadequate, un-reliable, dysfunctional and not locally utilised. Therefore, there is a need to strengthen the capacity of existing FEWS in the catchment by improving on the current FEWS technology to incorporate locally available materials, indigenous knowledge and scaling up the improved and upgraded FEWS to other areas for wider applicability. Such system and/or technological improvements not only facilitate the sustainability of maintaining and protecting the FEWS but also the generation, analysis, packaging and transmission of timely early warning information to the communities and their leaders so that they can easily plan how to cope with floods and landslides.

Figure 5: Floods and water level monitoring units at Rivers Manafwa and Mpologoma

18. Although the overall supply of safe water at national level is about 77%, it stands at 64% urban and 63.4% rural in Mpologoma catchment area which is definitely far below the national statistics. In all the sixteen districts in the catchment, only Bududa is reported to have safe water coverage above national level. Only two districts of Mbale and Tororo have a central sewage system[13].
19. With water and sanitation services negatively impacted by floods and landslides, the women and children suffer more in terms of time spent collecting water, risk of diseases and sexual abuses[14]. Also, the children are the most vulnerable to unclean water and poor sanitation related diseases like cholera and typhoid. Similarly, acute water shortages sometimes hit the catchment area due to landslides and floods that damage the water supply infrastructure. For example, according to the Daily monitor newspaper of 8th October 2018, Manafwa and Tororo districts were hit by acute water shortage due to landslides that damaged the water pipe network at Soona water treatment plant in Namisindwa District[15].
20. Therefore, there is a need to develop, maintain and scale up a floods and landslides forewarning system to alert the human populations if such impacts are to be reduced to the least minimum. Although in 2014, a sensor flood monitoring system was installed in Butaleja

[13] https://www.mwe.go.ug
[14] Csbag.org
[15] https:/reliefweb.int

district along Manafwa River[16] by the Ministry of Water and Environment, it has remained largely ineffective with limited coverage up to a radius of 5km hence further limiting its application to the local situation of the populations in the catchment.

21. Overall, despite continued increase in frequency of floods and landslides, community access to climate resilient WASH services and FEWS are largely limited, inadequate, ineffective and the capacity of the communities to adapt to climate change has remained low. Overall average access to safe water in Mpologoma catchment is 66% (i.e. 64% rural and 63% urban access). The average access to safe water in most sub counties within the catchment stands at 62%. The overall access to safe water in urban areas is reportedly lower than in rural areas because of the recent creation of new Town Councils, Municipalities and Cities that increased the total population. Furthermore, in most parishes within Mpologoma, the local community faces water scarcity especially in the dry season. For example, Bulumino parish in Bukibokolo SC in Bududa district apart from the Lwanda stream (Figure 6) there is hardly another main source of water domestic use and drinking for households, Nakhokho, Bunakunda, Lwanda, Bulumo B, Namango and Bulumino A. In Kaato SC in Manafwa district, the Gravity Flow Scheme (GFS) whose source is in Bukuku in Namisindwa district, but was extended to supply water to Bukimanayi HCIII in Manafwa district, was not functional by July 2022 due to cross border local community conflicts which led to vandalisation of the GFS, damage to pipes resulting into heavy leakages and heavy pollution due to open defecation at the water intake point in Namisindwa district. In Bumukari parish in Kaato SC in Manafwa district, 3 out of the 7 springs are not protected but the local community use the water for domestic use and drinking yet two unprotected springs were in the villages where a dip crack (2-3 metres) for pending landslides were observed in 2018.
22. Within the catchment, very few point water sources are functional. The functionality of point water sources is reportedly high (92% in rural areas and 91% in urban areas. The main causes of non-functionality are technical breakdowns, vandalism, poor water quality (e.g. salty water in deep wells) and drying of water sources[17].

Figure 6: Lwanda Stream as the main source of water for drinking and domestic use in Bukibokolo SC in Bududa district

23. Despite such unsafe water challenges, WASH remains vital for adaptation to climate change by especially increasing water availability in periods when water is scarce or inaccessible for domestic uses to ensure food, health and livelihoods security as well as meeting the basic needs of households. Through improved development and application of effective FEWS and access to climate resilient WASH technologies, vulnerable communities can realise improved water supply, sanitation and hygiene and improved coping ability resulting from overall reduced disease burden among the poorest and marginalised members of the community in the catchment.

1.3 Environmental context

[16] https:/www.itu>ews-UGANDA
[17] Uganda Water Atlas -30th July 2022

24. There is noticeable environmental degradation within the Mpologoma catchment. Degradation is a result of the over dependence of communities on climate sensitive subsistence rain-fed agriculture and a multitude of natural resources. This population exerts increasing pressure on water and land resources, resulting in tremendous degradation of the environment. The increasing human population in the catchment continues to encroach on the fragile ecosystems including hilly and mountainous areas, wetlands mainly for rice and sugarcane growing, cultivation of river banks and indiscrimate cutting of tree species off and on-farms for fire wood, charcoal and other timber and non-timber forest products. For instance the main source of energy for cooking in the 6 sub catchments mentioned was firewood (83.6%). Out of the 11 districts in the proposed project area, over 80 in every 100 households uses firewood for cooking. Only Mbale district had about 59% of households using firewood with 33% households relying on charcoal for cooking compared to other districts within the catchment.
25. Such high demand for cooking energy coupled with the needs for arable land for subsistence agriculture negatively impacts on tree land and water resources in the catchment leading to negative environmental changes. Therefore, the major environmental related challenges that exacerbate the impacts of floods and landslides in the catchment are encroachment for cultivation on wetlands, river banks and forested areas, deforestation on and off-farm as well as in Protected Areas (PAs). At least 80% of the sub catchments have high levels of degradation, and 19% are severely degraded (Figure 7). Save for a few places that are moderately degraded, the targeted six sub catchments have been degraded over time. The degradation has majorly been due to agricultural expansion, increased population hence the corresponding pressure on the limited natural resources for community livelihoods, poverty, and increased demand for fuel wood. It thus implied that the different ecosystems within the sub catchments to a greater extent are accordingly degraded. Most of the areas are cultivated, and use of inroganic fertilizers is high. Such degradation has far reaching effects on the availability and adequacy of the ecosystem goods and services on which community members depend for additional and alternative livelihoods.

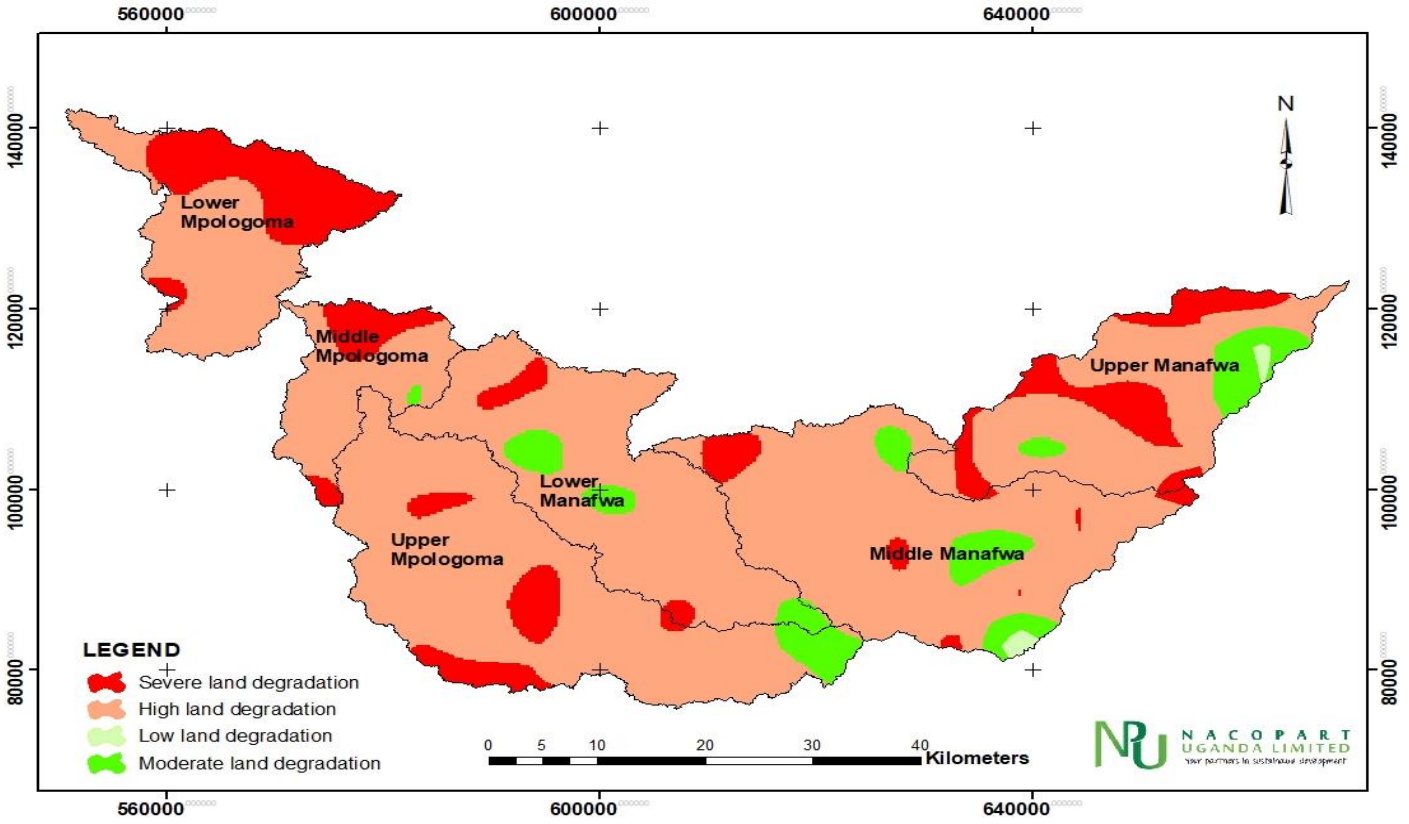

Figure 7: Land degradation in Mpologoma Catchment

26. Considering the environmental changes, socio-economic issues and climate change related challenges, it is inevitable to develop integrated FEWS and WASH interventions aimed at reducing their vulnerability, increasing resilience and enhancing the capacity of the vulnerable human populations to easily adapt to climate change impacts of floods and landslides. Fortunately, Water Aid Uganda (WAU) is collaborating with Directorate of Water Resources Management (DWRM), the Water Resources Institute (WRI); Kyoga Water Management Zone (KWMZ) and the Eastern Umbrella for Water and Sanitation (EUWS) of the Ministry of Water and Environment, and the Uganda Women's Network (UWONET), to enhance resilience of communities, schools and health units against flooding and landslides through development and implementation of climate resilient FEWS and WASH in the catchment. The proposed consortium

of organisations seeks to design, implement and monitor FEWS, water and sanitation as well as catchment management interventions within and outside Mpologoma catchment under the proposed project.

27. The proposed project intends to build on the existing initiatives of WAU in eastern Uganda and undertake new interventions aimed at building the resilience of communities to climate change. The project will focus on Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies; Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides by: developing and showcasing climate-smart WASH-related technologies and activities at demonstration sites within the catchment, for (e.g. flood-proof latrines, wastewater re-use, waste management, fecal sludge management, non-revenue/waste water reduction, multi-use water options, rainwater harvesting, water point and sub-catchment protection measures (including soil conservation measures, wetland rehabilitation, restoration/protection of river banks and reforestation); source water point protection and recharge; building capacity of district and regional water, health and education, government and other stakeholders to support and model climate resilient approaches to water, sanitation, hygiene and waste management in schools and health care facilities; supporting communities to undertake WASH climate change adaptation actions and enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies.
28. The proposed project is designed to contribute towards the implementation of the Paris Agreement commitments on Nationally Determined Contributions (NDCs), Uganda's National Climate Change Policy 2015 and the National Adaptation Plan, Uganda Green Growth Development Strategy (UGGDS) in line with the new National Development Plan III (NDPIII-2020/21-2021/25) that aims to ensure that goals of the Uganda Vision 2040 are attained in a sustainable manner. In this regard, the project will contribute to the recent ongoing environment management reforms in Uganda attempting to decouple the expected industrialisation and urbanisation from the historically corrected environmental degradation challenges as proposed in the Environment Act, 2019.
29. The project will also contribute to the African Union (AU) Agenda 2063 regarding expanded and improved access to the necessities of life: water and sanitation and is aligned to Vision 2040 regarding adaptation and mitigation of the effects of climate change. The project will further contribute to Uganda's implementation of the developed National Adaptation Plans (NAPs) as well as attainment of Sustainable Development Goals (SDGs) targets under SDG 6 (Water and Sanitation) along with others including SDGs 2 (Zero hunger),3 (health), 4 (education), 5 (gender), 13 (Climate Action), 15 (Life on earth),16 (peace, justice and strong institutions),and SDG 17, (e.g.17.17 encouraging and promoting effective public-private and civil society partnerships). These synergies and linkages with so many other sectors position WASH at the forefront of the fight against climate change. A WASH-secure and healthy community or country has the foundations on which to build a comprehensive climate change response[18].

1.4 Selection and description of the project area

30. The proposed project will be implemented in different sites upstream, midstream and downstream areas within Mpologoma catchment (Figure 7). These sites are considered to be most vulnerable and prone to floods and landslides and to climate change impacts. The sites were selected for the proposed project based on the following criteria:
    - The sites experience high rainfall variability with increasing frequency and intensity of floods and landslides
    - There is high environmental degradation (vegetation and soil degradation), loss of biodiversity resources (flora and fauna) as well as the deterioration of water (quality and quantity) and water resources on which communities depend for alternative livelihoods.
    - Most communities practice and depend on rain-fed subsistence agriculture and have low-incomes and limited livelihood options to enable them cope with floods and landslides and associated climate change impacts.
    - Socially, there are many vulnerable members among the communities especially women, children, HIV/Aids affected groups, and the elderly.
    - Have experienced continuous challenges of timely responding to climate change disasters due to inadequate and limited Early Warning Systems.

31. Based on the criteria highlighted in section 1.4, sites within the upstream, midstream and downstream sub-catchments of Mpologoma catchments selected for the proposed project are: lower Manafwa and lower Mpologoma; middle Manafwa and middle Mpologoma; as well as upper Manafwa and upper Mpologoma sub-catchments respectively (Figure 8). The 6 selected sub-catchments cover a total area of 2,994 km^2 (33.3% of Mpologoma catchment) and administratively cover 11 districts (Bududa, Namisindwa, Mbale, Manafwa, Butaleja, Tororo, Kibuku, Budaka, Namutumba, Kaliro and Pallisa) partially as indicated in **Error! Reference source not found.** and F igure 8.

Table 1: Districts within the proposed project area

Drainage	Sub-catchment	Districts Covered (partially)

[18] Water Aid (2018) Brief for COP 2018

Upstream	Upper Manafwa	Bududa, Namisindwa, Mbale, Manafwa
	Middle Manafwa	Butaleja, Namisindwa, Mbale, Manafwa, Tororo
Midstream	Lower Manafwa	Butaleja, Kibuku, Budaka, Tororo
	Upper Mpologoma	Namutumba, Butaleja, Tororo
Downstream	Middle Mpologoma	Kibuku, Namutumba
	Lower Mpologoma	Kaliro, Pallisa

32. The project interventions will be implemented in different sub Counties selected upstream, mid-stream and downstream of the catchment. Project interventions will specifically be implemented in Kaato Sub county (Upper Manafwa sub catchment); Mazimasa (Middle Manafwa sub catchment); Iyowa and Kirewa Sub Counties (Lower Manafwa sub catchment); Budumba (Upper Mpologoma sub catchment); Nangonde and Kasasira Sub Counties (Middle Mpologoma sub catchment); Namwiwa and Gogonyo (Lower Mpologoma sub catchment). The project sites (Figure 9) have been considered for project implementation because of their high vulnerability to climate change as hot spots for floods and landslides, water stress and environmental change related challenges.

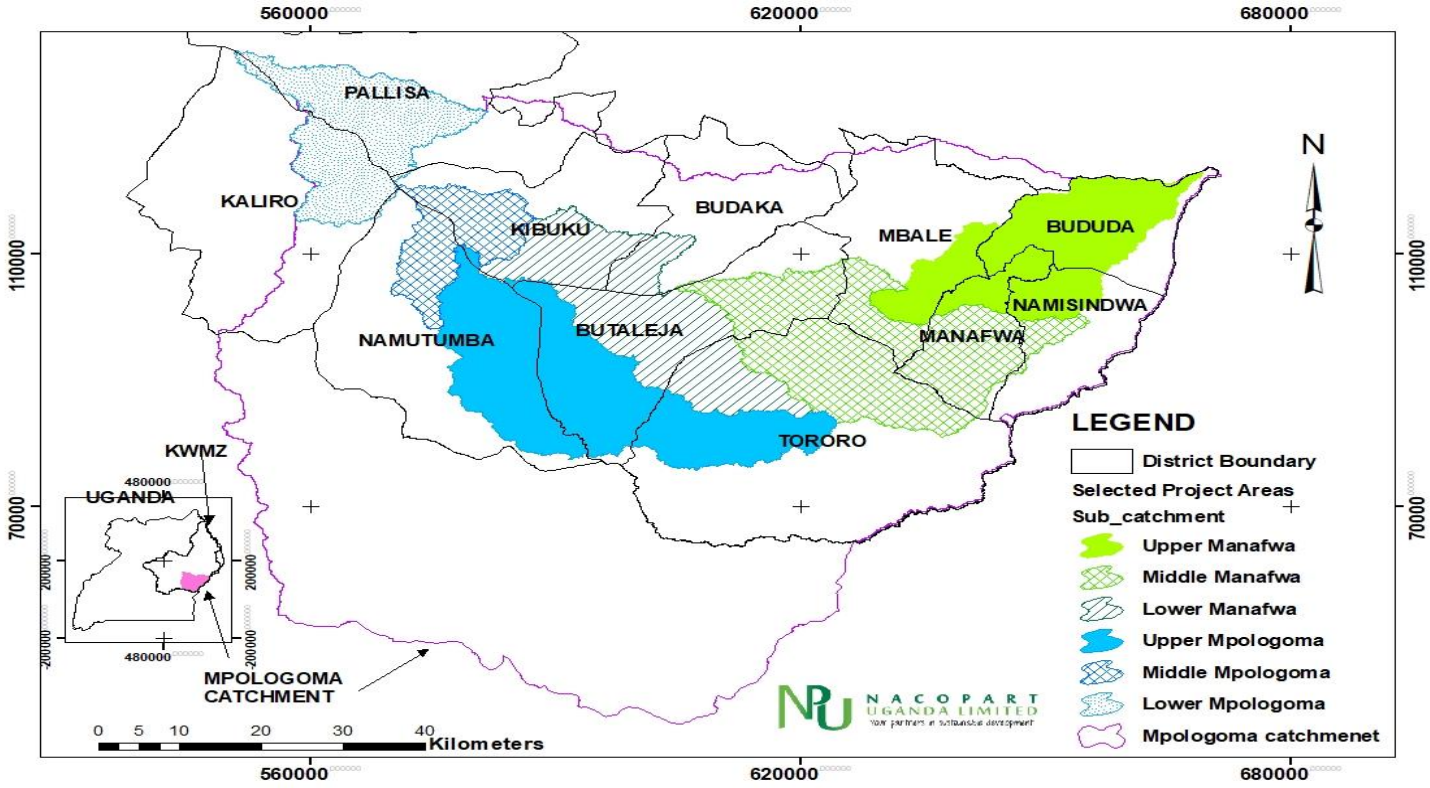

Figure 8: Location of the project area in Mpologoma Catchment

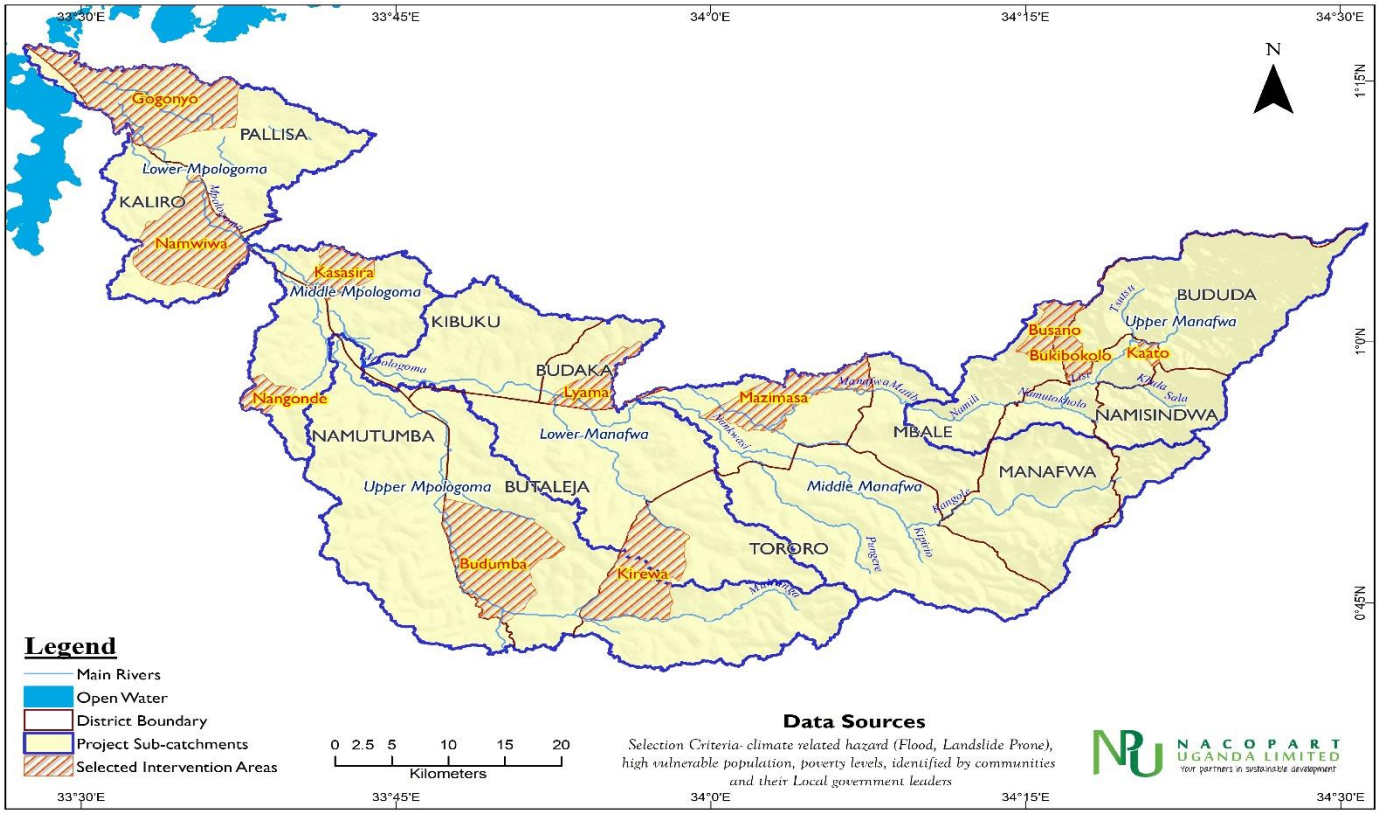

Figure 9: Selected project intervention sites in the Mpologoma Catchment

1.4.1 Geographical location and area

33. The Mpologoma Catchment, which is one of the catchments within Kyoga Water Management Zone (KWMZ) that covers approximately 7,862 km^2 of land area and 1,127 km^2 of water area[19]. It is bordered on the south by a narrow strip of the Victoria WMZ, which separates the catchments from Lake Victoria. The catchment is characterized by the presence of Mount Elgon (4,321 meters above sea leave [m.a.s.l]), at the extreme northeast corner of the catchment, where the steepest slopes are found and a few extinct volcanoes and ridges along its southern and eastern rim at lower elevations along the border with Kenya. The altitude of the remainder of the catchment is between 1,150m and 1,033m, with the latter being the mean altitude of Lake Kyoga.
34. Most wetlands in the catchment are located in this relatively flat area. The catchment traverses a wide range of land-cover types including settled agricultural areas, bush land, swamp/ riverine, wetlands of different types, and forested areas. There are numerous wetlands in the catchment: around 16% of the total area of the catchment is covered by wetlands (mainly seasonal wetlands). The main wetland systems include the Naigombwa, Namatala, Malaba, Mpologoma, Manafwa, Lumboka and Lwakhaka wetland systems.
35. The project areas traverse a range of land use types including Protected Areas (PAs) such as Mt Elgon National Park, a number of Central and Local Forest Reserves and arable land (Figure 10). The National Park section within the project area covers about 541 km^2 (54,089 hectares). About 2,052km^2 (90%) of arable land in the targeted project area is under rain-fed agriculture, and only 225km^2 (10%) is under irrigation.

[19] MWE, 2018. Mpologoma catchment management plan

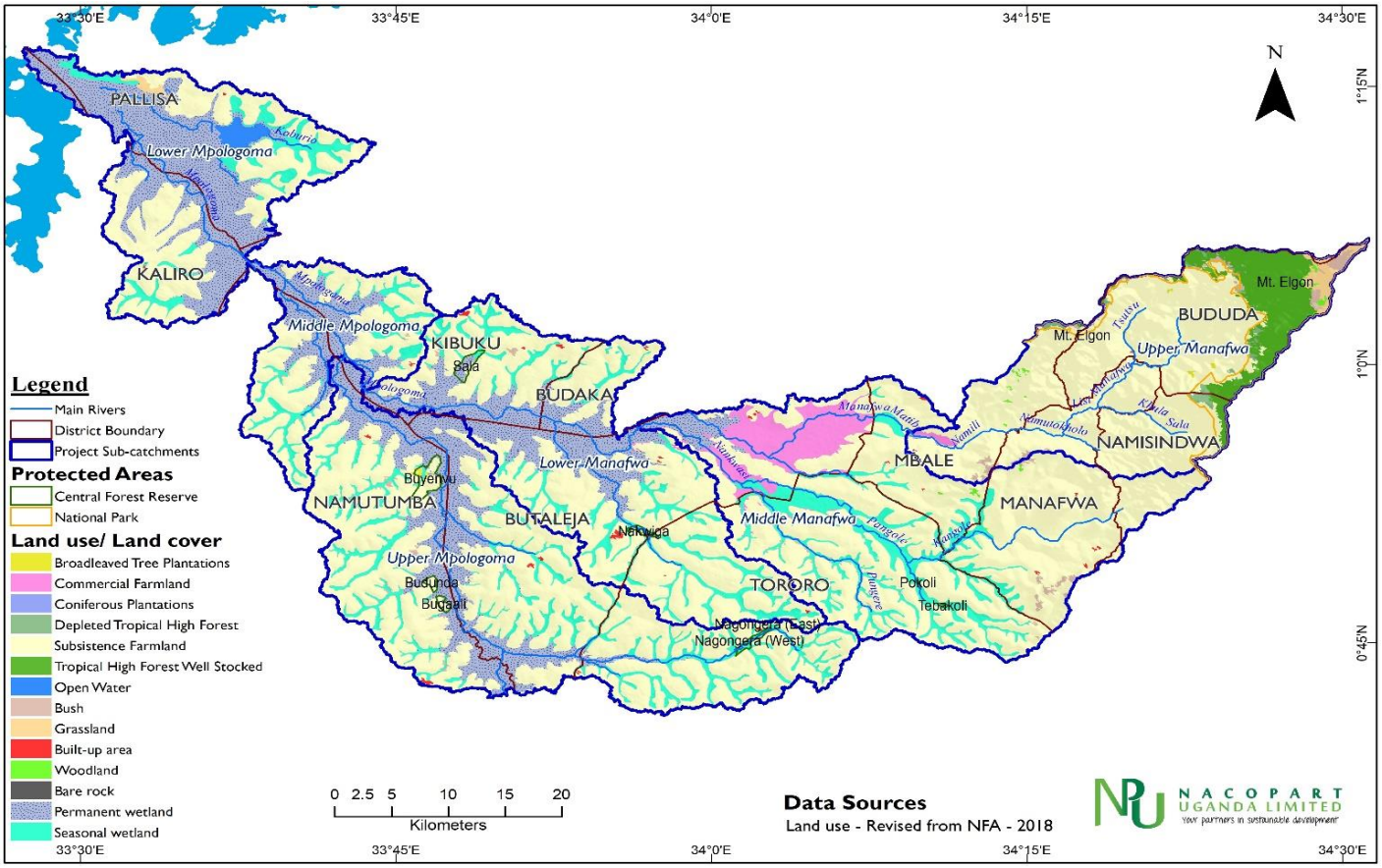

Figure 10: Land use practices in Mpologoma Catchment

1.4.2 Physical characteristics

36. The physical characteristics of Mpologoma catchment are diverse owing to the fact that it cuts across many districts, for example Manafwa district is hilly with gentle slopes in the wetland area and parts of the districts that border Tororo. The most evident physical feature of Mpologoma catchment is the spectacular Mount Elgon that rises up to 4,320 metres, covering Mbale, Bududa and Manafwa districts.
37. The sub-catchments for instance lower Manafwa and Mpologoma; middle Manafwa and Mpologoma; as well as upper Manafwa and Mpologoma sub-catchments typically characterize the lowlands, uplands and the mountainous landscapes within the Mpologoma catchment respectively. Further towards, Tororo, the terrain comprises of undulating plains with some rivers and swamp valleys. There are also isolated hills like the Tororo Rock and Sukulu hills. Butaleja consists of very flat plains; Pallisa and Budaka are areas of low land surface with open plains, low valleys that form wetlands. Bugiri district is generally characterized by gentle undulating hills (MWE, 2018).

1.4.3 Climate

38. The climate in the catchment is tropical in nature with relatively small differences in temperature, humidity and wind throughout the year. The area experiences two rainy seasons with heavy rain from March to May and lighter rains between October and December with mean annual rainfall about 1,375mm. The topographic effects of Mt Elgon and the catchment's proximity to Lake Victoria are two important factors responsible for the rainfall patterns in the catchment. These two factors contribute to the increase of total rainfall received in the area and help to reduce the severity of the dry period. The upland areas covered by Mt Elgon; Mbale, Bududa and Manafwa receive more rainfall compared to other areas. This kind of rain is sometimes excessive resulting in landslides that lead to loss of life, crops, livestock and property in the area. The average annual rainfall per annum in hotspots such as areas in Mbale, Bududa and Manafwa districts is 1,800mm. Such rainfall amount is considerably higher than the average annual rainfall of 1,375mm received in the entire catchment.
39. In recent years rainfall occurrence in various sites of the catchment has been reported to be erratic in terms of duration and intensity (MWE, 2018). This is commonly attributed to the effects of climate change. The unpredictable rainfall patterns translate into a shift in the planting season with associated crop failures apparent. The poor populations are mostly affected by such as it leaves them highly

vulnerable to hunger. This kind of rainfall unpredictability does not only affect crop yields but also the supply of water. The proposed project will focus on promoting adaptation measures to the erratic rainfall patterns thereby reducing the impact of climate change.

1.4.4 Soils and pedology

40. The main soils in Mpologoma catchment are Gleysols and Histosols Gleysols are suitable for rice growing while the histosols are suitable for growing other crops. The slopes of Mt Elgon in Bududa, Manafwa and Mbale districts are considered to be hotspots because they are highly fertile with such soil types resulting into high population densities therein. Due to intensive farming on the mountain slopes by the high human population, land degradation is evident. With excessive rainfall, soils are eroded to various surface water sources thus aggravating water, sanitation and hygiene issues especially at households' levels. There is a need to focus on sustainable farming practices that are aimed at restoring soil fertility and improve WASH among vulnerable communities.
41. Practices such as deforestation and unsustainable agricultural practices for instance bush burning and over grazing cause soil erosion which further leads to declines in soil fertility. With the declining soil productivity, food production is negatively affected leading to food insecurity among the human population. Looking at it in more detail, there is a diversity of soil types in the upper Manafwa sub catchment straddling from Humose red sandy clay loams, Yellowish brown sandy clay loams, Red clay loams and sandy clay loams, Black humose sandy clay loam, Dark brown clays to clay loams to Red sandy clay loams occasionally lateralized. The upper catchment soils are generally volcanic soils. Whilst the soil types in the remaining sub catchments are to a greater extent different, majorly comprising of Peat or peaty sands and clays, Greyish and yellowish brown sands, Black and grey clays often calcareous and Grey-brown and brown sandy loams over laterite (Figure 11).

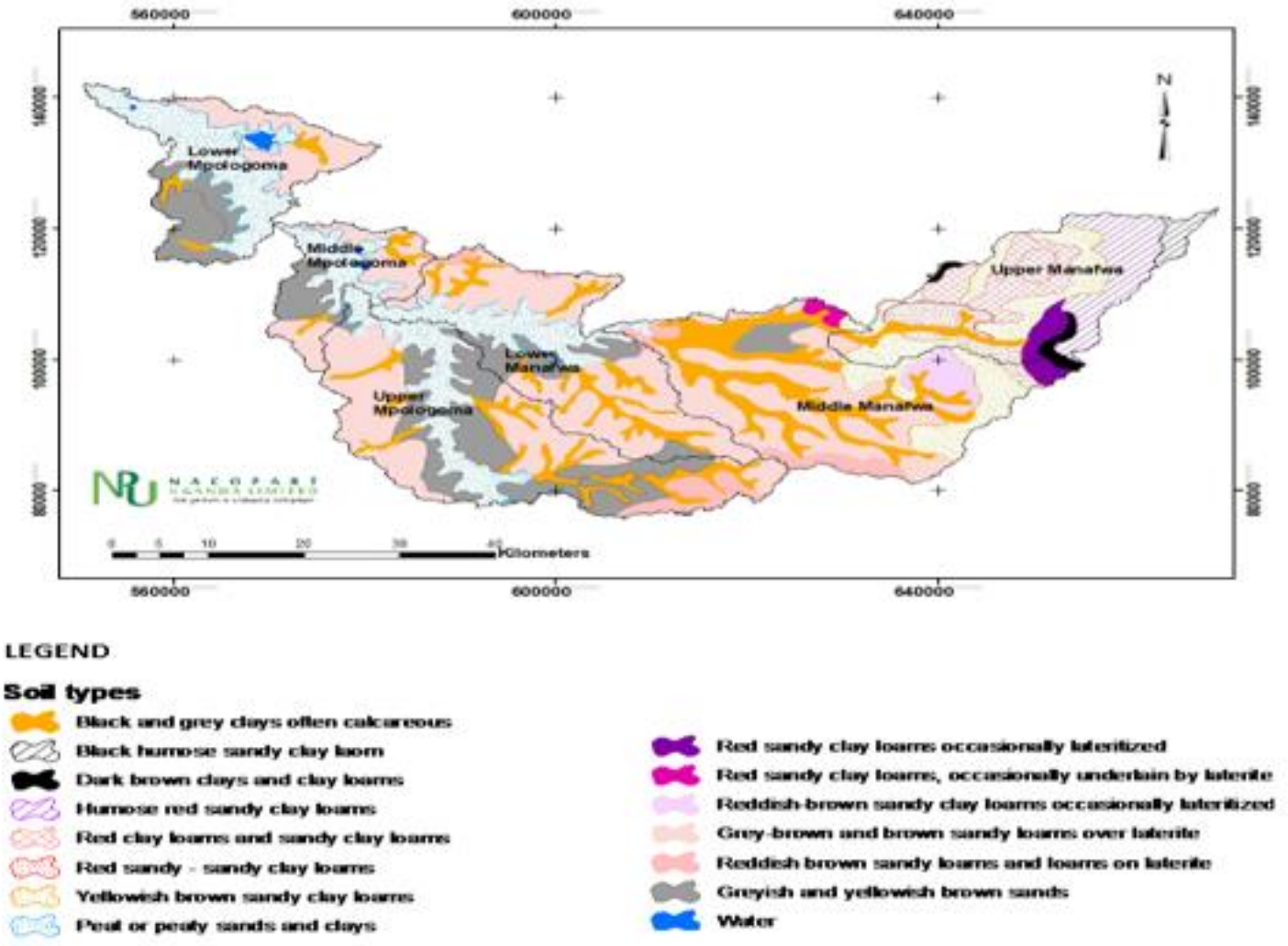

Figure 11: Geology and soil types in Mpologoma Catchment

1.4.4 Hydrology and irrigation

42. There is high potential of water resources for irrigation and domestic utilisation. The main rivers in Mpologoma catchment are rivers; Manafwa, Namatala, Malaba, Kibimba and Naeombwa. The rivers are the main source of water in the catchment. Groundwater is also

available in most of the catchment it is exploited by the use of boreholes, protected springs and shallow wells. According to the National Water Resource Assessment (2013), estimated renewable groundwater resource exceeds the project demand for domestic water throughout the catchment, although shortages may arise in areas with a high population density such as Mbale, Bududa, Budaka, Manafwa and Iganga districts. There are two major irrigation schemes; Kibimba (Tilda) and Doho. Informal small-scale irrigation of rice is most prevalent at the edges of wetlands, done with little or no technical assistance. In this catchment, its either rain-fed agriculture or informal small scale irrigation methods for watering crops as the major irrigation schemes are not properly well managed and maintained.

1.4.5 Population, land tenure and gender

43. The Mpologoma Catchment covers, totally or partially, 16 districts of Budaka, Bududa, Bugiri, Busia, Butaleja, Iganga, Kaliro, Kibuku, Manafwa, Mayuge, Mbale, Namayingo, Namutumba, Pallisa, Sironko, and Tororo with an estimated total human population of 4,093,340 (UBOS, 2014). This population is highly dependent on rain-fed agriculture and natural resource base for their livelihoods. The land tenure in the catchment is faulty and encourages people to own land titles in wetlands yet the ownership of wetland is vested in the Government of the Republic of Uganda under the Uganda Land Act-1998. These titles were obtained by some community members before the enactment of the Land Act whereas others illegally obtained the titles even after the Land Act was enacted. Customarily, the women are more disadvantaged as they are unable to own or inherit land. At times, women do not have the financial ability to purchase land. Women representation in the catchment management for instance on the Catchment Management Organization (CMO) is not significant enough. Women access to access to credit and markets is still poor due to poor roads. Women are poorer compared to men and contribute more to poverty in the catchment.

1.4.6 Livelihoods

44. Rain-fed agriculture is the biggest form of land use for the rural dwellers and so more than half of the total land area is used for cultivation. Livestock grazing is also a common livelihood in the catchment. Rice is the commonly grown crop in the lowland wetlands whereas crops grown in the highly drained areas include; maize, bananas, coffee, sweet potatoes, millet, sorghum, cassava and fruit trees. The cultivable areas comprise of the upstream dry lands and the lowland wetlands. It is subsistence kind of farming characterized by low yields, small land holdings, poor soil management practices and use of rudimentary tools for farming that make communities in the catchment highly vulnerable to climate change. The livestock reared include; cattle, sheep, goats, pigs and poultry. Fishing is another economic activity in the catchment fueled by the high demand for domestic consumption and export. Fish is done from small lakes, rivers, streams and wetlands. Apparently, the fish harvests are reducing due to degradation of water quality in lakes, rivers and wetlands, invasive weeds and the subsistence kind of fishing that encourages use of illegal methods. There are also small-scale fish ponds owned by individual farmers or groups of farmers that supplement the fish demand in the catchment area.

1.4.7 Major environmental management issues

45. Deforestation resulting from the indiscriminate tree cutting for cultivation and charcoal burning especially in Bugiri, Namutumba, Kaliro, Iganga and Mayuge districts; wetland encroachment and uncontrolled reclamation of wetlands as well as unsustainable crop farming practices are highly prevalent in the catchment. Pollution of wetlands, rivers and streams resulting from unsustainable crop farming practices undertaken by small scale farmers on mountain slopes and industries, soil erosion and siltation of the water bodies pose enormous environmental management challenges in the catchment. Such environmental management challenges are caused by the high population densities and growth that stress the natural resource base in the catchment.
46. Natural resource degradation not only leads to food insecurity, conflict over utilisation of natural resources but also impedes incomes and alternative livelihoods for the human population, high incidence and severity of waterborne diseases thereby increasing the vulnerability of populations and ecosystems to floods and landslides in the catchment. Floods occur mainly at the foothills of Mt Elgon. Flood waters originate from the upstream parts of Mpologoma catchment in the upper and middle Manafwa sub-catchments that are very steep and are highly degraded and flow through various rivers such as River Manafwa that originate from Mt. Elgon. Floods are common in low-lying areas and areas along riverbanks and close to wetlands mainly in the midstream and downstream sub-catchments as indicated in (Table 1). Landslides and massive soil and river bank erosion occur in Mount Elgon region, especially in Bududa, Namisindwa, Manafwa, Tororo and Mbale districts that form the upper and middle Manafwa sub-catchment covering the most upstream parts of the Mpologoma catchment.
47. There is therefore a geographical overlap between the origin of flood waters, landslides and soil erosion, namely Mt Elgon foot hills covered by the most upstream sub-catchments of Mpologoma catchment (**Error! Reference source not found.**). Therefore, i nterventions such as biophysical structures (contour bands, terraces, infiltration trenches and percolation pits) will be implemented in the upstream sub-catchments (upper and middle Manafwa) to control the fast run-off of water from the upstream areas of the Mpologoma catchment. The biophysical measures (structures) in the upstream parts of the catchment will also help to address the challenge of landslides and soil erosion.

48. In flood prone low-lying areas in the midstream and downstream sub-catchments, flood control and water harvesting structures (canals, check dams, retention ponds etc.) will be implemented. In this way, project interventions that are aimed at building the resilience of communities to floods and landslides will be implemented in the appropriate sub-catchments in a linked way. There is a need for the proposed project to address environmental management challenges related to floods and landslides such as deforestation, steep slopes, limited drainage etc. by improving awareness creation and enforcement of environmental policies so as to build resilience of communities to floods and landslides. The capacity of communities to adapt to climate change should be strengthened.

1.4.8 Climate change vulnerability and impacts

49. The precipitation pattern Mpologoma catchment, is classified as bimodal, but is highly variable in space and time, with extreme rainfall events leading to floods and landslides. Minor variations in annual rainfall occur in the catchment though reportedly erratic in amount, duration and frequency. The areas that are most vulnerable to floods and lands are; Upstream (mainly landslides): Bududa, Manafwa, Mbale and, Sironko Districts. In the Midstream sub-catchments floods are the main climate change challenge with Butaleja and Tororo Districts most vulnerable. The downstream sub-catchment is mainly vulnerable to floods especially in Kibuku and Pallisa District. The main determinants of vulnerability of human populations to floods and landslides is over dependency on natural resources and rain-fed agriculture. The natural resources including forests, wetlands, soils and water have been degraded by high populations in pursuit of ecosystem goods and services. Their current livelihoods are limited and their adaptive capacity is still low. Consequently, communities and especially women and children have remained vulnerable to floods and landslides. Women, children and the elderly are mainly the most vulnerable. They are mostly vulnerable in a sense that they are ones that stay in the areas most of the time depending heavily on the natural resources in search for water, wood fuel (firewood and charcoal), food (agriculture), etc. These are the stakeholders that would mainly be affected when a flood or landslide hits an area. These people often stay at home and stay longer in gardens and when floods, landslides and mudslides occur they are always the first victims because they are always caught up either at home, in the gardens, or along the way from the gardens to their homes.
50. The main flood events recorded in the catchment are seven flood events that have been registered since 1997 in Mbale district: Nov/1997; May/2002; May/2003; July/2003; Sep-Oct/2007; Aug/2011. The EMDAT disaster database (EM-DAT 2011) indicates high risks of landslides in Mbale District on the slopes of Mount Elgon. This year on 30th July 2022, a major flood that left the Catchment especially the areas of Mbale City flooded with many lives and property lost (Figure 12). Such floods, landslides and mudslides have often led to loss of lives, crops, livestock, property and caused the displacement of people. Reduction in crop yields as a result of unpredictable rains, has led to food insecurity, malnutrition and poverty among the communities. Surface water resources have reportedly been impacted as a result of climate change. Sometimes the reduction of available water resources between May and November increases water stress leading to deficits to meet the water demand. Some boreholes are said to be drying up as a result of climate change, however no information is available to explain this phenomenon.

Figure 12: Flooding in Mbale City and busting banks of River Namatala within Mpologoma Catchment on 30th July 2022

1.4.9 Water and sanitation situation

51. Since surface water is the main source of water in the catchment, the quality of water is majorly compromised by pollution from agricultural run-off especially in the rainy season and the lack of inadequate sanitation facilities. Sanitation in the catchment is wanting and this impacts the quality of water, health and the quality of life. Construction of pit latrines is difficult due to high water tables, floods and fragile soils. This exposes the local people to diseases that result from improper waste disposal. With the ever-increasing population in big towns such as Busia and Iganga, a functional waste water treatment plant would be resourceful. According to the Ministry of Water and Environment Sector Performance Report of 2018, only 77% of Ugandan population in rural areas have access to safe water. Although the responsibility of delivering WASH interventions in Uganda is shared between the Ministries of Education for Schools, Ministry of Health for community sanitation and MWE for sanitation infrastructure and public sanitation and sewages services, water supply and general access to safe water remains a challenge including Mpologoma catchment. According to the Uganda water supply database June 2018, only 11% rural population have access tap water in villages. If the government is to achieve its target to 50% access to tap water by 2030 then there is an urgent need to increase piped water supply. Furthermore, according to the Uganda National Bureau of Standards (UNBS) out of 498 small towns in eastern Uganda only 183 towns have piped water leaving 315 towns

with no clean water. The same applies to western Uganda where 228 small towns out of 311 towns lack piped water. Therefore, there is water supply deficit or gap that creates a need to support supply of clean water.

52. With the projected anomalies in rainfall and temperature, inadequate water supply and sanitation services are not only a challenge but even the small water and insanitation infrastructure faces the risk of climate change induced disasters. For instance, there was a 1% decline in access to sanitation facilities in Uganda in the year 2018 compared to year 2017 as a result of various factors that affected different districts. In Mpologoma catchment within Butaleja for instance, the 18% decline in sanitation coverage from 81% 2016/2017 to 63% in 2017/2018 was attributed to collapsing soils and flooding that caused collapse of many latrines in almost half of the entire district. With such climate change induced disasters threatening the water, sanitation and hygiene services especially in the catchment, deliberate efforts to develop and implement climate resilient WASH technologies under the CARFEWW project are timely if community adaptation is to be improved.

1.4.10 Drivers, barriers and proposed solutions

53. The main drivers for climate change vulnerability in Mpologoma catchment is high population growth, overdependence on unsustainable rain-fed agriculture, over dependency on natural resources and inadequate options for alternative incomes. The already high and growing population in Mpologoma catchment causes over exploitation and destruction of ecosystem resources thereby exerting increasing pressure on water and land resources. Some of the pressures result from unsustainable farming practices especially uphill where the soils are loose yet fertile causing soil erosion and siltation of rivers and streams downstream and emergence of water borne diseases. The high population also is a source of uncontrolled and poor waste disposal that leads to pollution of water bodies especially downstream. . With the projected monthly temperature change expected to increase by 1.8°C for the 2050s and by 3.7°C by the 2090s and monthly annual precipitation expected to increase based on the medium (RCP4.5) and high (RCP8.5) emission scenarios, it is inevitable that Uganda and specifically the catchment is at risk to natural disasters.
54. Furthermore, a study on climate change in the Lake Kyoga Basin revealed that the decadal relative rainfall anomaly increased from 85.6–105mm in 1981–1990 to 92.0–120.9mm in 2011–2020, while mean temperature anomaly increased from 0.2–0.6°C to 1.0–1.6°C in the same period. The frequency of severe wet weather events is more than for dry weather events in many stations, indicating an increase in precipitation. Maximum, mean, and minimum temperatures increased, with resultant warmer nights. The findings from this study showed that the Lake Kyoga basin in which the Mpologoma catchment falls is experiencing climate change, with both temperature and rainfall increasing spatially and temporarily. Climate change affects agriculture, which is the main economic activity, and causes the destruction of infrastructure notably, from floods, landslides, and mudslides[20] "The country experiences extreme weather events which lead to mudslides, landslides and flooding, particularly for the country's mountain regions such as the Mt Elgon region[21] of which Mpologoma catchment is part. Such extreme events have increased over the last 30 years. Flooding has become more frequent, largely due to more intense rainfall[22]. Increased intensity of heavy rainfall has led to greater impact of floods and caused more damage to infrastructure, human settlement and general development of the country.
55. In Mpologoma catchment, the 11 districts (Bududa, Namisindwa, Mbale, Manafwa, Butaleja, Tororo, Kibuku, Budaka, Namutumba, Kaliro and Pallisa) within the lower Manafwa and lower Mpologoma; middle Manafwa and middle Mpologoma; as well as upper Manafwa and upper Mpologoma sub-catchments respectively are most affected by the climate variabilities described. Such climate variability also results into crop failure hence food insecurity, damage to infrastructure and property, which increase the vulnerability of the poorer segments of the population and the most hard-to-reach and isolated communities. These issues increase the vulnerability of communities and ecosystems to climate change especially from floods and landslides that equally negatively impact on water and sanitation facilities. With water and sanitation services negatively impacted by floods and landslides, the women and children suffer more in terms of time spent collecting water, risk of diseases and sexual abuses. The human population in Mpologoma catchment is susceptible to water and sanitation related diseases due to floods and landslides aggravated by limited, unsustainable and unreliable Flood Early Warning systems and strategies.
56. To increase the resilience and adaptation of such communities to climate change, this project will focus on Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies (***Component 1 outcomes and outputs***); Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides by: developing and showcasing climate-smart WASH-related technologies and activities at demonstration sites within the catchment (***Component 2 outcomes and outputs***), e.g. flood-proof latrines, wastewater re-use, waste management, fecal sludge management, non-revenue/waste water reduction, multi-use water

[20] https://www.mdpi.com/2225-1154/9/12/179/pdf. Recent Climate Change in the Lake Kyoga Basin, Uganda: An Analysis Using Short-Term and Long-Term Data with Standardized Precipitation and Anomaly Indexes

[21] Ministry of Agriculture, Animal Industry and Fisheries (2018). Guidelines for Mainstreaming Climate Change Adaptation and Mitigation in Agricultural Sector Policies and Plans. URL: https://www.agriculture.go.ug/wp-content/uploads/2019/09/Guidelinesfor-Mainstreaming-Climate-Change-Adaptation-and-Mitigation-in-the-Agricultural-Sector-Policies-Plans-1.pdf

[22] Ministry of Water and Environment (2014). Guidelines for the Integration of Climate Change in Sector Plans and Budgets. URL: http://ccd.go.ug/wp-content/uploads/2018/04/National-Climate-Change-Mainstreaming-Guidelines-.pdf

options, rainwater harvesting, water point and sub-catchment protection measures (including soil conservation measures, wetland rehabilitation, restoration/protection of river banks and reforestation; source water point protection and recharge; building capacity of district and regional water, health and education, government and other stakeholders to support and model climate resilient approaches to water, sanitation, hygiene and waste management in schools and health care facilities; supporting communities to undertake WASH climate change adaptation actions and enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies (***Component 3 outcomes & outputs***) (Figure 13).

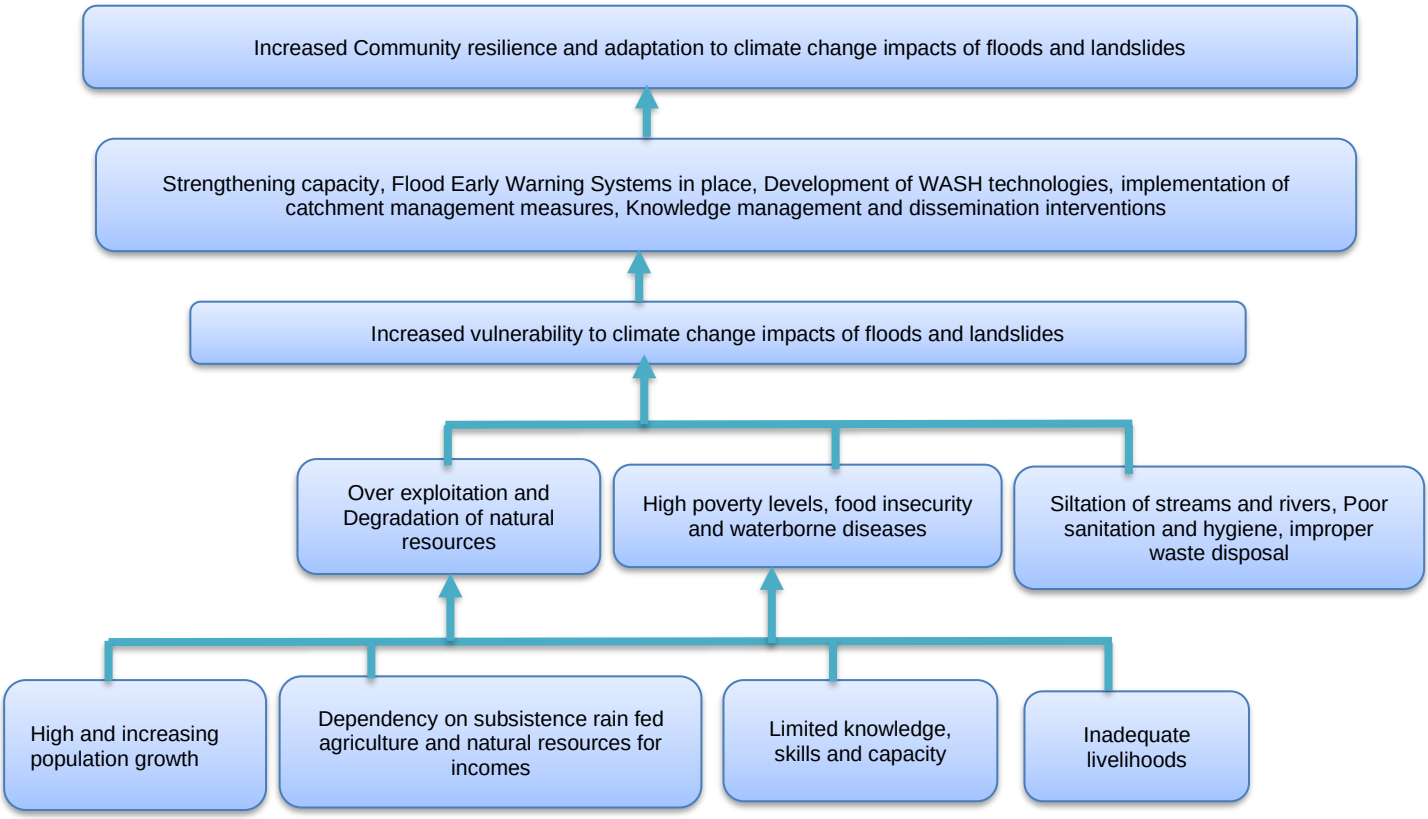

Figure 13: Theory of Change for the project

2. Project / Programme Objectives

57. The overall goal of the project is to increase the resilience of communities to climate change risks of floods and landslides through timely response to climate hazards, sustainable community access to water, sanitation and hygiene services and integrated catchment management measures in Mpologoma catchment.
58. The proposed project focuses on supporting local communities to adapt to the effects of floods and landslides through developing and implementing integrated floods early warning systems, climate resilient WASH and catchment management measures in selected sub-catchments of Mpologoma catchment in Uganda.
59. The specific objectives of the project are to:
    a) Strengthen the institutional capacity for planning, designing, implementation and monitoring of integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies
    b) Develop and promote adoption of Floods Early Warning systems (FEWS), climate-smart WASH and Catchment Management technologies
    c) Facilitate communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides
    d) Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies

3. Project / Programme Components and Financing

60. The relationship among the components of the project, expected outcomes, concrete outputs and corresponding budgets are presented in Table 2.

Table 2: Project components, outcomes, outputs and budget summary

Project/Programme Components	Expected Outcomes	Expected Concrete Outputs	Amount (US$)
1. Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies	1.1 Increased use of effective and efficient Flood Early Warning Systems and climate resilient WASH technologies by stakeholders	1.1.1 Efficient and effective FEWS and climate resilient WASH technologies developed/in place	**486,000**
	1.2 Capacity of key stakeholders at national, district and local levels for FEWS, WASH planning, designing, implementation and monitoring strengthened	1.2.1 Capacity to plan, design, implement and monitor Climate adaptive WASH among stakeholders at different levels improved	**756,000**
		1.2.2 Institutional linkages/partnerships for WASH information utilisation and review established/improved	**167,000**
2. Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides	2.1 Increased uptake and use of concrete adaptive climate-smart WASH technologies and catchment protection measures	2.1.1 Efficient and sustainable WASH technologies demonstrated	**384,000**
		2.1.2 Adaptive catchment protection measures promoted	**1,747,000**
		2.1.3 Adaptive flood control and landslide management measures (including soil conservation, erosion control etc.) promoted	**702,000**
	2.2 Uptake and usage and management of concrete adaptation actions for water supply and sanitation measures increased	2.2.1 Sanitation services in small towns and rural growth centres improved	**2,088,000**
		2.2.2 Domestic water supply infrastructure among vulnerable communities improved	**1,059,000**
3. Enhancing knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies	3.1 Knowledge, awareness and information sharing on FEWS, climate resilient WASH and Catchment Management increased	3.1.1 Good practices and lessons learned on WASH documented and disseminated	**95,200**
		3.1.2 WASH information sharing platforms strengthened	**216,000**
6. Project/Programme Execution cost			**760,000**
7. Total Project/Programme Cost			**8,000,000**
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			**744,600**
Amount of Financing Requested			**9,504,600**

4. Projected Calendar

Milestones	Expected Dates
Start of Project/Programme Implementation	October 2022
Mid-term Review	October 2024
Project/Programme Closing	October 2026
Terminal Evaluation	January 2027

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Description of project components and activities

The proposed project "Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda – CARFEWW project has three components with corresponding adaptation measures that are aimed at increasing the resilience of communities to climate change risks of floods and landslides through; timely response to climate hazards, sustainable community access to water, sanitation and hygiene services and promoting integrated catchment management measures in Mpologoma catchment. This goal will be achieved through strengthening the capacity of different institutions to design, plan and implement FEWS; develop and implement climate resilient FEWS and WASH technologies; facilitate the vulnerable communities to undertake adaptation actions that reinforce them against the impacts of floods and landslides; and enhance knowledge management and information sharing skills focusing on FEWS, WASH and integrated catchment management measures.

COMPONENT 1: Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies

Baseline situation

61. Floods are one of the water related climate hazards that negatively impact on ecosystems, populations and livelihoods. Flood Early Warning Systems (FEWS) provide prime flood risk management measures worldwide. About seven flood events have been experienced in the Mpologoma catchment in the last 25 years. The worst flood event was experienced at the end of July 2022. The flood left many areas in the catchment especially Mbale City heavily flooded with 30 people reportedly dead and several properties lost and road infrastructure including bridges destroyed. Despite the challenges of the floods in the catchment, efforts to plan and prepare for timely response to the floods risk have largely remained limited yet the impacts of such floods are far reaching. Apart loss of lives, properties and infrastructure, ecosystems including farmlands, river banks and forests on which the communities depend for livelihoods have also been destroyed.
62. Currently, there is a 2014 sensor flood monitoring system installed in Butaleja district which is limited to a 5km radius. Also there is a FEWS involving the telestation sensor monitoring system that were installed by the Ministry of Water and Environment on River Manafwa that serves to monitor water levels and transmitting real time data to the base station in the Uganda National Meteorological Authority (UNMA) . Both systems are not only inadequate but also ineffective, inefficient and unreliable. There is also continued destruction of water infrastructure, flooding of water supply pipes, flooding of latrines with high occurrence of water borne diseases, loss of assets, properties, lives and general water insecurity due to pollution and contamination and food insecurity from crop losses in the catchment. The situation is aggravated by the inadequate capacity to plan, design, implement and monitor such integrated FEWS and climate resilient WASH technologies in Mpologoma Catchment. Generally, there are limited options for FEWS in place and the limited data collected from some of the stations is not easily accessible and utilised by the subsistence farmers that are more vulnerable to the impacts of floods and landslides.
63. Although the Mpologoma CMP was developed in 2018 with numerous catchment management measures, FEWS and climate resilient WASH measures are largely lacking that could enable communities to easily adapt to the effects of climate change. Such systems and technologies are also lacking in district and sub-county development plans thereby rendering communities more vulnerable without options to rely on for pre-warning and coping with floods and landslides. Most of the catchment management measures in the CMP are mainly targeting catchment management measures for building and enhancing the resilience of ecosystems and human populations. Despite such efforts, local communities have largely remained highly vulnerable to the impacts of climate change especially the effects of floods and landslides because their adaptive capacity is still low. Similarly, community access to modern FEWS and climate resilient WASH services is largely inadequate.

Proposed interventions

64. Component one of the CARFEWW project focuses on strengthening the capacity of various institutions at different levels to ably undertake the planning, designing, implementing and monitoring integrated FEWS and climate-smart WASH technologies. These will be achieved through targeted assessment of the current FEWS and climate resilient WASH technologies in the catchment. Efforts to integrate early warning systems for floods management and water, sanitation and hygiene measures will be studied including their extent of application within and outside the catchment.
65. It will be vital for flood early warning information as well as WASH to be incorporated into the modern systems and technologies to further wide their application, improve on the effectiveness and reliability of the FEWS and climate resilient WASH technologies. Under this project, appropriate, reliable and widely applicable FWS and climate resilient WASH technologies will be incorporated and/or integrated in various institutional planning frameworks including the Catchment Management Plan (CMP), Sub Catchment Management Plans (SCMPs) as well as the programme, regional, district and Sub County development plans. Component one also targets strengthening the capacity of catchment management institutions in order to enable them and communities to adapt to the impacts of floods and landslides in the catchment.

66. Therefore, the purpose of component one is to support catchment management institutions and communities to adequately plan for FEWS and climate resilient WASH measures by ensuring measures, systems and technologies are duly incorporated in the already developed CMP, SCMPs, district and sub-county development plans. Guidelines for integrating the FEWS and WASH measures into the various level developing planning frameworks will also be developed. After planning, the project will then equip/upgrade selected weather stations in the catchment for timely and effective weather information as well as undertake to popularize and disseminate the revised/updated and newly developed SCMPs by translating such plans in the languages that are easily understood by the communities, local leaders and catchment management committees for full scale implementation. These interventions are highlighted under **outcome 1.1** and **output 1.1.1** of the proposed project.
67. In order for communities and catchment management institutions to ably undertake the proposed climate resilient WASH measures and technologies, the proposed project under **outcome 1.2** and **output 1.2.1** of component one further intends to improve the capacity of the various stakeholders that will be involved in the implementation of FEWS and climate resilient WASH technologies. For this case, capacity needs of the various stakeholders at different levels will be assessed and evaluated, capacity building plans developed and stakeholders trained in the implementation and monitoring of the FEWS and WASH measures at national, regional, district and local levels. It is proposed that exchange learning visits to areas within and outside the catchment will be organized for community leaders, and Catchment Management Committee members to see and appreciate FEWs and climate resilient WASH measures. It is hoped that on-return such learners will not only benefit from such cross learning but also be facilitated to conduct similar awareness raising meetings and events and guide learning among their peers within and among communities.
68. In order to track change in knowledge and skills acquisition among communities, community leaders and institutions, it is necessary that targeted follow up monitoring and supervision is conducted under **outcome 1.2** and **output 1.2.1**. Following integration and incorporation of FEWS and WASH issues in institutional planning frameworks of programme, CMP, SCMPs, district and sub county levels, component one also seeks to institutionalise WASH by establishing new WASH governance structures where they are non-existent or incorporating WASH governance within the broader Catchment Management and Sub-catchment management governance committees under **output 1.2.2**.
69. In addition, WASH information sharing forums will be developed and supported. The forums will be facilitated to develop Memorandum of understanding (MOUs) and action plans as well as support inter-ministerial and programme (inter-sectoral) meetings to easily coordinate WASH information sharing between stakeholders at different levels. These specific aspects will be achieved through outcome 1.1, output 1.1.1, outcome 1.2, outputs 1.2.1 and 1.2.2 presented below. The proposed activities in relation to the corresponding outcomes and outputs are:

    Outcome 1.1: Increased use of effective and efficient Flood Early Warning Systems and climate resilient WASH technologies by stakeholders

    Output 1.1.1: Efficient and effective FEWS and climate resilient WASH technologies developed/in place

    Activities

    - Activity 1.1.1.1 Assess the status of FEWS at different levels and incorporate indigenous/traditional FEWS options with modern FEW technologies. A study on the extent, availability and utilization of modern FEWS and indigenous FEWS will be undertaken. Efforts will be made to ensure, that the extent of use, reliability and application of both modern and traditional indigenous FEWs will be made.
    - Activity 1.1.1.2 Assess application status of Climate resilient/climate proof WASH technologies at different levels. In this case a study on the existing and available WASH technologies, extent of application and ways of improving on such technologies will be conducted under this project.
    - Activity 1.1.1.3 Support integration of FEWS and Climate-smart WASH technologies in planning, design, implementation and monitoring in national, regional, district and community level planning and development frameworks. This activity will aid the incorporation of early warning and WASH measures into the development frameworks so that they are relevant, reliable and adequate for utilization by the vulnerable communities in the catchment.
    - Activity 1.1.1.4 Equip/upgrade selected weather stations in the catchment for timely and effective weather information. Three (03) modern weather stations will be installed and at least three (03) existing weather stations will be upgraded in each of the sub catchments upstream, mid-stream and downstream. This intervention will be vital for supporting different stakeholders at district, sub County and local communities to obtain timely and effective weather information to plan their agricultural and other livelihood activities.
    - Activity 1.1.1.5 Popularise and disseminate the developed guidelines. In order to aid integration of FEWS and WASH measures in different frameworks as well as support access to information on such measures, guidelines will be developed under this activity.

    Outcome 1.2 Improved Capacity of key stakeholders at national, district and local levels for FEWS, WASH planning, designing, implementation and monitoring

    Output 1.2.1: Capacity to plan, design, implement and monitor Climate adaptive WASH among stakeholders at different levels

improved

Activities

- Activity 1.2.1.1 Undertake a FEWS and WASH capacity needs assessment for national, district and local levels. The human resources/technical, technological and financial capacities of different stakeholders to plan, design, implement and monitor FEWs and WASH measures and technologies will be undertaken.
- Activity 1.2.1.2 Develop a capacity building plan and materials for different levels at national regional, district and community levels. This involves the development of capacity building schedules as well as the materials needed. Depending on the level, national, regional and community level relevant plans and materials will be developed.
- Activity 1.2.1.3 Train stakeholders at different levels in FEWS and climate resilient WASH technologies. The training in FEWS and WASH resilient technologies will be conducted for different stakeholders engaged at national, regional, district and sub County community levels. Activity 1.2.1.4 Facilitate learning exchange visits for WASH. In this case, experiential cross learning will supported so that community members can easily

Output 1.2.2: Institutional linkages/partnerships for WASH information utilisation and review established/improved

Activities

- Activity 1.2.2.1 Establish and incorporate climate resilient WASH into governance committees in Catchment and Sub-catchment organisations. Under this activity, WASH management measures will be incorporated into Catchment and sub Catchment organisations. Incorporation will be achieved through targeted meetings and workshops organized at catchment and sub catchment levels.
- Activity 1.2.2.2 Facilitate WASH and CM and SCM committees to hold awareness creation meetings. In this case, the WASH incorporated Catchment Management and Sub Catchment management committees will be supported to equally sensitise their respective community members on WASH and climate change risks and their management.
- Activity 1.2.2.3 Develop/review WASH information sharing forums for Catchment Management Organisations. Where WASH information sharing platforms and forums are non-existent, they will be developed. Where they exist, they will be supported to meet quarterly and share information on new, emerging WASH measures and technologies. This will serve to activate and operationalize the forums.
- Activity 1.2.2.4 Develop MOUs and implementation action plan for climate resilient WASH information Forums at regional, district and Sub-County levels (CM stakeholders e.g. CBOs, LG Authorities, MWE structures)
- Activity 1.2.2.5 Support inter-ministerial and inter-sectoral (Programme) climate resilient WASH information sharing (Water, Health, Education). Under this activity, national level and semi-annual meetings between key ministries and programmes engaged in WASH will be supported to share information biannually for disseminating to various stakeholders.

70. In conclusion, component one activities that are focused on developing, demonstrating, capacity building and training and sensitization of communities and other stakeholders are key aspects for climate change adaptation. They serve to reduce the effects of floods and landslides. Component one enhances resilience of communities and other stakeholders by ensuring that the populations are in a state of preparedness and ably ready to deal with the effects of floods and /or landslides in a timely manner.

COMPONENT 2: Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides

Baseline situation

71. The human population in the Mpologoma catchment is highly dependent on climate sensitive subsistence rain-fed agriculture and a multitude of natural resources thereby exerting pressure on water and land resources, resulting in degradation of the environment. Save for a few places that are moderately degraded, the targeted six sub catchments have been degraded over time. The degradation has majorly resulted from agricultural expansion, limited natural resources for community livelihoods, poverty, and increased demand for fuel wood. At least 80% of the sub catchments are areas with high levels of degradation, and 19% is severely degraded. It thus implied that the different ecosystems within the sub catchments to a greater extent are degraded especially from over exploitation of trees for fuel wood, cultivation and encroachment on fragile ecosystems including wetlands and hilly/ mountainous areas for growing food crops. Use of inorganic fertilizers in cultivated areas is also high.
72. Acute water shortages sometimes have hit the catchment due to landslides and floods that damage the water supply infrastructure. Currently, the access to safe water stands at 65.5% (i.e. 64% rural and 63% urban access) in the proposed project area. The main types of water sources serving most people in the proposed project area are deep boreholes (61%) and protected springs (27%) among others. The functionality of point water sources is high (92% in rural areas and 91% in urban areas) but the actual number of functional point water sources is much lower. Overall, access to safe water is low (65%) despite the fact that overall functionality of the point water sources being high (92%). Furthermore, improper disposal of human waste is a common sight and burden to public health provision. Proper disposal of human waste involves the use of a toilet facility (UBOS NPHC 2014). Just as in other areas, the most commonly used toilet facility in Mpologoma catchment is the covered pit latrine without a slab (33%) and covered pit latrine with a

slab (21%). Overall, most households (82.6%) used pit latrines. Overall most households (93.9%) do not have hand washing facilities at their toilet facility. Most pit latrines do not have a slab and vent pipe. Only institutions such as the Local, Government Offices, Health facilities, Schools and religious institutions mainly have ventilated improved lined pit latrines. Shallow latrines are reportedly said to fill up very fast and their cost of digging and construction is high. Most of such toilet facilities are weak and easily damaged and swept off by floods and landslides. Such WASH and catchment degradation issues and challenges impede the coping capacity of communities to adapt to climate change.

73. Component two of CARFEWW focuses on increasing the resilience of communities in Mpologoma catchment by supporting them to undertake concrete adaptation actions for climate-smart WASH measures or technologies that reinforce local community resilience against floods and landslides. Therefore, communities within the catchment have limited climate resilient or smart technologies for water, sanitation and hygiene leading to poor responses to floods and landslides. Communities continue to lose lives, property, livelihoods and other assets to floods and landslides with inevitable emergence of waterborne diseases due to pollution and contamination of surface and ground water sources. Water points, water supply systems and waste management such as public toilets especially in high populated sites such as small towns and rural growth centres have also suffered unprecedented submerging from floods and landslides. For example the floods that occurred on 30th July 2022 let the entire Mbale City submerged with 30 people dead, roads and bridges destroyed. There is a need to undertake interventions that increase the resilience of such communities to the impacts of floods and landslides.

Proposed interventions

74. Therefore, the proposed project seeks to first understand the current state of Knowledge, Attitudes and Practices (KAP) on WASH measures. With such information, the proposed project under component two will demonstrate climate-resilient WASH technologies suitable for different sub-catchments upstream, midstream and downstream; and train community members in climate resilient WASH technologies. The status of water points and source protection measures will be assessed and communities will then be trained in sustainable source protection measures against floods and landslides. They will also be supported with inputs to undertake source protection measures and facilitated to conduct their indigenous community source monitoring under outcome 2.1 and outputs 2.1.1 and 2.1.2. Also adaptive catchment protection measures will be undertaken and will involve assessing, demarcating, and rehabilitating degraded ecosystems such as mountainous forests, swamp forests, wetlands and river banks; awareness raising on ecosystems restoration and rehabilitation among communities and their leaders, CMCs upstream, mid-stream and downstream; as well as supporting communities with various inputs to restore and rehabilitate some of the degraded ecosystems in the catchment under output 2.1.2.
75. Component two also increases resilience of communities to floods and landslides by supporting communities to: construct adaptive landscape flood and landslide control structures; construct domestic rain water harvesting facilities to manage floods (output 2.1.3); under outcome 2.2 and outputs 2.2.1 and 2.2.2, sanitation services especially in small towns and rural growth centres will be increased through availing public sanitation facilities. In small towns and rural growth centres the human population is high and people concentrated. These sanitation facilities will include for instance low-cost sanitation set-ups that are associated with low-income; mud brick lined / elevated chambers. The Elevated Pit Latrine (including Earth Stabilized or Mound Latrine), Sand Enveloped Raised Pit Latrine, and Step Latrines. Furthermore climate proof faecal sludge management facilities will be supported and climate proof wastewater re-use and waste management facilities developed and promoted as well as facilitating them to reinforce water abstraction, storage and transmission infrastructure/facilities.
76. Community members will also be trained in constructing landscape flood control and landslide management structures as well as how to operate and cost life cycle and maintenance of WASH facilities in towns and rural growth centres. Furthermore, under component two, domestic water supply infrastructure will be improved among vulnerable communities through supporting climate proof water supply assessment and reinforcement of water abstraction, storage and transmission facilities, awareness creation against piped water supply, wastage and other water loss reductions as well as supporting women groups to engage in sanitation value chains as an alternative source of income from WASH facilities in towns and rural growth centres. Therefore, apart from sanitation value chains and management of sanitation facilities that can be utilised to invest in group SACCOs, synergies will also be built with existing initiatives in the catchment such as the ECOTRUST Plan Vivo Trees for Global Benefit project supporting indigenous tree planting for carbon trade in the catchment.
77. Also, tree planting with high economic value species such as fruit trees and fuel woodlots will also be promoted as livelihood activities yet important at rehabilitating degraded and deforested areas and stabilizing the landslide susceptible areas. At least 50% of women and 50% men will be targeted to benefit from such livelihood interventions. In order to encourage communities to engage environmental conservation activities and alternative income generation, a revolving fund scheme for alternative income generating activities will be promoted. Synergies and lessons will be learned from the previous EURECCCA project funded by the Adaptation Fund, will be supported and promoted under the proposed project. The proposed component two activities in relation to the corresponding outcomes and outputs are:

Outcome 2.1: Increased uptake and use of climate-smart WASH technologies

Output 2.1.1: Efficient and sustainable WASH technologies demonstrated

Activities

- Activity 2.1.1.1 Conduct a KAP survey on WASH in the catchment: This study will be undertaken to support the understanding of the status, forms, models of WASH facilities in the catchment
- Activity 2.1.1.2 Establish demonstration sites for climate resilient WASH models. The proposed project targets to establish a demonstration site upstream, mid-stream and downstream. The demonstration sites will show the appropriate climate resilient WASH facilities at each drainage level.
- Activity 2.1.1.3 Conduct quarterly training sessions on climate resilient WASH. The training sessions will target community members and their leaders at community level.
- Activity 2.1.1.4 Support communities and stakeholders/project beneficiaries to access WASH information.

Output 2.1.2: Adaptive catchment protection measures promoted

Activities

- Activity 2.1.2.1 Assess status of water points and protection measures in the catchment. This study serves to provide information on the number, extent and condition of existing water points and the measures used to protect them.
- Activity 2.1.2.2 Train communities in source protection measures against floods and landslides
- Activity 2.1.2.3 Support establishment of source protection and management measures
- Activity 2.1.2.4 Facilitate indigenous community source monitoring
- Activity 2.1.2.5 Provide inputs to communities for source protection
- Activity 2.1.2.6 Assess, demarcate and map degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)
- Activity 2.1.2.7 Support rehabilitation of degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)
- Activity 2.1.2.8 Raise awareness on ecosystem restoration/rehabilitation among communities upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)
- Activity 2.1.2.9: Support and promote a revolving fund scheme for alternative income generating activities

Output 2.1.3: Adaptive flood control and landslide management measures (including soil conservation, erosion control etc.) promoted

Activities

- Activity 2.1.3.1 Train communities in landscape flood control and landslide management
- Activity 2.1.3.2 Facilitate construction of landscape flood control structures
- Activity 2.1.3.3 Construct landslides resilient WASH technologies

Outcome 2.2: Uptake and usage of concrete adaptation actions and WASH measures increased

Output 2.2.1: Sanitation services in small towns and rural growth centres improved

Activities

- Activity 2.2.1.1 Support women groups to construct and operate public sanitation facilities in small towns and rural growth centres such as the low-cost sanitation set-ups that are associated with low-income; mud brick lined / elevated chambers, The Elevated Pit Latrine (including Earth Stabilized or Mound Latrine), Sand Enveloped Raised Pit Latrine, and Step Latrine will be considered.
- Activity 2.2.1.2 Support construction of climate proof fecal sludge management facilities
- Activity 2.2.1.3. Support construction of climate proof wastewater re-use and waste management facilities
- Activity 2.2.1.4 Train community operators on life cycle costing and maintenance of WASH facilities in towns and rural growth centres
- Activity 2.2.1.5 Hold hygiene behaviour change awareness meetings in communities.
- Activity 2.2.1.6 Support women groups to undertake sanitation value chain (e.g. fecal sludge emptying)

Output 2.2.2: Domestic Water supply infrastructure among vulnerable communities improved

Activities

- Activity 2.2.2.1 Undertake assessment of low cost climate proof water supply infrastructure
- Activity 2.2.2.2 Reinforce water abstraction, storage and transmission infrastructure/facilities
- Activity 2.2.2.3 Undertake awareness raising meetings on piped water supply, wasteful water supply and other water losses
- Activity 2.2.2.4 Construct domestic rain water harvesting facilities for communities

COMPONENT 3: Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies

Baseline situation

78. There is limited awareness on climate resilient WASH technologies amongst communities and other stakeholders in the catchment leading to poor planning and responses to floods and landslides. Component three of CARFEWW project seeks to support knowledge generation, packaging, and dissemination between and across stakeholders in various institutions at different levels from national to regional, district and local levels. The main activities that will be implemented under this component will include raising awareness and mainstream lessons and best practices in FEWS on climate change issues and climate resilient WASH technologies. Further, they will include facilitating stakeholders to generate and exchange knowledge on the management of floods and landslides, conducting awareness raising meetings and campaigns to facilitate active communication and gain public support for climate change policies and inspire action on how people can take action to be a part of the solution. Some of the areas include FEWS and climate resilient WASH technologies, piped water supply, wasteful water supply and other water losses, undertaking learning exchange visits in successful climate adaptation interventions, documenting lessons learnt and best practices, results, impact, facilitating information sharing including supporting gender and disability rights groups to share climate resilient WASH information at different levels and engaging policy makers in dissemination of best practices on climate resilient WASH technologies .

Proposed interventions

79. The information, lessons learnt and best practices on climate-smart WASH will be documented and shared for use by various stakeholders. Other experiences such as sanitation facilities and catchment management, source protection as well as women involvement in sanitation value chains will be captured and disseminated for wider stakeholder learning. Water Aid will embed this project into the existing Global Water and Climate Change (WCC) campaign, conduct media dialogue on climate change and WASH and explore Water Aid's recently launched 'Climate change, water and me' interactive digital platform. Existing communication channels will also be utilised to mobilise support and inspire action by amplifying local and national campaigning actions that demand action from decision-makers.
80. The knowledge management component will involve documentation and dissemination of lessons learned and best practices of the project. These lessons will support replication of some of the interventions with better and higher adaptive effects to the impacts of climate change. At the same time, documentation will enhance up-scaling and out-scaling to other areas. The project will develop a detailed communication and outreach strategy including identifying climate champions for the project, communication materials to targeted audiences that are intended to facilitate knowledge transfer as well as sustain project interventions such as case studies, project factsheet, documentaries on people's experiences, climate change perceptions and behavioural change adaptation sensitization campaigns, and among others. Policymakers and relevant organizations will be engaged to participate in the knowledge sharing meetings and sessions at the national, regional and Global levels. At least 2 national high level presentations done and at least 1 Regional and Global platform presentation will be done.
81. The targeted policy makers and stakeholders are the National level stakeholders that are closely aligned to the implementation of the NDP III programmes. These include: Line Ministries and their linked units such as MWE, MoH, OPM, MoLG, MGLSD, MWT, MoFPED, NEMA, NFA, DLG, UWA, MLHUD; Development Partners Working groups concerned with water, sanitation, environment, gender and securing livelihoods; as well as engagement with Parliamentarians especially those on the Natural Resources Committee, Climate Change and District Councilors for awareness raising and any proposed policy change or monitoring.
82. The project will identify a high profile national figure that will be an ambassador for the project to promote climate resilient and adaptation practices. Study tours within the catchment and to other relevant catchments will be organised. The specific activities to be undertaken include documenting and disseminating lessons and best practices from project interventions, sharing knowledge and information through use of existing and popular platforms e.g. media, telecom that are easily accessible by the stakeholders, advocacy and awareness raising activities targeting key Government Sector Staff to integrate water security and climate resilience issues into National and Sectoral Development Plans, organising follow-up meetings and developing a scaling up strategy with key government sectors.
83. The specific outcome, outputs and activities that will be implemented under component three will include:

Outcome 3.1: Knowledge, awareness and information dissemination on FEWS and WASH increased

Output 3.1.1 Good practices and lessons learned on FEWS, WASH documented and disseminated

Activities

- Activity 3.1.1.1 Document good practices and lessons learned on FEWS, climate resilient WASH technologies and practices
- Activity 3.1.2.2 Generate, package and develop information and communication materials on FEWS, climate resilient WASH technologies and practices
- Activity 3.1.2.3 Organise Study tours within the catchment and to other relevant catchments

Output 3.1.2: FEWS and WASH information sharing platforms strengthened

Activities

- Activity 3.1.2.1 Support gender and disability rights groups to share FEWS and climate resilient WASH information at different levels
- Activity 3.1.2.2 Share knowledge and information through use of existing and popular platforms e.g., media, telecom that are easily accessible by the stakeholders, advocacy and awareness raising activities targeting key Government Sector Staff
- Activity 3.1.2.3 Facilitate integration of water security and climate resilience issues into National and Sectoral Development Plans
- Activity 3.1.2.4 Engage policy makers in dissemination of best practices on climate resilient WASH technologies. For this activity, meetings with MWE, MOH, MoE, MAAIF, OPM, MoLG, MGLSD, MWT, MoFPED, NEMA, NFA, DLG, UWA, MLHUD, and Development partners group, ministry sector working groups and parliamentarians and District Councilors will be organised and supported. At least 2 national high level meetings and presentations will be done and at least 1 Regional and Global platform meeting will be held.
- Activity 3.1.2.5 Organise follow-up meetings and developing a scaling up strategy with key government sectors.

84. The proposed project targets community members and households that are threatened by floods downstream in lowland areas and landslides in mid-stream and upstream highlands within the catchment. Overall, the project essentially focuses on increasing the resilience of the most vulnerable such as women amongst such populations against the impacts of floods and landslides.

B. Economic, social and environmental benefits

85. The proposed project is designed to provide various economic, social and environmental benefits in the context of the Environmental and Social Policy of the Adaptation Fund. For this matter, the proposed project is designed with activities, outcomes and outputs that are not only compliant but also compatible and aligned to the Environmental and Social Policy of the Adaptation Fund. The project targets to provide benefits to 40,933 households and other stakeholders including institutions involved in planning and management of Mpologoma catchment.

Economic benefits

86. The project will directly contribute to improved incomes and livelihoods through development and implementation of Flood Early Warning systems, climate resilient WASH technologies and catchment protection measures. In this case, it is expected that there will be a tremendous reduction in the loss of lives, property and assets; reduction in waterborne diseases as well as increased provision of quality and quantity of water resources from the protected sources and water points. The enormous financial resources expended on such items including replacing lost properties and assets, medical bills resulting from treating water borne diseases will be drastically reduced following implementation of FEWS and climate resilient WASH technologies and catchment protection measures. The directly saved incomes will be invested by community members into other productive ventures including agricultural production of high value crops such as coffee growing and fruit trees growing at household level. The planned trainings in FEWS and climate resilient WASH technologies (activity 1.2.1.3), source protection measures (activity 2.1.2.2), landscape flood control and landslide management (activity 2.1.3.1), and other forms of training and awareness raising will directly provide community members with the knowledge and skills to plan, design and implement WASH interventions and consequently reduce financial expenses that would have otherwise been incurred without FEWS and WASH measures thus saving and increasing their incomes.
87. Similarly, implementation of climate resilient and innovative adaptation actions such as construction of: landscape flood control structures (activity 2.1.3.2); domestic rain water harvesting facilities for communities (activity 2.1.3.3); climate proof faecal sludge management facilities (activity 2.2.1.2) and reinforcing the water abstraction, storage and transmission infrastructure/facilities (activity 2.2.2.3) contribute to reinforcing communities against losses of properties and assets to floods and landslides as well as indirect reduction to associated costs from waterborne diseases. Women groups will be formed and capacitated to directly construct and operate public sanitation facilities in small towns and rural growth centres at a small fee (activity 2.2.1.1) that will be saved and utilised in undertaking other alternative Income Generating Activities (IGAs). Economically, women groups will further benefit from additional incomes arising from undertaking sanitation value chains (e.g., faecal sludge emptying) (activity 2.2.2.1) that is a key alternative business as an IGA. Overall, the proposed project activities contribute to reduction of economic losses of vulnerable communities due to floods and landslides and providing innovative WASH related IGAs for women thereby indirectly and directly enhancing incomes and alternative livelihoods for community members. These are the main economic benefits from the proposed project. These interventions are in line with the principles 3 and 5 of the ESP of AF which emphasize consideration of marginalized and vulnerable groups and gender equity and women's empowerment respectively.

Social benefits

88. Socially, the proposed activities will promote water security among communities and other stakeholders in the catchment. In posterity, water insecurity related conflicts and unrest and unnecessary migrations of human populations will as well be managed by implementing the proposed project activities. As the project supports women groups to engage in operating faecal sludge management and maintenance and undertaking sanitation value chains as alternative businesses, another benefit of social cohesion

will be achieved. Socially women leadership, financial business management and record keeping skills, mobilization and costing and budgeting skills will be achieved. As the project supports women groups and other community vulnerable groups working together, the proposed project will directly empower vulnerable groups to build trust, and other social attributes that could be relied on to engage in other socio-economic enterprises. Activities involving sharing Flood Early warning information and climate resilient WASH information in various forums will also provide the social benefits of coordinated and complementarity aspects among the key stakeholders by reducing conflicting information dissemination thereby breeding harmony in tackling floods and landslides in the catchment. Overall, the main social benefits are reduced social unrest, conflicts and, migration of community members as they flee from floods and landslides as well as achieving social cohesion and harmony among women groups and other stakeholders in implementing climate resilient WASH measures in the catchment. These interventions are in line with the principles 3 and 5 of ESP of AF.

At the environmental level

89. Indeed, the project plans to improve water resources quality and quantities, to prevent communities from natural disasters and avoid waterborne epidemics and achieve catchment protection. The proposed project will positively impact on the natural ecosystems through implementation of landscape flood control and landslide management measures as well as water point and source protection measures and catchment protection measures involving restoration and rehabilitation of degraded ecosystems (these are in line with the principles 9 and 10 of ESP of AF which look at protection of natural habitats and conservation of biological diversity respectively). Through implementation of FEWS, climate resilient WASH technologies, source protection and catchment protection measures, the proposed project will directly be contributing to reducing the impacts of floods and landslides. The integration and incorporation of FEWS and climate resilient WASH into institutional planning frameworks including districts' and sub-counties' development plans, the CMP, SCMPs will greatly contribute to the overall management of floods and landslides at various levels in the catchment. Capacity needs assessment and enhancement activities including trainings will benefit different stakeholders at different levels with the requisite knowledge and skills to plan, design, implement and monitor FEWS and WASH interventions with strengthened capacity to timely respond to floods and landslides.
90. By undertaking source and Catchment protection, Catchment Management Leaders and natural resources managers as we well as the individual community members directly benefit from the improved and climate resilient measures, plans and eventually reduce the damages and losses to environment and environmental goods and services associated with climate change disasters especially floods and landslides. In addition, the implementation of concrete adaptation actions such as restoration of degraded ecosystems and climate resilient WASH technologies, the proposed project will provide concrete benefits on the ecosystems, floods control and landslides management and waste management and reuse structures that reduce soil erosion and eventual pollution and contamination respectively for both surface and ground water sources. These are in line with the principles 9 and 10 of ESP of AF.
91. The other direct environmental benefits from the proposed project include: water point and source protection measures, landscape flood control and landslides management using landscape structures; restoration of degraded swamp forests, mountainous forests, wetlands and river banks; climate proof fecal sludge management facilities; climate proof wastewater re-use and waste management; public sanitation facilities in small towns and rural growth centres. These activities will not only ensure availability of clean and safe water for community use but also vital in preserving and increasing resilience of the ecosystems, biodiversity and human populations against floods and landslides. Source protection measures will not only involve innovative water and soil conservation measures, but also tree planting, planting of grass bands and construction of stone embankments during flood control, landslide management and ecosystems restoration to ensure availability of safe and clean water resources for human and livestock populations among the communities in the catchment. In compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund, the project will target at least 40% of urban and peri-urban women as the major beneficiaries of project interventions. In addition, two activities will specifically target to benefit vulnerable groups. These interventions include: Activity 2.2.1.1 - supporting women groups to construct and operate public sanitation facilities in small towns and rural growth centres; and Activity 2.2.2.2 - supporting women groups to undertake sanitation value chain (e.g., faecal sludge emptying). The planned interventions have been screened against the 15 ESP Principles and GP of the Adaptation Fund. An ESMP has been prepared to ensure the potential negative impacts from interventions are mitigated and the enhancing the associated positive impacts (Annex 6). With such efforts, environmental and social benefits such as benefits to vulnerable groups will be enhanced and promoted while the adverse environmental and social risks and impacts will be mitigated or avoided.

Avoiding or mitigating the negative impacts to project benefits

92. To maximise the economic, social and environmental benefits from project interventions, measures aimed at avoiding and/ or mitigating the negative impacts of interventions in compliance with Environmental and Social Policy and Gender policy of the Adaptation Fund will be undertaken. The mitigation measures will be undertaken for potential negative impacts likely to impede vulnerable groups from enjoying the economic, social and environmental benefits of the proposed project.
93. Although most of the project activities comply with all the relevant National laws, regulations and standards as well as the relevant international laws and regulations, activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4 under

component 2 will involve construction of climate resilient WASH models, appropriate landscape flood control structures, faecal sludge management, restoration of degraded ecosystems and undertaking Income Generating Activities (IGAs) will lead to very minimal negative impacts. Whenever, other impacts arise, compliance with national and international standards, laws and regulations will be ensured.

94. The project activities have been fully identified and their location specified and the mitigation measures have been developed respective of the environment, social and gender risks that they generate (Full ESMP attached in Annex 6). For example: Vulnerable groups including the elderly, youth and women likely to miss out of the project activities and accessing benefits due to dominance by men and other well-positioned decision makers. A detailed stakeholder mapping, consultations and assessments have been undertaken during the proposal development stage. In situations where, access and ownership of land and other related resources such as access to finance is limited for women, youth and other vulnerable groups that may limit their participation, opportunities and benefits from project activities especially the catchment management-based activities and those that need reasonable amounts of money to start up like IGAs, deliberate efforts to target such groups have been emphasized in the project. Actually 50% of women, youth and PWDs are targeted in addition, issues and actions specific to each group have been captured and incorporated in the design of the project to ensure equitable participation in the project activities and access to project benefits by all groups including men women, elderly, youth and any other vulnerable and marginalized groups without discrimination. A beneficiaries selection criteria taking care of all categories of people including women youth, elderly, PWDs and other vulnerable and marginalized groups has also been developed.
95. For groups with limited access to land, they will be encouraged and targeted for activities that do not need a lot of land such as faecal sludge management, construction of climate resilient WASH models. A project Grievance redress mechanism has been developed and Grievance redress Committees will be selected accordingly to handle any reported issues of inequality and lack of access to project benefits (Annex 6). Close monitoring of the project beneficiaries to assure equal access of men; women, youth and the most vulnerable. Marginalized and vulnerable groups including the elderly, youth and women likely to miss out of the project activities and accessing benefits due to dominance by men and other well positioned decision makers who may take up all the available project opportunities.
96. Furthermore, Contractors and other employees on the project shall be sensitized and obliged to observe the human rights of their workers as well as the guidance provided by the employment Act, Workers' compensation Act, Occupational health and safety Act and other relevant local and internationals laws and regulations. The Project Grievance redress mechanism shall be used to resolve any human right issues that may arise.
97. Vegetation clearance arising from construction of WASH technologies and flood control structures may affect biodiversity and reduce the benefits to individuals and populations in those sites. The opening up of new lands for catchment management may also lead to vegetation loss. It is also possible that trees promoted under tree planting may turn out to be invasive. As WASH facilities are constructed, especially faecal management facilities, ground and surface water contamination may occur further limiting delivery of benefits to project beneficiaries. There may be over use or un-regulated usage of the water resources. In such situations, natural resources governance committees and water management committees will be established to ensure that regular maintenance of natural resources, water sources is done thereby reducing chances of contamination. Efforts to ensure regular quality control checks and monitoring to detect and address any sources of pollution and contamination through regular sensitization on water source protection and maintenance will be done. Regulated use of water resources by enactment of laws will be done.
98. Low representation and lack of land and other resources in the targeted areas may negatively impact on delivery of benefits by the project. In addition, there may be situations where there are limited benefits as result of access due to limited participation of vulnerable groups such as women and youth groups. To mitigate such impacts, a Gender Assessment and Action Plan has been developed to ensure that gender issues and women are meaningfully integrated and engaged in project activities and realize an equitable share of project benefits (Annex 7). The project has been deliberately designed to emphasize gender equity and women empowerment through equal participation of both men and women in project activities. Women will be empowered in decision making at the start and during project implementation through having representation on group management committees for the project investments and enterprises. Some of the key project activities including capacity building in climate smart WASH technologies and FEWS, undertaking of IGAs will deliberately target women and other vulnerable groups.
99. Overall, to mitigate negative impacts of the interventions highlighted among others in compliance with the ESP of AF, Environmental and Social Impact Assessments, Gender analysis supported by a complete gender action plan as well as a grievance redress mechanism have been undertaken during the development of the CARFEWW full proposal document (Annex 6 and 7). In order to sustain the benefits to vulnerable groups in the targeted communities, the project-monitoring plan as well as the Grievance mechanism shall incorporate gender equity and women empowerment issues for follow up during project implementation and ensure that project reports provide and emphasize gender disaggregated data.

C. Project cost-effectiveness

100. This CARFEWW project is designed as an integrated project that values and takes into consideration the interconnectivity, relatedness

and inter-linkages between climate information generation through Floods Early warning, climate resilient WASH technologies and ecosystems management based on floods and landslides control structures and catchment management measures. Implementation of project activities under such aspects in an integrated and holistic manner rather than as independent projects not only reduces the costs of duplication of interventions but also reduces/ cuts costs and enhances various benefits to populations and environment thus rendering the entire project cost effective. Considering that the project targets about 40,933 beneficiaries with a total financial investment of USD 9.5 million, it is expected that the benefits likely to accrue socially, economically and environmentally will inevitably lead to improvements or enhancements in peoples' resilience to floods and landslides, their wellbeing and improved livelihoods as well as ecosystems; because interventions are designed to cut on costs associated with floods and landslides. Beneficiaries are expected to reap increased financial benefits from reduced costs associated with losses of lives, assets and other properties due to floods and landslides at least mid-way project implementation.

101. The saved incomes could contribute to enhancing or boosting household level production. In this way, the project should be able to lead to positive benefit-cost ratios that point to a cost effective project. Finally, the project is cost effective when knowledge and skills and information sharing are included as additional greater benefits. These are greater benefits because, the knowledge acquisition, skills acquisitions and information sharing from project design have a multiplier effect among stakeholders including other populations within and outside the proposed project sites. In posterity by the end of the project, more indirect project beneficiaries would have been reached and benefited from project interventions either through word of mouth from direct beneficiaries, or observing and learning from interventions among their peers within the project sites and from documents capturing good practices and lessons learned during project implementation. With such evidently higher qualitative benefits, the dimension of considering interventions designed to focus on training, knowledge and skills acquisition as well as sharing information further reveals that the project is cost effective and worth investing in.
102. Furthermore, considering a similar project such as EURECCCA as the main alternative for promoting the resilience of communities to floods and landslides, a comparative evaluation of the level of investment under the proposed project broadly reveals that this is a more likely worth investment than EURECCCA in the same region within a similar period of 4four years as follows. The EURECCCA project that has operated in the same region, targeted about 18,400 people with USD 7,781,000. The proposed CARFEWW project targets to benefit 40,933 people with an investment of USD 9,504,600. Assuming the same level of investment (i.e., USD 9,504,600 less USD 7,781,000= USD 1,723,600 worth an investment for an extra 22,533 people directly. This implies that USD 1,723,600/22,533= USD 76.5 per person. It also implies that with the current project less financial resources (i.e., USD 7,781,000/18,400 people=USD 422) will be invested to benefit more people (i.e., USD 9,504,600/40,933 people=USD 232) to address the risks of floods and landslides. Therefore, with such a comparative evaluation on the level of investment, it is likely that the CARFEWW project is cost effective and worth an investment.
103. Cost effectiveness of the project will also be ensured through a) promotion of low cost water supply, sanitation and catchment management technologies, b) strengthening of community management structures that will ensure the active involvement of the communities in project implementation resulting in provision of free labour to the project and building capacity within the communities to be able to scale up activity implementation beyond the project sites, c) establishment of a revolving fund scheme for alternative income generating activities will ensure access to credit by communities to enable them implement activities that not only mitigate impacts of climate change but also improve their incomes and livelihoods. The low cost water supply and low-cost sanitation set-ups that are associated with low-income countries where the target populations are vulnerable are proposed for consideration. For instance the use of different pit lining options for collapsible soils using locally available materials will be considered.
104. In the case of Mpologoma, mud brick lined / elevated chambers or bamboo (or another locally available material) lining will be used as the most appropriate and cost effective sanitation technology. These would not prevent inundation but at least would prevent destruction in the event of a flood. These options are likely to be lower cost and therefore more cost effective at household level than solutions of using concrete, red bricks and septic tanks. In combination to using locally available material the concrete options can also be combined to the local ones.
105. The Elevated Pit Latrine (including Earth Stabilized or Mound Latrine), Sand Enveloped Raised Pit Latrine, and Step Latrine will be considered. In all of them, the excreta treatment unit (the pit) consists of a set of concrete rings one on top of the other up to a height sufficient to ensure that the superstructure is higher than the maximum high water level and thereby guaranteeing its proper functioning. For the solution technologies proposed, engagement with the private sector will be important to enhance the appropriate and affordable sanitation marketing that can ensure sustainable supply. This will include training of local masons to incorporate the flood resistant designs and for suppliers engagement will be done to stock appropriate material and marketing of products.
106. Cost-effectiveness has been ensured by selecting some interventions for this project especially those identified and costed in the Catchment Management Plan (CMP) such as catchment protection measures, flood control, landslide management. The Mpologoma CMP is a detailed, robust, government plan that sets out the most appropriate, cost effective interventions for the 13 sub catchments within the catchment. These proposed actions feature a detailed participatory barrier analysis for the catchment and selection of the most cost effective responses tailored to available funds at catchment management authority, district local government and community levels.

Economic analysis (NPV and IRR)

107. The overall estimated economic rate for the project is 22.4% with a Net Present Value (NPV)[23] estimated at USD 321,151 at 5% discount rate (Table) from the proposed three components of CARFEWW project. Component 1: Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies, Component 2: Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides, and Component 3: Enhancing knowledge management, awareness and information sharing in FEWS, climate resilient WASH approaches and technologies). The positive NPV and IRR of 14.4% implies that it is viable to invest in CARFEWW project as opposed to investing the funds elsewhere at 5% interest.

Table 3: Summary of the economic rate of return on project investment

Year	Cash Inflows (USD)	Cash Outflows (USD)	Net Cash flows (USD)	Present value of future cash flows (USD)	Estimated discounted Net Present Value Net-NPV (USD)	Internal Rate of Return-IRR (%)
Initial investment in 2022		1,904,950	(1,904,950)			
2023	3,763,821.60	2,965,650	949,008			
2024	3,763,821.60	2,848,650	911,568			
2025	2,509,214.40	1,785,350	571,312			
Overall	**10,031,538**	**9,504,600**		**2,224,157**	**319,207**	**14.5%**

The key assumption considered during the economic analysis are:

- The cash outflows were the annual total budget of CARFEWW project based on the disbursement schedule in Section H.
- The returns on investment (i.e. cash inflows) were calculated based on the financial projections over the period 2010-2050 of the proportion of cost of inaction to climate variability, that is, funds that the Government of Uganda would lose due to inaction in agriculture (including environment, soil and water conservation and WASH (MWE CCD 2015)[24] and the 38% contribution of the human capital development (i.e. Training and capacity building) on labour productivity presented in NDP III (NPA 2020)[25].

The main project benefits will be derived from the following outcomes *proposed under components 1-3 of CARFEWW Project*.

- Outcome 1.1: Increased use of effective and efficient Flood Early Warning Systems and climate resilient WASH technologies by stakeholders.
- Outcome 1.2 Improved Capacity of key stakeholders at national, district and local levels for FEWS, WASH planning, designing, implementation and monitoring.
- Outcome 2.1: Increased uptake and use of concrete adaptive climate-smart WASH technologies and catchment protection measures.
- Outcome 2.2 Increased Uptake and usage of concrete adaptation actions for water supply and sanitation measures
- Outcome 3.1: Increased Knowledge, awareness and information on WASH.

108. However, there are other benefits mainly related to social, institutional, capacity building, environmental, disaster risk management and human resource development, which are not easily quantifiable. These have largely not been included in the ex-ante economic analysis. The ex-ante economic analysis which was mainly based on; (i) assessments/studies, Training and capacity building and (ii) the infrastructure for EWS/FEWS, RWH and (iii) the infrastructure for climate smart WASH technologies which could serve as an indication of the economic viability of the project given together they take up approximately 52%, 20% and 28% respectively of the overall project budget of USD 9,504,600.

[23] NPV (PV-Initial Outlay) is the difference between the value of the initial cash outlay on a project and the present value of the future cash flows associated with the project. For a project to be undertaken, the NPV must be greater than zero.

[24] MWE 2015: Economic Assessment of the Impacts of Climate Change in Uganda. Ministry of Water and Environment Climate Change Department (CCD). Kampala Uganda. November 2015.

[25] NPA 2020: The Third National Development Plan 2002/2021-2024/2025. National Planning Authority. Kampala Uganda. January 2020.

109. According to Water Aid 2021 Report, the annualized net benefits of achieving universal services 2021–2040 was USD 32Bn for basic water, USD 37bn for safely managed water, USD 45Bn for basic hygiene, USD 65Bn for basic sanitation and USD 86Bn for safely managed sanitation globally[26]. Inadequate access to WASH is responsible for as much as 10% of the global disease burden, contributing to 1.6 million preventable deaths each year, including 60% of all diarrhoeal deaths
110. The proposed interventions under the project will also reinforce each other, for example, the climate smart WASH technologies will reduce pollution of the rivers and streams in the catchment thereby access to safe water consequently reducing the risk of waterborne diseases such as diarrhea, Cholera and helminthes. The CARFEWW revolving fund will provide initial affordable capital to the beneficiary households to invest in alternative income generating activities involving good farming practices (i.e. bee keeping, agroforestry and planting grass bands of elephant grass and nappier grass bands on contours not only for fodder but also to protect the soils and river banks and generate income to the households/Local community members within and beyond the life (4 years) of the project. The local community members (men, women and youths) will also not only sell local construction materials and food stuffs but also provide skilled and unskilled labour during the construction of the proposed FEW and climate smart WASH technologies.

D. Consistency with development strategies and plans

111. Uganda has over the years made strides in designing strategies, policies, and plans aimed at mitigating and adapting to the effects of climate change. The priority actions of the proposed project are consistent with key strategies, policies, and plans. Uganda identified water resources management and climate change adaptation as key priority areas in its national policy or programme documents. The proposed project is designed to contribute towards the implementation of the Paris Agreement commitments on Nationally Determined Contributions (NDCs), Uganda's National Climate Change Policy 2015, the Climate change Act 2021 and the National Adaptation Plan, Uganda Green Growth Development Strategy (UGGDS) in line with the new National Development Plan III (NDPIII-2020/21-2021/25) that aims to ensure that goals of the Uganda Vision 2040 are attained in a sustainable manner. In this regard, the project will contribute to the recent ongoing environment management reforms in Uganda attempting to decouple the expected industrialisation and urbanisation from the historically corrected environmental degradation challenges as proposed in the Environment Act, 2019. Overall, the proposed project aligns and contributes to the objectives and aspirations of the existing national frameworks. The objectives of the CARFEWW project are consistent with the national development strategies, development plans, poverty reduction strategies, national communications and national adaptation programs of action. First of all, the project is consistent and aligns with national socio-economic priorities and national climate change priorities.
112. It is particularly consistent with the Uganda Vision 2040 that lays out the general development objectives for Uganda over a 30-year period. Its goal is to transform Uganda from a predominantly peasant and low-income country to a competitive upper middle income status country. It provides the overall leadership and policy direction for job creation and priority setting. **The Uganda Vision 2040**, sets out to the country's commitment for efforts to attain a green and clean environment. Vision 2040 further recognizes that climate change affects all sectors of the economy and emphasizes capacity enhancement as a necessary response to climate change related challenges especially through adaptation and mitigation strategies. The project is also consistent with the **National Development Plan III (NDP III) 2020/2021 – 2024/2025** that highlights climate change impacts as global challenges and bottle necks to the country's economy and socio-economic transformation. Furthermore, CARFEWW project also complements and aligns with the **Nationally Determined Contribution (NDC 2018)**, the National Adaptation framework that defines priority adaptation actions for different programmes and sectors. The CARFEWW project is consistent with the **Uganda Government's Parish Development Model (PDM)** - a bottom-up approach to budgeting, aimed at moving national development planning to the grassroots. The model provides for decentralisation "to ensure people's participation and democratic control in decision making". The model also recognizes the structures and frameworks for planning, budgeting and delivery of public services where people at the parish level decide on development priorities under the policies formulated at the national level.
113. The proposed project also addresses key components of the **National Climate Change Policy** (NCCP) and implementation Strategy of 2013, which ensures that all stakeholders address climate change impacts and their causes, while promoting sustainable development and a green economy. Other key national priorities, action plans and programmes to which the proposed project is consistent including the **Sustainable Development Goals (SDGs)** targets under SDG 6 (Water and Sanitation) along with others including SDGs 2 (Zero hunger), 3 (health), 4 (education), 5 (gender), 13 (Climate Action), 15 (Life on earth), 16 (peace, justice and strong institutions), and SDG 17, (e.g.17.17 encouraging and promoting effective public-private and civil society partnerships) among others.
114. The National Water Policy promotes an integrated approach to the management of the water resources in ways that are sustainable and most beneficial to the country. It further recognizes the economic value of water, promotes the participation of all stakeholders, including women and the poor, in all stages of water supply and sanitation, and confirms the right of all Ugandans to safe water. The other policy that complement the water policy and relevant to this project include: National Environment Management Policy (1994); the Wetlands Policy (1995), the upcoming Land Use Policy; National Health Policy and Health Sector Strategic Plan (1999); National Environmental Health Policy (2005); the School Health Policy (2006); and the National Gender Policy (1997). The National Water Policy

[26] WaterAid 2021: Mission-critical: Invest in water, sanitation and hygiene for a healthy and green economic recovery.

promotes an integrated approach to the management of the water resources in ways that are sustainable and most beneficial to the country.

115. The planned interventions under the proposed project contribute towards the attainment of the objects and priorities of NDP III. Uganda's vulnerability to climate change was assessed under th**e National Adaptation Programme of Action (NAPA**), in 2007 and identified the adaptation priority projects. The proposed project is anchored firmly in the priorities identified in the NAPA. The project will contribute towards implementing NAPA Priority projects in Uganda especially **Land Degradation Management**, and **Water for Production and Development Planning Uganda's National Communication on climate change** to UNFCCC includes, among other things, information on additional measures and policies to adapt as well as information on gaps and constraints including lack of financial resources and technical constraints, the weak capacity of local decision-makers to manage natural resources due to inadequate information and training constraints. The proposed project will also support the on-going process and efforts towards mainstreaming climate change in Uganda in key sectors of the economy through considering issue of climate change during National and District Strategic Development Planning processes. The project will also contribute to other on-going **Catchment-based IWRM planning processes**, and the new **National Adaptation Plan (NAP)** development process in Uganda. The detailed national sustainable strategies to which the proposed project is consistent are presented in Table 4.

Table 4: Alignment with national sustainable development strategies

Uganda Vision 2040.	Its goal is to transform Uganda from a predominantly peasant and low-income country to a competitive upper middle-income status country. It provides the overall leadership and policy direction for job creation and priority setting. The Uganda Vision 2040 sets out to the country's commitment for efforts to attain a green and clean environment.
National Development Plan III	NDPIII aims at increasing household incomes and improving the quality of life of Ugandans through sustainable industrialization for inclusive growth, employment and sustainable wealth creation.
The Uganda Intended Nationally Determined Contribution 2015	The country's INDC recognizes that people's livelihood is highly dependent on the exploitation of her natural resources, including climate. In submitting this INDC, Uganda's priority is adaptation. The country will continue to work on reducing vulnerability and addressing adaptation in agriculture and livestock, forestry, infrastructure (with an emphasis on human settlements, social infrastructure and transport), water, energy, health and disaster risk management.
Climate Change Policy (NCCP) (2015	The country recognizes that climate change is one of the greatest challenges facing humanity in the century. The overarching policy objective is to ensure that all stakeholders address climate change impacts and their causes through appropriate measures, while promoting sustainable development.
Nationally Determined Contribution (NDC, 2018)	NDCs are national climate plans highlighting climate actions, including climate related targets, policies and measures governments aims to implement in response to climate change and as a contribution to global climate action. Through this NDC, Uganda hopes to reduce emissions from its business-as-usual (BAU) scenarios by 22% by 2030 via a series of policies and measures to mitigate and adapt to climate change[27]. All components of the proposed project shall contribute towards the objectives of the NDCs.
Uganda NDC Partnership Plan for Climate Action 2018	The five priority areas for Uganda identified in its NDC Partnership Plan are: strengthened operational and gender-responsive policy and institutional frameworks for the effective governance of climate change; increased climate financing for planning and budgeting on the national and local levels; effective and institutionalized measurement, reporting and verification (MRV) systems to monitor greenhouse gas emissions and gender-responsive adaptation measures; strengthened capacity of government officials, civil society, the private sector and academia to effectively integrate NDC and Sustainable Development Goal (SDG) commitments with a gender lens into existing and future programs; and accelerated project financing for NDC implementation[28]. All project components shall contribute towards the objectives of the Plan.
National Adaptation Plan (NAP)	The project contributes to the on-going Catchment-based IWRM planning processes, and the new National Adaptation Plan (NAP) development process in Uganda;
Sustainable Development Goals SDG 6	The project interventions also contribute to the attainment of SDGs, 1 on ending poverty, SDG 6 on water and sanitation and SDG 13 on climate action among others.

E. Relevance and alignment to national technical standards

[27] http://ccd.go.ug/wp-content/uploads/2019/10/INDC-Uganda-final-14-October-2015.pdf
[28] https://ndcpartnership.org/news/uganda-releases-first-ndc-partnership-plan-climate-action-africa

116. The proposed project not only meets but is also compliant with the country's national technical standards and guidelines as well as the Environmental and Social Policy of the Adaptation Fund. The proposed project aims at increasing the resilience of communities to climate change risks of floods and landslides through sustainable community access to climate resilience water, sanitation and hygiene services and integrated catchment management measures in the catchment. The project goal essentially focuses on improving the state of environment and environmental conditions for the survival of people and ecosystems within the catchment. Considering the proposed project interventions, the project meets important environmental standards such as the Environmental Impact Assessment (EIA) Regulations (1998), National Environment Act, 2019, sectorial EIA Guidelines of Uganda and the WASH design manual/guidelines 2014.
117. Generally, project interventions will have minimal negative environmental impacts. Positive environmental impacts are anticipated due to the expected enormous benefits such as reduced incidences and severities of waterborne diseases arising from reduced water pollution after developing climate resilient WASH infrastructure and services, improved waste management, improved water supply and harvesting for domestic uses, improved water for production, and enhanced alternative income generation among communities especially women groups.
118. According to the screening of the proposed project for environment, social and gender risks, the project interventions have been indicated to be "Category B" (those projects with potential adverse impacts that are less adverse, fewer in number, smaller in scale, less widespread, reversible or easily mitigated). For project compliance with EIA standards, an ESMF including ESMP has been developed and social and environmental impact assessments will be carried out as part of baseline studies to determine the magnitude of impacts for the proposed project interventions. Similarly, the proposed project interventions focusing on WASH are compliant with the standards for WASH design manual/guidelines 2014 of the Ministry of Water and Environment that guides implementers (such as Water Sanitation Development Facilities (WSDFs) of the water supply and sanitation systems in Uganda for planning, implementing and managing the systems. Such compliance with relevant technical standards are detailed presented in Tables 5, 6 and 7., including addressing environmental assessments, WASH climate smart technology designs, and other aspects required by national legislation. The proposed project activities have been screened, their impacts assessed in accordance with EIA procedures and guidelines of the country's standards and those of the Adaptation Fund (Annex 6). Mitigation measures have been proposed.

Table 5: Alignment with National Policies

Policy	Relevance to the project	Institution/ Agency Responsible/ Government
The National Environment Management Policy 1995	The NEMP sets out the overall policy goals, objectives and principles for environmental management in Uganda. Its overall goal is sustainable social and economic development, which maintains and enhances environmental quality and resource productivity to meet the needs of present generations without compromising the ability of the future generations to meet their own needs[29]. It recognizes that Uganda faces a number of environmental issues including: soil degradation, deforestation, loss of biodiversity, increasing pollution and environmentally related diseases. These problems are compounded by poverty, low amounts of environmental awareness and low levels of technology. Specifically, the policy recognizes climate as a 'vital natural resource' that needs to be monitored in order to better direct land use, encourage sustainable economic development, and manage air pollution, and GHG emissions. All the project components 1, 2 and 3 are in line with the objectives of this overarching policy.	Ministry of Water and Environment
The National Climate Change Policy 2015	The goal of the policy is to ensure a harmonized and coordinated approach towards a climate- resilient and low-carbon development path for sustainable development in Uganda. The Policy adopts a comprehensive approach to address climate change, identifying as priority concerns: adaptation, mitigation, monitoring, and research. To address these concerns, the Policy promotes the implementation of activities relating to: education and increased awareness; gender issues; promoting and diffusing research; monitoring and transferring knowledge; and institutional capacity building. Other activities include promotion of sustainable activities in the sectors of agriculture and livestock, fishery production, water management, forestry, wetland, biodiversity and ecosystem services and tourism are identified are important needs to develop Uganda's approach to adaption to climate change. As annex to the Climate Change	Ministry of Water and Environment

[29] https://climate-laws.org/geographies/uganda/policies/national-climate-change-policy

	Policy, the costed Implementation Strategy provides a more detailed account on the implementation of the Policy, including an indicative costing for the programmes and activities to be developed. All the project components and activities are aligned and contribute to the attainment of the policy objectives.	
The National Water Policy 1999	The policy advocates for the management and development of water resources in Uganda in an integrated and sustainable manner so as to secure and provide water of adequate quality and quantity for all social and economic needs for present and future generations with the full participation of all stakeholders. This Project is planned to ensure provision of adequate WASH needs in the target communities. Activities under component 2 are in line with and will be guided by this Policy.	Ministry of Water and Environment
The National Wetlands Policy, 1995	Provides for conservation of Uganda's wetlands in order to sustain their ecological, social and economic functions for the present and future generations: Implementation of environment impact assessment procedures on all development activities sited in wetlands.	Wetlands Management Department
The National Policy for Disaster Preparedness and Management 2010	Serves as the framework policy for disaster and risk management and preparedness in Uganda, including disasters caused by climate change. Details the mechanisms and structures aimed at effective management of disasters including: vulnerability assessments, mitigation, preparedness, and response and recovery. Explicitly sites climate variability, climate change, and environmental degradation among the increasing vulnerabilities Uganda faces and needs to prepare for[30]. All project components 1, 2 and 3 are geared towards reducing climate vulnerabilities and increasing resilience of communities and ecosystems hence they are in line with this policy and contribute to the attainment of its objectives.	Office of Prime Minister
The National Land Use Policy 2006	The overall policy goal is to achieve sustainable and equitable socio-economic development through optimal land management and utilization in Uganda. The policy recognizes amongst others, the need for the protection and sustainable use of land resources through conducting environmental assessments and implementation of measures outlined in such assessment studies. It also recognizes the 3 Rio Conventions and notes that increasing climatic variability is responsible for drought and accelerates desertification, thereby contributing to increased aridity and reduction in the area available for cultivation or grazing	Ministry of Lands, Housing and Urban Development
National Policy for the Conservation and Management of Wetland Resources, 1995	The policy has established principles by which, wetlands resources can be optimally used and their productivity maintained in the future and stop existing unsustainable exploitative practices in wetlands. This project aims at catchment protection including development of catchment management plans and involvement of the community members on how to protect the wetlands. Components 2 and 3 contributes to this policy.	Wetlands Management Department
Renewable Energy Policy for Uganda 2007	Among other priorities the policy aims to respond to threats posed by the increasing energy prices, environmental degradation, climate change, as well as Government's commitment to poverty and gender responsive energy actions[31]. Furthermore, implementation of the Renewable Energy Policy will result in the disposition of Uganda's commitments at the Bonn Conference on Renewable Energy in 2004.The project focuses on addressing issues of environmental degradation and climate change.	Ministry of Energy and Mineral Development
The National Forest Policy 2001	The key issues addressed by the Forestry policy include how to maintain and enhance the Permanent Forest Estate, improve the management of forest resources on private and customary land, address the underlying causes of deforestation, including lack of policy support, market failure, weak regulation and rural poverty, capitalize on the economic, social and environmental opportunities in forestry without undermining the resource base, ensure the survival of forest biodiversity and to balance this with the pressing development needs of the country, how to rehabilitate and conserve key watershed forests, how to promote and maintain the greening of the urban environment, as well as ensuring improved tenure to land and trees that acts as an	Ministry of Water and Environment

[30] https://climate-laws.org/geographies/uganda/policies/national-policy-for-disaster-preparedness-and-management
[31] https://climate-laws.org/geographies/uganda/policies/the-renewable-energy-policy-for-uganda

	incentive for individuals, and women in particular, and communities to invest in forestry among others. Forestry plays a very important role in enhancing the resilience of ecosystems and some of the activities under components 1, 2 and 3 are in line with this policy.	
The National HIV/AIDS Policy, 2004	The policy applies to all current and prospective employees and workers, including applicants for work, within the public and private sectors. It also applies to all aspects of work, both formal and informal. The project will mainstream HIV/AIDS interventions into its activity implementation plans especially activities under sub-projects in components 2 and 3 that may require congregation of labor from different while undertaking activities like construction of WASH demonstration models, fecal sludge management facilities and other water related infrastructure.	Ministry of Health
The National Cultural Policy, 2006	The National Culture Policy, 2006 complements, promotes, and strengthens the overall development goals of the country. Its specific objectives include amongst others, the need to promote and strengthen Uganda's diverse cultural identities and to conserve, protect, and promote Uganda's tangible and intangible cultural heritage. This ESMF outlines Chance Finds Procedures to ensure protection and conservation of any PCRs that will be encountered during project implementation. In addition, the project will be implemented in areas adjacent to Mt. Elgon National Park, thus extra care share be undertaken not to disturb or encroach on the National Park during project implementation.	Ministry of Gender, Labor and Social Development
The National Gender Policy 2007	The Uganda Gender Policy is an integral part of the national development policies. It is a framework for redressing gender imbalances as well as a guide to all development practitioners. The aim of this policy is to guide all levels of planning, resource allocation and implementation of development programmes with a gender perspective[32]. The emphasis on gender is based on the recognition that "gender" is a development concept useful in identifying and understanding the social roles and relations of women and men of all ages, and how these impact on development. This is applicable to all the four project components and efforts shall be made to ensure that all categories of people benefit from the project without discrimination.	Ministry of Gender, Labor and Social Development

Table 6: Alignment with Regulations, Guidelines and Standards

Regulations	Relevance to the project	Institution/ Agency Responsible/ Government
The Constitution of the Republic of Uganda, 1995	The right to a clean and healthy environment is enshrined in Article 39 of the Constitution of Uganda, 1995 as well as integration of people in the development process. In particular, the Constitution guarantees a range of basic human rights to the people of Uganda which include: gender balance and fair representation of marginalized groups in development process; protection of the aged; the right to development; access to clean and safe water; basic medical services; and access to education. The project components are in line with the constitution.	Ministry of Water and Environment
The National Environment Act, 2019	Article 69 of the Act on the Management of climate change impacts on ecosystems states that a lead agency may, put in place guidelines and prescribe measures to 1) address the impacts of climate change on ecosystems, including by improving the resilience of ecosystems, promoting low carbon development and reducing emissions from deforestation and forest degradation, sustainable management of forests and conservation of forest carbon stock, and 2) advise institutions, firms, sectors or individuals on strategies to address the impacts of climate change, including those related to the use of natural resources, 3) take measures and issue guidelines to address the impacts of climate change, including measures for mitigating and adaptation to the effects of climate change, and 4) liaise with other lead agencies to put in place strategies	NEMA

[32] http://extwprlegs1.fao.org/docs/pdf/uga163564.pdf

	and action plans to address climate change and its effects[33]. All project components are in line with this Act.	
The Land Act, Cap 227	The Act and the Constitution of the Republic of Uganda vest land ownership in Uganda in the hands of Ugandans and guide matters of land acquisition for development project through compensation which has to be fair, timely and adequate. The Act advocates for managing and utilizing land in accordance with the Forests Act, the Mining Act, the National Environment Act, the Water Act, the Uganda Wildlife Act and any other law; and Obtaining concessions or licenses or permits in respect of wetlands, forest reserves, national parks and any other land reserved for ecological and touristic purposes, subject to any law. Project activities shall be undertaken in accordance with the provisions of Act.	Ministry of Lands, Housing and Urban Development
National Forestry and Tree Planting Act, 2003	The National Forestry and Tree Planting Act 2003 is the main law that regulates and controls forest management in Uganda by ensuring forest conservation, sustainable use and enhancement of the productive capacity of forests, to provide for the promotion of tree planting on private and communal lands and through the creation of forest reserves in which human activities are strictly controlled. Specifically, the Act will provide guidance for afforestation, restoration and other tree nursery subprojects under components 2 and 3.	Ministry of Water and Environment
Uganda National Meteorological Authority Act, 2012	This Act establishes the Uganda National Meteorological Authority as a body corporate and provides with respect to its administration, internal organizations, functions and powers, etc. The Authority shall, among other things, establish and maintain systems for the rapid exchange of meteorological and related information, establish networks of stations for taking, recording and transmitting meteorological observations as well as hydrological and other geophysical observations related to meteorology. Among the Authority's functions, it should interpret, review and recommend appropriate changes in the climate policies, as well as disseminating weather information which are applicable to all the Components 1, 2 and 3 of the project.	Ministry of Water and Environment
Uganda Wildlife Act 2019	The Act provides for the conservation and sustainable management of wildlife; to strengthen wildlife conservation and management; to streamline the roles and responsibilities of institutions involved in wildlife conservation. To this end, the Act addresses Wildlife conservation, protected species; wildlife use rights; hunting and trapping; management of problem animals; and international trade in species and specimens. Activities under component 2 will contribute to this Act as the project activities shall be implemented in areas around Mt. Elgon National Park are intended to promote natural resource conservation and reduce pressure on the resources in the natural resources.	Uganda Wildlife Authority
The Occupational Safety and Health Act, 2006	The Act provides for the prevention and protection of persons at all workplaces from injuries, diseases, death and damage to property. The key provision of this Act is safety and welfare of workers. ESMF provides for safety gear for workers during implementation of project activities especially for water infrastructure works among other subprojects	Ministry of Gender, Labor and Social Development
The Employment Act, 2006	This Act spells out general principles regarding forced labor, discrimination in employment, sexual harassment and provisions to settle grievances. It further provides that, a child under the age of twelve years shall not be employed in any business, undertaking or workplace. Therefore, project implementers will not engage any child workers at the project sites at any one time during the project lifecycle especially under components 2 and 3 with labour intensive activities.	Ministry of Gender, Labor and Social Development
The Workers Compensation Act 2000, Cap 225	The act provides for compensation to workers for injuries suffered in course of their employment. According to the Act, an employee is entitled to compensation for any personal injury from an accident or disease arising out of and in the course of his or her employment even if the injury or disease resulted from the negligence of the employee. Under this Act, compensation is automatic. This will mainly apply to activities under component 3.	Ministry of Gender, Labor and Social Development

[33] https://www.mwe.go.ug/library/national-environment-act

Nationally Determined Contribution (NDC) 2015	NDCs are national climate plans highlighting climate actions, including climate related targets, policies and measures governments aims to implement in response to climate change and as a contribution to global climate action. Through this NDC, Uganda hopes to reduce emissions from its business-as-usual (BAU) scenarios by 22% by 2030 via a series of policies and measures to mitigate and adapt to climate change[34] . All project components shall contribute towards the objectives of the NDCs.	Ministry of Water and Environment
Uganda NDC Partnership Plan for Climate Action 2018.	The five priority areas for Uganda identified in its NDC Partnership Plan are: strengthened operational and gender-responsive policy and institutional frameworks for the effective governance of climate change; increased climate financing for planning and budgeting on the national and local levels; effective and institutionalized measurement, reporting and verification (MRV) systems to monitor greenhouse gas emissions and gender-responsive adaptation measures; strengthened capacity of government officials, civil society, the private sector and academia to effectively integrate NDC and Sustainable Development Goal (SDG) commitments with a gender lens into existing and future programs; and accelerated project financing for NDC implementation[35]. All project components shall contribute towards the objectives of the Plan.	Ministry of Water and Environment
Vision 2040	Vision 20140 advocates for need to develop appropriate climate change adaptation and mitigation strategies in all sectors to ensure that the country is resilient to the adverse impact of climate change. In addition is developing guidelines for incorporating climate change in sectorial and local government plans and budgets.	National Planning Authority
The Uganda National Climate Change Communication Strategy 2017-2021	The strategy was developed after the Government identified the need for more effective dissemination of climate change adaptation and mitigation information across the country. It is mean to enhance sustainable development and improve community knowledge, attitudes and practices towards climate change[36]. Components 2 and 3 of the project contributes to this strategy.	Ministry of Water and Environment
The National Environment (Environmental and Social Assessment) Regulations, 2020	The EIA Regulations give a systematic EIA procedure in Uganda. They give a legal mandate to EIA, thus paving the way for an enabling environment for its use as a tool for environmental protection. The regulations also have punitive measures for offenders. The EIA Regulations further provide for: enabling participation of communities in undertaking environmental impact assessment studies; seeking views of people in communities which may be affected by project activities including reforestation and afforestation activities; publication of intended project activities through mass media and holding meetings with the affected communities; holding of public hearings and producing reports of the hearings; and ensuring that all environmental impact assessment reports including terms of reference, public comments, reports of public hearings or any other information submitted to NEMA are public documents. Further assessments shall be done especially for activities under components 2 and 3.	NEMA
Guidelines for strategic Environmental assessment (SEA) in Uganda 2020	Strategic environmental assessment (SEA) is the systematic and participatory process of evaluating the likely environmental, health and social consequences of proposed policy, plan or programme initiatives and alternatives, to ensure that they are integrated and appropriately addressed at the earliest stage of decision making in line with economic, environmental, health and social considerations[37]. Focuses on decisions regarding the implications of policies, plans and programmes which should inform decisions at project level. Focuses on decisions regarding projects which should conform to relevant policies, plans or programmes.	NEMA
The National Environment (Audit)	The Audit Regulations reinforce the requirement to undertake Self-Environmental Audits as contained in the EIA Regulations. Normally, under approval conditions of	NEMA

[34] http://ccd.go.ug/wp-content/uploads/2019/10/INDC-Uganda-final-14-October-2015.pdf
[35] https://ndcpartnership.org/news/uganda-releases-first-ndc-partnership-plan-climate-action-africa
[36] https://www.mwe.go.ug/library/uganda-national-climate-change-communication-strategy
[37] https://nema.go.ug/sites/all/themes/nema/docs/Strategic%20Environmental%20Assessment%20(SEA)%20Guidelines%20Pdf%202020.pd

Regulations, 2020:	NEMA, it is a requirement to undertake Audits for projects which comply with the EIA requirement as part of the conditions of EIA approval. Some activities under component 2 may require Audits during their operation Phases.	
National Environment (Conduct and Certificate of Environment Practitioners Regulations (2003)	Regulation 176 (1) states that no person shall conduct and EIA or carry out any activity relating to the conduct of an environmental impact study, or environmental audit as provided under the Act, unless the person has been duly certified and registered in accordance with the regulations	NEMA
Water Abstraction Regulations, 1998	Regulation 18 provides for the establishment of a controlled water abstraction mechanism through issuance of permits to regulate the amount of water abstraction. The regulation requires that, a Water Abstraction Permit either for ground or surface water abstraction are pre-requisites for motorized and/or abstracting of quantities above 400m3/day for persons involved in construction (damming, diverting surface water). Under water related projects, compliance to water abstraction regulations by water supply schemes needs to be established and associated water abstraction permits need to be verified. This important for activities under component 3.	DWRM
The Water (Waste Discharge) Regulations, S.I. No. 32/1998	Specifies what quality is acceptable in terms of effluent released into rivers, promotes water pollution prevention and provides for effluent discharge in aquatic and sewerage system standards. These need to be observed especially under component 3 of the project.	DWRM
National Environment (Waste Management) Regulations, 1999	These regulations promote cleaner production methods and require a facility to minimize waste generation by eliminating use of toxic raw materials; reducing toxic emissions and wastes; and recovering and reuse of waste wherever possible. The Regulations oblige the Developer to put in place measures for proper management of waste. These apply to activities under components 2 and 3.	NEMA
Wetlands, River Banks and Lake Shores Management) Regulations, S.I., No. 3 /2000	Provides for protection of Wetlands, River Banks and Lakeshore Zones. Every landowner, occupier or user who is adjacent or contiguous with a wetland, River Banks and Lakeshore shall have the duty to prevent the degradation or destruction of these ecosystems and shall maintain their ecological and other functions[38]. Project activities will enhance the conservation of these ecosystems in the Project areas.	NEMA
The National Environment (Mountainous and Hilly Areas Management) Regulations, 2000. 2000 No. 2	Provides guidance on the use of hilly and mountainous areas, the activities and associated measures to ensure sustainable land management. Some of the project under component 2 and 3 may be implemented in hilly and mountainous areas.	NEMA
The National Environment (Noise Standards and Control) Regulations, 2003.	Section 7 of these regulations requires that no person shall emit noise in excess of permissible noise levels, unless permitted by a license issued under these Regulations. Section 8 imparts responsibility onto project developers to use the best practicable means to ensure that noise does not exceed permissible noise levels. This mainly applies to sub-projects under components 2 and 3.	NEMA
The Town and Country Planning Act Cap 246	The Town and Country Planning Act 1964 govern land use and land planning in urban and rural areas. Thus, land acquisition for water supply projects should be done in accordance with this Act	
Public Health Act Cap 281	Section 7 provides local authorities with administrative powers to take all lawful, necessary and reasonably practicable measures for preventing the occurrence of, or for dealing with any outbreak or prevalence of, any infectious, communicable or preventable disease, to safeguard and promote the public health.	Ministry of Health

[38] https://nema.go.ug/sites/all/themes/nema/docs/wetlands_riverbanks.pdf

The Local Governments Act Cap 243	Provides for the system of local governments based on the decentralization of district for the enforcement of environmental law. The functions of the Municipal Councils include: land surveying and administration, physical planning, environmental protection (forests and wetlands, streams etc.) and ensuring proper sanitation.	Ministry of Local Government
National physical planning standards and guidelines, 2011	The National Physical Planning Standards (NPPS) is a government manual of criteria for determining the scale, location and site requirements of various land uses and facilities. The planning standards affect the allocation of scarce land and financial resources. They should therefore, be applied with a degree of flexibility. Trade-offs may be necessary so that the community at large could benefit most from the development	Ministry of Lands, Housing and Urban Development
The Water Supply Design Manual	The Water Supply Design Manual is to ensure that the planning and design of water supplies is formalized, follows set procedures, and similar processes and procedures are implemented	Ministry of Water and Environment
Uganda Water Action Plan (1995)	Framework for the development, management, and wise- use of the nation's vital water resources and sustainable provision of clean safe water to the citizens	Ministry of Water and Environment
National Health Policy and Health Sector Strategic Plan (1999)	The overall goal of the health sector is the attainment of a good standard of health by all people in Uganda, in order to promote a healthy and productive life	Ministry of Health

Table 7: Alignment with Strategies/plans

Strategies/ Plans	Relevance to the project	Institution/ Agency Responsible/ Government
Water Supply and Sanitation Sector Investment Plans and Allocation Principles (SIP 2008-2035) (2009);	The overall policy objectives of the Government for water resources management, (domestic) water supply and sanitation and water for production respectively are as follows: (i) "*To manage and develop the water resources of Uganda in an integrated and sustainable manner, so as to secure and provide water of adequate quantity andquality for all social and economic needs of the present and future generations withthe full participation of all stakeholders*" (National Water Policy, 1999); (ii) To provide "*sustainable provision of safe water within easy reach and hygienicsanitation facilities, based on management responsibility and ownership by the users,* *to 77% of the population in rural areas and 100% of the urban population by the year 2015 with an 80%-90% effective use and functionality of facilities*" (Medium Term Budget Framework Paper, 2004). This is more ambitious than the Millennium Development Goal (MDG), which aims to halve the percentage of people withoutaccess to safe water by 2015 in Uganda; (iii) "*Promote development of water supply for agricultural production in order tomodernise agriculture and mitigate effects of climatic variations on rain fedagriculture*" (National Water Policy, 1999).	Ministry of Water and Environment
Rural Water and Sanitation Operation Plan 2002-2007 (OP5);	The RWSS sector goals are an integral part of the overarching PEAP, and contribute to poverty eradication through improved public health by providing adequate sustainable safe water supply and sanitation facilities, to the rural communities. The overall program addresses: (a) equal access to water supply and sanitation in all districts, (b) increased water supply coverage and reduced walking distances between household and water points for women and children, (c) reduced water borne and hygiene related diseases amongst children and the vulnerable, (d) alleviation of the work burden of women and children with respect to transporting water, (e) community mobilisation with gender equality with a special	Ministry of Water and Environment

	focus on encouraging women's participation in water user committees and to undertake roles such as treasurer, hand pump mechanics or caretakers, and (f) water supply technologies which are appropriate and easily managed by women and children, and whose maintenance is accessible and less effort is needed to operate them	
National Framework for Operation and Maintenance of Rural Water Supplies (2004);	The objective was to develop options and standards for institutionally and financially sustainable operation and maintenance (O&M) systems for rural water supply infrastructure that are currently not adequately covered by existing management models	Ministry of Water and Environment

F. Complementarity with projects with other funding sources

119. During the initial consultative meetings of designing the CARFEWW project, efforts were made to ensure that no project intervention duplications were made. Project duplications in terms of resources or geographical coverage were avoided. Instead, the existing synergies and complementarity aspects of other projects were undertaken by the participating partners and other partners in the catchment were harnessed, for purposes of ensuring that the overall contribution to strengthening WASH resilience and catchment management measures, thereby enhancing the adaptation of community members to floods and landslides are realised. For instance, the Ministry of Water and Environment has for three years now implemented an Adaptation Fund financed EURECCCA project ("Enhancing the resilience of communities to climate change through catchment based management of water and related resources in Aswa, Maziba and Awoja catchments) within the Kyoga Water Management Zone (KWMZ) in which Mpologoma catchment is found. This USD 7.78million project was aimed at increasing the resilience of communities to floods and landslides.
120. Other related projects in the Mpologoma catchment include: The Support to Resilient Initiatives for Vulnerable Entities (STRIVE) project in the Upper Mpologoma sub catchment that covered the districts of Tororo, Butaleja and Namutumba (2021-2022). It was implemented by WAU focusing on some of the aspects of WASH including water source protection, construction of rain water harvesting tanks; and increasing resilience of communities to climate change impacts from which useful lessons; and the World Bank funded IWRM project at its initial stages of implementation in the sub catchments of Lwakhakha sub catchment that will among others address aspects of water source protection in addition to Gulley treatments, tree growing as well as soils and water conservation. Although some strides have been realised into project implementation including construction of flood control structures, river bank restoration, awareness creation and knowledge management and capacity building initiatives with these projects, it is worth noting that tackling WASH issues would add value to the holistic catchment management. The proposed CARFEWW project builds, complements and harnesses the synergies under these projects in the Kyoga Water Management Zone.
121. Under the proposed project, the climate resilient WASH technologies that enhance catchment management will be implemented in additional areas of the KWMZ. Similarly, Water Aid Uganda has implemented quite a number of water, sanitation and hygiene projects. The Eastern Umbrella for Water and Sanitation (EUWS) under the Kyoga Water Management Zone (KWMZ) has also implemented World Bank funded and African Development Bank (AfDB) supported WASH projects in the KWMZ and recognises the apparent inadequate availability and financial support for climate resilient WASH technologies. The proposed project will also complement the UNDP-Country Office-Uganda implemented project on territorial approach to climate change adaptation in the Mount Elgon region.
122. In all the project situations highlighted the financial resources that can be used to implement the projects are way beyond the funding that can be sourced from one partner. Moreover, such integrated projects that are related to community based climate resilient WASH measures and catchment management measures to enhance climate change adaptation are not funded requiring a different development Partner. Despite such variations within and among projects in the catchment, the proposed project harnesses the on-going processes therein, and supports practical implementation of some aspects of such related projects. The proposed project will collaborate with other interventions by NGOs and various district local governments within the catchment.

G. Learning and knowledge management component

123. The learning and knowledge component of the proposed project will enable stakeholders and project partners to learn and share experiences in form of the knowledge and skills acquired during project implementation. The learning and knowledge component of the proposed project will enable stakeholders and project partners to learn and share experiences in form of knowledge and skills acquired during project implementation. As part of the learning and knowledge management strategy for this project, a deliberate effort has been taken to ensure that learning and experience sharing takes place amongst the project stakeholders under component three through a number of ways:
    (i) Documenting the good practices and lessons learned on among others flood early warning systems (FEWS), climate resilient WASH technologies, source protection measures, waste management, flood control structures as well as adaptive catchment management measures through case studies.

(ii) The knowledge and experiences arising from project implementation will be packaged in appropriate knowledge and information materials that meet the information needs and demands of various stakeholders at different levels (national, regional, district and local levels). It is envisaged that some of the packaged materials will include brochures, bulletins, calendars, policy briefs, media messages e.g., radio etc. and production of brail materials. As part of packaging, the materials will also be translated into local languages where deemed appropriate.

(iii) Dissemination

124. CARFEWW Project will support dissemination of good practices and lessons learned in implementation of its activities with a focus on among others good practices and lessons learned on among others flood early warning systems (FEWS), climate resilient WASH technologies, source protection measures, waste management, flood control structures as well as adaptive catchment management measures. This will entail among others reaching out to project stakeholders using different but also appropriate avenues. These will include utilizing the existing structures such as the District Local Governments through the LC system to share the packaged materials; Use of the CMCs, CMOs, Farmer Groups and Weather Champions; Use of the mass media through radio talk shows; use of social media; and use of cultural and religious institutions. Learning and exchange visits will be organized for key stakeholders to appreciate and learn about the project interventions. It is expected that learners will also raise awareness about such interventions in their communities thereby facilitating cross learning and knowledge diffusion. Information sharing will be periodically done at different platforms or fora organized for relevant stakeholders at national, regional, district and local or community levels during project implementation.

125. To harness the contributions of knowledge management and dissemination, gender and disability rights groups such as Uganda Women's Efforts to Save Orphans (UWESO) and National Union of Disabled Persons of Uganda (NUDIPU) will be supported to disseminate the good practices and lessons learned in the implementation of this project. Efforts will be made to ensure that the vulnerable groups, especially the PWDs are catered for in the dissemination. A case in point will be the utilization of Sign Language Interpreters to cater for the Deaf and use of brail materials for the blind persons.

126. It is hoped that through the learning and knowledge management component of this project in which the focus will be on documentation, packaging and dissemination of the good practices and lessons learned as part of project implementation, there will be eventual adoption and scaling-up of project interventions beyond the project area.

H. Consultative process

127. In order to promote ownership of the project and support the sustainability of the proposed interventions, initial preliminary participatory consultative meetings were held among Water Aid Uganda and their international Partners, MWE field and Headquarter staff at project design stage in March and April 2020. Individual targeted telephone and email based stakeholder consultations were conducted following the Uganda Government lockdown measures for preventing COVID-19 spread. The individual consultations were organized and spearheaded by Water Aid Uganda (WAU) and targeted participants drawn from Ministry of Water and Environment (MWE), Non-Governmental Organisations (NGOs), Private sector, Government Parastatals, Catchment Management Committee (CMC) members including community leaders and district leaders from the districts located in sites within the upstream, midstream and downstream sub-catchments of Mpologoma catchments selected for the proposed project i.e. lower Manafwa and lower Mpologoma; middle Manafwa and middle Mpologoma; and upper Manafwa and upper Mpologoma sub-catchments respectively. The targeted consultations allowed the participation of such stakeholders in project design. During the consultations, key stakeholders appreciated the climate change problem of floods and landslides and the need to develop climate resilient WASH infrastructure that will aid communities to adapt to floods and landslides. These were explored and discussed and agreed to support the concept by formulating and agreeing upon project activities to deal with the identified problem. The objectives of the targeted consultations were to:

i. Provide information to key stakeholders about the Adaptation Fund and the current Concept note development processes and requirements
ii. Acquire ideas/ inputs from key stakeholders and triangulate the information collected from stakeholders and literature and ground trothing from the field visit
iii. Agree on project activities and implementation arrangements

128. During the preliminary consultative process, activities and adaptation measures to be included by the project, defined the key stakeholders, their roles, responsibilities and contribution during project implementation were discussed. Project management structures and issues of sustainability and ownership, especially by communities and local governments were discussed and agreed upon. In addition to identifying the beneficiaries and targeted populations at local, district, regional and national level, vulnerable groups and gender considerations were considered in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund. The role of women as a special climate change vulnerable group of the community was acknowledged and specific interventions deliberately targeting women were equally determined and agreed upon. Based on the study conducted by Water Aid Uganda in the Upper Mpologoma Sub-catchment specifically in Namutumba, Tororo and Butaleja Districts of Uganda, it was revealed

that 113,007 females (adult women and female youth) compared to 108,427 males (Male adults and Male youths) are exposed to floods in the sub-catchment[39].It is understood that there are marked differences between different gender categories in climate change vulnerability, access to climate information, natural resources access, planning and management most areas in the catchment. Access to climate information is dominated by the men. Although access, planning and management appears limited for women, there is adequate representation (30%) of women on water user and environment management committees. Despite the representation, women access to climate information is still low. Women also have no control over land, land resources and wield less influence over resources and benefits/proceeds from those resources. Women are responsible for domestic roles such as cooking, fetching water, digging/cultivation etc. Due to their roles in society, women are at the Centre of burdens including climate change impacts. The list of stakeholders consulted is attached in Annex II at the end of the consultation report.

129. Detailed consultations, detailed gender analysis study and other relevant studies were also undertaken at full proposal development stage to evaluate the proposed activities of the project. Grass root consultations were conducted through holding targeted Key Informant Interviews (KIIs), Focus Group Discussions (FGDs) in parishes/villages that are hot spots for floods and landslides in the catchment. Grass root consultations involved FGDs for women, youth and men including Persons with Disabilities and the elderly as the most vulnerable groups within vulnerable communities in Mpologoma catchment. Efforts were also made to ensure that their specific interests, interventions and challenges and opportunities, their roles and responsibilities in project implementation were captured. Apart from grass root community levels consultations, district, Sub County and catchment level consultative meetings were also held and more input collected. A total of 265 participants were consulted of which 31 of them were at National level, and 234 of them were at field level. The community level consultations were conducted in informal community meeting setting. The Parish chiefs and Local Council leaders helped in mobilization of the local community members to participate in the FGDs.

I. Justification with full cost of adaptation reasoning

Increased use of effective and efficient Flood Early Warning Systems and climate resilient WASH technologies by stakeholders: USD 486,000

130. There are inadequate and limited Flood Early Warning Systems as well as limited and inadequate climate proof WASH technologies in the catchment. Consequently, Communities in the catchment cannot easily plan to undertake adaptation actions for WASH and catchment management due to lack of climate information. Communities have therefore remained vulnerable and continue to lose assets, properties and lives and suffer from destruction of water infrastructure leading to water pollution, contamination and increasing waterborne diseases due to floods and landslides. The project will assess the status and develop efficient and effective FEWS systems as well also equip and upgrade selected weather stations for improved weather information. It will also support integration of traditional and modern FEWS and climate resilient WASH technologies in district, sub-county, catchment and sub catchment planning frameworks to aid communities access FEW information and WASH information so that they ably plan adaptation actions against floods and landslides. The project will develop guidelines for integrated floods and WASH planning, design, implementation and monitoring and popularize these guidelines by adapting them to different stakeholder needs for their wide utilisation. The guidelines will for instance be translated in local languages for easy utilisation by communities and their leaders. Based on these interventions, communities will easily adapt to floods and landslides as a first step towards equipping them with the necessary tools for climate information and WASH information.

Improved Capacity of key stakeholders at national, district and local levels for FEWS, WASH planning, designing, implementation and monitoring: USD 923,000

131. The capacity of stakeholders at different levels to design, plan, implement and monitor FEWS and WASH is largely limited. Also the capacity to integrate FEWS and climate resilient WASH interventions into different level development plans as well as the specific concrete t adaptation actions against floods and landslides including responses and coping abilities among communities aggravates the challenge. It is worse especially when districts and sub counties operate with limited budgets from the national budget allocation. Consequently, the overall capacity of communities to cope with increasing frequency and intensity of floods and landslides in the catchment is still very low in the project sites. This project will assess the specific capacity needs of various stakeholder at different levels in terms of designing, planning, implementing and monitoring FEWS and climate resilient WASH interventions. Capacity building plan and materials suitable for training and capacity enhancement at different levels at national. Regional, district and community levels will be developed and applied. Stakeholders at different levels will be trained in FEWS and climate resilient WASH technologies and field learning exchange visits focusing majorly on WASH will be organized for different stakeholders and a follow up capacity monitoring and supervision will be conducted to track changes or impact of capacity enhancement intervention. Capacity enhancement at different levels is meant to equip stakeholders with knowledge and skills to ably undertake the respective interventions at their levels. Once the national, regional, and district level stakeholders such as staff in local government and ministry

[39] Water Aid Uganda, 2021. Upper Mpologoma Sub-Catchment Climate Change Baseline, Vulnerability and Capacity Needs Assessment

are capacitated, then better efficient and effective guidance and service delivery to the lower levels especially community level is expected. To further consolidate capacity enhancement, the proposed project will facilitate the establishment and incorporation of climate resilient WASH into governance committees in Catchment and Sub-catchment organisations, WASH platforms at different levels for community learning, information sharing forums for Catchment Management Organisations and development of MOUs and implementation action plans so that regional, district and Sub-County levels stakeholders such as those at catchment management level, CBOs, LG Authorities, MWE staff as well as those at inter-ministerial and inter-sectoral levels e.g. Water, Health, Education are also supported.

Increased uptake and use of concrete adaptive climate-smart WASH technologies and catchment protection measures: USD 2,833,000

132. Currently, there are limited, inappropriate and ineffective adaptation actions among communities to easily cope with the increasing frequency and intensity of floods and landslides in the catchment. Such adaptation actions are causing loss of assets, properties, lives, destruction of water infrastructure leading to water pollution and contamination thereby increasing waterborne diseases. Actually, the extreme high intensity floods and landslides are causing unprecedented water insecurity and food insecurity that greatly reduce the incomes and impede other livelihood options of communities. In order to increase the uptake and utilisation of appropriate and effective adaptation actions, the project will survey the status of WASH technologies, demonstrate climate resilient WASH models, train stakeholders in climate resilient WASH technologies for flood control, landslides management, source protection, ecosystem restoration/rehabilitation among communities upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests, and support them to access WASH information and support construction of landslides resilient WASH technologies. Innovative source protection measures; The project will also support implementation of innovative adaption actions for source protection, flood control and landslides management, catchment protection The innovative adaptation actions include; construction of stone based embankments, planting vertiver grasses, trees, construction of landscape water harvesting and water storage structures, soil and water management techniques, ecosystems restoration and rehabilitation of degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks and swamp/riverine forests.

Uptake and usage of concrete adaptation actions for water supply and sanitation measures increased: USD 3,147,000

133. There are limited options for climate resilient water supply and sanitation measures in the catchment. Consequently, the current water supply facilities are destroyed and buried by the increasing frequency and intensity of floods and landslides. Communities have continued to rely on inappropriate water supply technologies that not adapted to such floods and landslides. In order to increase the uptake and utilisation of appropriate and effective adaptation actions for water supply and sanitation, the project will under this component support the community to undertake adaptive and climate proof water supply infrastructure including: construction of public sanitation facilities, climate proof fecal sludge management facilities, climate proof waste water re-use and waste management facilities, domestic rain water harvesting facilities, as well as water abstraction, storage and transmission infrastructures.
134. Awareness raising about such various water, sanitation and hygiene measures, facilities construction and management will also be supported by the project especially targeting vulnerable community members including women groups, children in schools, the elderly and youth including within and around the health centres. The project's respective component, outcomes and outputs will further support women groups to reap additional income through operation of public sanitation facilities and engaging in fecal sludge value chains by levying a small fee from which they earn extra income that is contributes to improving their adaptive capacity to the impacts of floods and landslides. Women groups will be trained in life cycle costing and maintenance of WASH facilities in towns and rural growth centres. The groups will also be trained on piped water supply management focusing on minimising wasteful water supply and other water losses as well as water supply and sanitation especially for communities in small towns and rural growth centres. In this way, the adaptive capacity of such community vulnerable groups will be enhanced.

Knowledge, awareness and information on FEWS and WASH increased: USD 311,200

135. There is limited awareness on the risks and adaptation actions associated with the increasing frequency and intensity of floods and landslides amongst stakeholders in the catchment. Such limited awareness is not only leading to poor planning and responses to such risks and disasters but also impedes the ability of local communities and other stakeholder to cope and adapt to the impacts such as loss of assets, properties, lives, destruction of water infrastructure leading to water pollution and contamination thereby increasing waterborne diseases, water insecurity and food insecurity low incomes and limited livelihood options.
136. Based on such challenges, the project will support knowledge management and awareness creation through documentation of good practices and lessons on FEWS, climate resilient /climate proof WASH technologies, and improved catchment protection. Information on lessons and best practices from project interventions will be generated, packaged and disseminated. The knowledge and awareness raising component will also allow generation, packaging and development of information materials on FEWS, climate resilient WASH

technologies and practices in appropriate forms to aid easy uptake (e.g., policy briefs, brochures). FEWS and WASH information sharing platforms will be strengthened by supporting gender and disability rights groups to share FEWS and climate resilient WASH information at different levels as well as engaging the policy makers in dissemination of best practices on climate resilient WASH technologies. The use of existing and popular platforms such as electronic and print media, telecom that are easily accessible by the stakeholders will be utilised.

J. Sustainability of the project outcomes

137. The project is designed to ensure socio-economic, environmental, technological, financial and institutional sustainability dimensions as follows:

Socio-economic sustainability

138. The project design will promote socio-economic sustainability through supporting capacity building actions in developing FEWS, climate resilient WASH technologies and source protection measures, catchment management measures and waste management measures, that will enable communities, community leaders and other stakeholders at national, regional, district and local levels within the Mpologoma catchment. During capacity building, stakeholders acquire the requisite knowledge and skills to pursue or engage in socio-economic activities with full awareness of the likely impact of the respective actions. Socially, community groups, women groups and institutions, committees will work together during capacity building as well as activity implementation. This approach not only minimizes the likely conflicts among stakeholders but also promotes social cohesion which are vital attributes for socially and economically sustaining the project. In posterity the promoted social cohesion among groups aids planning for adaptive and climate resilient socio-economic activities such as day to-day operation of public sanitation facilities by women through charging user fees in order to remain socially and economically productive even at project closure. Economically, it is anticipated that reduced losses of assets, lives and other properties as well as reduced waterborne diseases resulting from implementation of FEWS and climate resilient water supply infrastructure, sanitation facilities, source protection and waste management that lead to improved capacity for communities to adapt to floods and landslides; will eventually help communities and other stakeholders to enhance incomes, improve livelihoods and ensure economic sustainability. The project also ensures that the infrastructure constructed by the project are economically/financially sustained and maintained by establishing new or modifying and support existing interventions including infrastructure for ground and surface water sources, water points and other facilities. The project further proposes to incorporate flood control and landslides management interventions (e.g. on FEWS into planning and budgeting processes at district and sub-county local government levels.

Environmental sustainability

139. The project will ensure environmental sustainability through strengthening the resilience of communities by facilitating them with WASH adaptive infrastructure to enable communities cope with floods and landslides and avoiding water contamination, pollution, flooded sanitation facilities e.g. toilets, and climate proof waste management facilities. For project interventions that are anticipated to have significant social and environmental impacts, independent Environmental and Social Impact Assessments (ESIAs) will be undertaken and approval sought from the National Environment Management Authority (NEMA). The ESMF has an environmental and social monitoring plan that will guide periodic monitoring and evaluation to track changes that could have adverse environmental and social impacts and ensure adequate mitigation. In line with the Social and Environment Policy of the Adaptation Fund, an Environmental and Social Management Framework (ESMF) will be developed as a guide on handling environmental and social issues during project implementation. in addition to the Social and Environmental Impact Assessments, baseline studies and KAP surveys on the status of FEWS, climate resilient WASH technologies for water supply, source protection, and waste management during the proposed baseline study on the existing traditional and modern early warning systems so that only warning systems will ensure that such interventions that are in tandem with sustainable environmental protection are supported. Periodic monitoring and evaluation to track any changes that could have adverse impacts to the environment and their timely mitigation measures will be considered during the implementation phase of the project.

Technological sustainability

140. The project design emphasizes development of FEWS and developing/upgrading the WASH climate resilient infrastructure for technological sustainability. Capacity building of all stakeholders including technical staff planning, handling, collecting, analysing and disseminating information of FEWS, and climate resilient WASH measures at national, regional, district and local levels, staff form other institutions CMCs. This will ensure enhanced resident capacity to process and disseminate early warning and climate disaster related information to key stakeholders as well as technical capacity to undertake concrete adaptation actions even long after the project has ended.

Financial sustainability

141. The project will collaborate with various partners in the catchment to mobilize resources, avoid duplication of interventions, and streamline project interventions by facilitating the local governments to incorporate FEWS and Climate resilient WASH measures into district and sub county plans and lobby the governments (national and local) to allocate financial resources towards disaster risk management. The investments made in the project duration such as FEWS, WASH investments and catchment management

interventions will be sustained financially in the long term after project closure through long term funding provided through Catchment Management Organizations. Catchment Management Organizations that represent the interests of the people in the catchment are party funded by government through the regionally based Water Management Zones and by contributions from all the stakeholders that develop and operate water related infrastructure projects who have to make a contribution of up to 3% of their investment for catchment management and water source protection. Other sources of long-term funding will be secured from various other sources such as the established community revolving fund scheme for income generating activities, private sector, NGOs and relevant line ministries that operate in the catchment and have interest in the services provided by a well-managed catchment. The Catchment Management Organizations with technical support of Water Management Zones will be responsible for sustainability of the various investments. In addition, the project will provide pilot data for each of the proposed interventions. Then strategic engagements will be done with the Ministry of Finance Planning and Economic Development, MWE and the National Planning Authority to provide budget support especially during the national planning and budget cycles where priorities for funding are considered. The strategic engagement will also include supporting lower district local governments to incorporate interventions into their development plans based on the project data. Furthermore, the proposed project will develop strategic engagement with the Development Partners Groups (members include bilateral, multilaterals, development banks, INGO) NDP III Program/sector working groups dealing with Environment and climate change as well as groups dealing with water and sanitation. This will give the project a good platform to engage participation in overlapping targeted components and share lessons with the groups and gunner interest for future developments. This way sustainability of interventions will be ensured. Partnerships with academia as part of the programme approach will support the quality publishable baseline information and subsequent monitoring processes that can be shared credibly.

Institutional sustainability

142. This will also be promoted through capacity building of staff and other stakeholders at various levels for better ownership of project interventions. Furthermore, development of MOUs and implementation action plan for climate resilient WASH information forums at regional, district and sub-county levels (CM stakeholders e.g. CBOs, LG Authorities, MWE structures); and establishing, and incorporating climate resilient WASH into governance committees in Catchment and Sub-catchment organisations contributes to promoting institutional sustainability of interventions after project closure. The fact that District local governments will be involved in the implementation of the project, the district local government staff and lower level committees will be capacitated and encouraged to include project interventions in their planning and budgeting framework to ensure that such interventions are sustained beyond the project period.

K. Overview of the environmental and social impacts and risks

143. An analysis of the checklist (Table 8) of the 15 environmental and social principles of ESP of AF with regards to the CARFEWW project indicates that the project falls in category B, because the activities have potential adverse impacts that are less adverse, fewer in number, smaller in scale, less widespread, reversible or easily mitigated. At this stage, an Environment and Social Management Plan (ESMP) for the project has been developed. It critically analyses all the CARFEWW project activities with a view of ensuring that environmental and social good practices are enforced. Table 8 indicates the results of screening for potential environment, social and gender impacts and risks that was conducted in order to ensure that the project complies with the 15 principles of the AF's Environmental and Social Policy (ESP). The AF- ESP requires that projects comply and respect the laws, people's rights, gender equity, heritage, and biodiversity and environment management. This is one of the measures that will promote sustainability of the project.

Table 8: Potential environment, social and gender impacts and risks of the project

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	Yes. The project is consistent and complies with the relevant domestic laws and policies such as environmental and climate change policies strategies and plans (see section 3 of this ESMF)	Risk: Low Potential Impact: Low According to Environmental Impact Assessment (EIA) Regulation (1998) and Sectorial EIA Guidelines of Uganda, all components/ activities of the proposed project do not fall within the First Category of projects that require full EIA except for Some of the activities such as proposed **construction of WASH technologies** may require EIA depending on the size and location of the interventions
Access and Equity	Yes. The proposed project promotes fair and equitable access to benefits of the project including access to clean water, sanitation and hygiene, flood early warning information, enhancement of resilience against flood and landslide related impacts, livelihoods diversification and general ecosystems' resilience	Risk: Low Potential Impact: Low Although, the project has been designed to ensure equity in access and sharing of resources, some activities of the project, such as for **climate-resilient WASH technologies, flood early warning systems,** livelihood improvement may not provide benefit for all, but target those **communities** in need and which are involved in **hotspot areas** due to their proximity to the natural resources which are to be protected. The principle of access and equity has been catered for through stakeholder mapping, detailed consultations and assessments. Active involvement of the vulnerable groups including the elderly, youth (boys and girls) and women has been done to capture any issues in their interest. The project design will benefit all categories of stakeholders without discrimination. The activities include Capacity building, improved availability of water, **sanitation and hygiene, flood early warning systems, and catchment management** as well as Income generating activities **to enhance resilience of the communities to floods and landslides impacts.** The selection criteria for the beneficiary communities and groups w**ill be** done in a transparent manner. Notably, a grievance redress mechanism **has been** developed to handle any reported/identified issues of inequality and lack of access to project benefits. The project will closely monitor target project beneficiaries to ensure equal access of men, women youth and the most vulnerable. Indicators in this regard are included in the M&E scheme.
Marginalized and Vulnerable Groups	No activities are identified with orientation or execution that could generate negative impacts on marginalized and/or vulnerable groups. Some activities, such as the construction of climate-resilient WASH technologies are targeting women and women groups and marginalized groups.	Risk: Low Potential Impact: Low Delineation of buffer zones, restoration of river banks, wetlands and forest landscapes' conservation activities need to be monitored closely, particularly with regards to former resource users in those areas to ensure that these measures are accompanied with livelihood improvement activities and other means of ensuring sustainability of people's livelihoods who depend on those resources. The marginalized and Vulnerable groups should not miss out due to dominance by men and other well positioned decision makers who may take up all the available project opportunities.
Human Rights	No activities are identified whose execution is not in line with the established international human rights.	Risk: Low Potential Impact: Low The risks associated with construction and restoration activities that will require additional labour,

	Project objectives promote basic human rights for equitable access to water, sanitation and hygiene, flood early warning information and capacity building	issues related to treatment of workers by the project Contractors will need to be monitored closely during project execution to ensure no violation of any established local and international human rights
Gender Equity and Women's Empowerment	Yes. The activities of the project are oriented to promote a fair and equal access of men and women. The project promotes equal participation in decision-making processes by ensuring women representation in Catchment Management Committees, establishing participatory platforms for all stakeholders, balancing representation in the forums.	Risk: Low Potential Impact: Low All project activities have been screened and analysed to ensure full participation of Women and youth groups in project activities and consideration of all gender aspects. An in-depth gender analysis of the involvement of men and women in the in options proposed as concrete adaptation activities will be undertaken in the initial project phase.
Core Labour Rights	Yes. The project respects the labour standards as identified by ILO.	Risk: Medium Potential Impact: Medium The risks of occupational health and safety hazards for workers that may occur during construction and restoration activities, violation of existing labour laws and conventions including late or no payments, harsh working conditions and exploitation of workers, child labour, discrimination based on sex among others, risks of transmission of sexually transmitted diseases like HIV/AIDS especially during construction activities have all been screened and analysed to cater for labour standards as identified by ILO.
Indigenous Peoples	The Project promotes the rights and responsibilities set forth in the United Nations Declaration on the Rights of Indigenous Peoples. Although there are different tribes in the project area, but no sharp distinction between indigenous and non-indigenous people can be made	Risk: Low Potential Impact: Low There is a risk that traditional natural resource use and land use rights are undermined. Therefore, a detailed analysis of resource use rights and land use rights particularly with regards to water, wetland and forest resources will be undertaken in the initial project phase.
Involuntary Resettlement	No activities that will lead to involuntary resettlement. Community members that have encroached on natural resources such as riverbanks, wetlands and forests will be trained on how to sustainably use the natural resources during restoration activities. Such community members will lose their farmlands along river banks, wetlands	Risk: Low Potential Impact: Low The project will closely monitor particularly those people who have encroached on protected natural resources to ensure that they have access to the revolving fund and are involved in income generating activities. Indicators in this regard are included in the M&E scheme

	or forests to facilitate restoration activities of the protected areas	
Protection of Natural Habitats	The protection of wetlands and its natural habitats and biological diversity is a core objective of component 2 of the project i.e., Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides	Risk: Medium Potential Impact: Medium There are risks of vegetation clearance from sites for construction **of climate-resilient WASH technologies** that may affect natural habitats, destruction of vegetation and compaction of soils by construction equipment. During the implementation of the all activities related to construction and restoration of wetlands, riverbanks and forests, project shall be closely monitored to evaluate if the expected impact is achieved or if any unexpected negative side effects turn up. Indicators in this regard are included in the M&E scheme.
Conservation of Biological Diversity	The protection of wetlands and its natural habitats and biological diversity is a core objective of component 2 of the project i.e., Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides	Risk: Medium Potential Impact: Medium The project risks in relation to conservation of biological diversity include Vegetation clearance for construction **of climate-resilient WASH technologies** that will result in loss of biodiversity on those sites, opening up of new lands for agriculture leading to vegetation loss and introduction of invasive pasture seeds or tree species. During the implementation of the all activities related to construction and restoration of wetlands, riverbanks and forests, project shall be closely monitored to evaluate if the expected impact is achieved or if any unexpected negative side effects turn up. Indicators in this regard are included in the M&E scheme.
Climate Change	The project does not only increase the adaptation capacity of the local population and the resilience of the ecosystems, but also reduces greenhouse gas emissions through ecosystem restoration and reforestation initiatives	
Pollution Prevention and Resource Efficiency	Yes. The project will minimize material resource use and contribute to energy efficiency for example through construction and use of climate-smart water, sanitation and hygiene technologies such as clean water sources and feal sludge management	Risk: Low Potential Impact: Low There are potential risks of water contamination in the **WASH** storage reservoirs, over use or un regulated usage of the water resources and water and soil contamination. The project shall be closely monitored to evaluate if any unexpected pollution effects turn up. Indicators in this regard are included in the M&E scheme.
Public Health	No activities are identified whose execution will have negative impacts on public health. Instead, the project will contribute to improve health conditions of the communities by improving living environment (healthy	Risk: Low Potential Impact: Low The risks include, **WASH infrastructure** being a source of water or vector-borne diseases such as malaria in cases where mosquitoes hide in stagnant water points, concentration of workers at Water infrastructure construction sites during the construction that will increase the risk of spread of sexually transmitted diseases (STD) especially that most vulnerable members of communities and

	surroundings) through initiatives such as ecosystem restoration, climate-smart water, sanitation and hygiene technologies e.g., clean water sources, rain water harvesting and faecal sludge management. However, Water harvesting, storage facilities may aggravate some diseases such as malaria	potential risks to safety of persons and animals around the dams/tanks. During the implementation of the project awareness raising activities will be undertaken on malaria and other water related diseases as well as HIV/AIDS sensitization programs
Physical and Cultural Heritage	The project will not have any activity related to affecting physical and cultural heritages. Instead, the project will promote their protection/ conservation	Risk: Low Potential Impact: Low The project will promote local indigenous knowledge in designing FEWS and train communities to handle the new climate resilient WASH technologies and FEWS without negatively affecting c Specific physical assets in the project sites at local and district levels will not be targeted
Lands and Soil Conservation	Soil conservation, reduction of land degradation through promotion of biophysical flood control structures including afforestation and catchment management is a core objective of component 2 of the project	Risk: Low Potential Impact: Low Potential risks include soil erosion due to exposure and compaction by machinery during construction of WASH models as well as soil pollution from agrochemicals and acaricides. During the implementation all the activities related to protection and management of land shall be closely monitored to evaluate if the expected impact is achieved or if any unexpected negative side effects turn up

144. A detailed analysis of the possible environmental and social impacts and risks of the CARFEWW project in relation to the social and environmental principles of the adaptation fund that apply to this project is presented below. It discusses the probability of risks occurring, anticipated magnitude of impacts and possible mitigation measures

Principle 1: Compliance with the law

145. The project activities shall be implemented in compliance within the National laws and regulations as explained in section 3. All relevant laws and regulations and their relevance to the project has been explained and no further assessment of potential impacts and risks is required for compliance with the law. For activities in component 2 involving construction or rehabilitation, the risk screening process has been done taking into account the adherence of these activities with the national laws and technical standards and further EIA may be required depending on the size and the location of their implementation to determine their impacts and possible mitigation measures.

Principle 2: Access and equity

146. There is a potential risk if selection criteria of the beneficiaries are not fairly done. This could be a barrier to accessing the benefits and marginalize other stakeholders. In order to address this a detailed stakeholder mapping, consultations and assessments have been undertaken during the proposal development stage. Special focus have been given to vulnerable groups including the elderly, youth and women. Issues and proposed actions specific to each group have been captured and incorporated in the design of the project. This will ensure equitable participation in the project activities and access to project benefits by all groups including men women, elderly, youth and any other vulnerable and marginalized groups. The project is designed in such way that all categories of people shall benefit from the projects interventions including Capacity building, provision of climate-smart WASH technologies, flood early warning systems, enhancement of community resilience to floods and landslides impacts and catchment management. After consultations with the stakeholders the following criteria has been proposed to be followed in selecting beneficiary communities and groups;

147. Criterion 1 - Vulnerability: The most vulnerable groups will be considered, for example, women, youth (boys and girls), Peoples with Disability (PWD) as well as the absolute poor. The vulnerable communities are struggling to survive and therefore, they seek for the closest option. Natural resources are considered open, as such are a culprit.

148. Criterion 2 - Proximity to the fragile ecosystems along floods and landslides hotpots: People in the most degraded areas will be targeted because these are frontline people that interact with the fragile ecosystems daily. They are affected and affect the resources. So, it is these communities that own the land or are most responsible for its degradation. In this case community members will be selected to participate in interventions for the natural resources. This approach will help in protecting the resource.

149. Criterion 3 - Resource users: Even among the communities that are in proximity of the natural resources, it is important to target the resource users. The people using the resources are the best people to restore them as they understand the resource better.

150. Criterion 4 – Gender: Deliberate effort will be made to ensure that at least 50% of the target CARFEWW project beneficiaries are women. This will be done in consultation with local leaders and sub catchment management committees. For the case of engaging in enterprise development 80% of women and women groups will be targeted by the proposed project.

151. In addition to applying this criterion to ensure that all people have equitable access to project interventions and benefits there will be sustained and continuous sensitization of all stakeholders to ensure that marginalized and most vulnerable groups will be considered, for example, women, youth (boys and girls), Peoples with Disability (PWD) as well as the absolute poor from the project. Lastly in case there are few issues that arise regarding access and equity during project implementation, the project has developed a Grievance redress mechanism that shall be followed in handling reported issues of inequality and lack of access to project benefits.

Principle 3: Marginalized and vulnerable groups

152. The main focus of the project is to increase the resilience of communities as grass root stakeholders mainly the marginalized and vulnerable groups. Detailed stakeholder mapping and consultations have ensured that all the marginalized and vulnerable groups in the project area have been identified and incorporated in the project design. Some of the project activities like capacity building and IGAs are mainly designed to benefit these groups. To ensure equity amongst the groups, there will be deliberate effort to integrate vulnerable and marginalized groups who include women, youth (boys and girls), elderly and Peoples with Disability (PWD) as well as the absolute poor (live on less than USD 1 per day) to directly benefit from project activities. Activities under component 2 involving construction of WASH technologies, flood early warning systems target marginalized and vulnerable groups in order to increase their resilience through employment opportunities and income generating and improve their livelihoods.

153. The selection of project activities was done after wide consultations with all stakeholders and project beneficiaries in particular vulnerable and marginalized groups including Women, youth, elderly as well as PLWDs and this ensured most of their issues in respect to the project have been captured and incorporated.
154. The project monitoring system is also based on disaggregated data to enable tracking of the participation by these groups during project implementation. Continuous awareness raising about the project target groups and the need to involve the most vulnerable and marginalized groups will also help to alleviate the problem. Any outstanding issues on this can be addressed through the project grievance redress mechanism.

Principle 4: Human rights:

155. The Project is designed to respect and adhere to the requirements of all relevant conventions on human rights in compliance with the ESP. No violation of human rights is envisaged during implementation of this project and the project shall promote the rights of all stakeholders involved in the project. No activities are identified whose execution is not in line with the established international human rights. Project objectives promote basic human rights for fair and equitable access to resources to enhance their resilience to climate change in the beneficiary communities.

Principle 5: Gender equality and women's empowerment:

156. Despite significant progress, the vast majority of women are still subject to gender inequalities in Uganda. They continue to bear a disproportionate burden of poverty and illiteracy; they still have little access to economic resources and opportunities; many women still die in childbirth and are the first victims of the HIV&AIDS pandemic. Few Women own land and have less land tenure security than men. While women can often use land for free for subsistence farming, as soon as their production generates revenue, men want to highjack the proceeds from them. For activities that are long term like tree and fruit growing, women often need to first seek the consent of their spouses to use the land.
157. The project design emphasizes gender equity and women empowerment through equal participation of both men and women in project activities. Furthermore, Women will be empowered in decision making through having representation on group management committees for the project investments and enterprises. Some of the key project activities such as capacity building in fecal sludge management and climate-smart WASH technologies will deliberately target women and other marginalized and vulnerable groups.
158. The project monitoring plan as well as the Grievance Redress Mechanism shall incorporate gender equity and women empowerment issues such that they are closely followed during project implementation.
159. To emphasize the issues of gender in this project a more detailed assessment focusing on integration of gender issues in project design and implementation been done separately.
160. In addition, the projects intend to carry out communication and sensitization of populations on the gender issues to ensure gender equality in access to water, sanitation and hygiene, flood early warning information, income-generating activities and strengthening representation of women and youth on project management committees as well as raising awareness on the use of the project grievance redress mechanism to solve issues.

Principle 6: Core labour rights:

161. There is a potential risk especially for Activities under component 2 involving construction or rehabilitation such as Activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4 shall involve the use of local labour especially during the construction Phases of the different projects. MWE will ensure that the project activities fully comply with relevant National labour laws and regulations as elaborated in section 3 of this ESMF well as ILO labour standards. Contracts under this project shall have clear clauses on compliance with the National labour laws and regulations as well as requirements relating to the safety of workers in accordance with ILO Convention in so far as they are applicable to the project. Activities throughout the project are targeted at reducing inequality and raising gender awareness for gender equality to overcome traditional stereotypes regarding the role of women in society. Positive discrimination in favour of women will be used to provide fair and equal opportunity to women who seek employment as labour and gain from wages earned under this project. All stakeholders including workers and populations should be sensitized about the risks related to the activities to be undertaken activities.
162. In addition, emphasis should be put on giving the local people the first priority for activities they can manage, ensuring that adequate safety measures are in place, timely payments for services offered, non-discrimination on basis of sex, tribe while employing workers and a defined grievance redress mechanism for handling workers as well as a robust monitoring and evaluation system to ensure that these provisions are being implemented.

Principle 7: Indigenous people:

163. Although there are different tribes in the project area, but no sharp distinction between indigenous and non-indigenous people can be made. There is a risk that traditional natural resource use and land use rights are undermined. Therefore, a

detailed analysis of resource use rights and land use rights particularly with regards to water, wetland and forest resources will be undertaken in the initial project phase

Principle 8: Involuntary resettlement:

164. There are no activities that will lead to involuntary resettlement under this project. Community members that have encroached on natural resources such as riverbanks, wetlands and forests will be trained on how to sustainably use the natural resources during restoration activities. Such community members will lose their farmlands along river banks, wetlands or forests to facilitate restoration activities of the protected areas. The project will closely monitor particularly those people who have encroached on protected natural resources to ensure that they have access to the revolving fund and are involved in income generating activities. Indicators in this regard are included in the M&E scheme

Principle 9: Protection of Natural Habitats:

165. The project activities will be taking place in areas along Mpologoma wetland system and areas adjacent to Mt. Elgon National Park. However, most of the activities will have positive impact on the integrity of the national park and the wetland system as they will promote their conservation. Key among these is; sensitizing stakeholders in sustainable utilization of natural resources (e.g., appreciation and importance of the natural ecosystems) and undertaking ecosystem restoration activities (wetlands and river bank restoration, Reforestation etc.). Therefore, the project will not only protect but will enhance the integrity of natural habitats among others. However, there is need to engage the project beneficiaries near the boundaries of the wetland and the national park to ensure that none-of the project or other activities encroaches into the national park land or the wetland. The already enacted Wetlands, River Banks and Lake Shores Management) Regulations, S.I., No. 3 /2000 shall be followed to ensure no degradation of any part of the wetland system and conservation area during project implementation.

Principle 10: Conservation of biological diversity:

166. Most of the Project activities promote and enhance biodiversity conservation including sensitizing stakeholders in sustainable utilization of natural resources (e.g., appreciation and importance of the natural ecosystems) and undertaking ecosystem restoration activities (wetlands and river bank restoration, Reforestation etc.). Therefore, the project will not only protect but will enhance the integrity of natural habitats as well as well as building the capacity of organized resource use groups to promote biodiversity conservation. This is in line with the National Biodiversity Strategy and Action Plan, Nationally Determined Contributions (NDC) for Uganda and other relevant laws under section 3. In addition, project interventions will be implemented in areas surrounding Mt. Elgon National Park and Mpologoma wetland hence contributing to the conservation of biodiversity inside the park and the wetland.
167. However, activities under component 2 involving construction or rehabilitation such as Activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4 will involve presence of labour and construction equipment as well as clearances for siting of the infrastructure for the projects could have negative impacts on the fauna and flora on certain intervention sites. The risk screening process has taken into account the adherence of these activities with the national laws and technical standards and further EIA may be required depending on the size and the location of the projects.
168. With guidance from District technical officers, the project will ensure that the tree species promoted by the project for restoration as well as crop and grass varieties are not invasive in nature to threaten the existing natural vegetation. Soil and water activities as well as restoration through tree planting of areas around water bodies shall prevent their siltation and enhance conservation of aquatic resources in these water bodies especially the Mpologoma river system. Follow up and monitoring of the implementation of mitigation measures proposed in the Project ESMP, awareness raising and capacity building on biodiversity conservation and other sound environmental management measures will ensure that biodiversity conservation is enhanced during project implementation.

Principle 11: Climate change:

169. The main focus of the project is addressing climate change issues and impacts and a detailed Climate Change vulnerability study has been conducted during the design and preparation of the project's full proposal. All the three project objectives of strengthening the capacity of communities for climate change adaptation, flood early warning systems, promoting appropriate climate-resilient WASH technologies for improved water, sanitation and hygiene and enhancing the resilience of communities to floods and landslide impacts. All project activities are in line with the National climate change policy and strategic plan, NDC and priorities defined in the NAPA. Apart from likely changes in land use due to the field clearing to construct WASH models that may result in a slight decrease in sequestration capacity of the environment none of the activities is envisaged to result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change. But still this decrease in vegetation shall be offset through restoration activities. Where there is need for

pumping use of Solar power or HEP shall be encouraged. The project approach of raising awareness on the impacts of climate change and sharing of lessons learnt and success stories as well as capacity building to undertake climate change focused adaptation interventions will have a significant impact in addressing climate change issues in the catchment and the country at large.

Principle 12: Pollution prevention and resource efficiency:

170. Activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4 under component 2 will involve construction or rehabilitation activities that have potential to cause water and air pollution as well as resource use efficiency issues during pumping and utilization of water resources. However, project activities are not anticipated to generate sizeable amounts of waste. Some of these issues shall be addressed using the project Environmental and Social management plan (ESMP) to ensure compliance with national laws and technical standards as well as AF ES principles.

Principle 13: Public Health:

171. Construction activities for WASH technologies may cause air and water pollution and stagnant water in storage facilities may pose health risks such as Malaria due to mosquitoes that hide in the stagnant water or cholera if consumed raw. Also, the process of faecal sludge management may result in public health issues especially as a result of nuisance odour and air pollution. These shall be addressed through awareness raising and capacity building of project beneficiaries to take all precautionary measures during faecal sludge handling to avoid pollution and contamination, use of relevant PPE and boiling drinking water particularly. These shall be addressed through detailed measures in the ESMP to ensure compliance national laws and technical standards as well as AF ES principles.

Principle 14: Physical and cultural heritage:

172. As mentioned in principle 10 above most of the Project activities promote and enhance biodiversity conservation including sensitizing stakeholders in sustainable utilization of natural resources (e.g. appreciation and importance of the natural ecosystems) and undertaking ecosystem restoration activities (wetlands and river bank restoration, Reforestation etc.). The project will not have any activity related to affecting physical and cultural heritages. Instead, the project will promote their protection/ conservation.

Principle 15: Land and soil conservation:

173. Soil and water conservation is one of the key issues to be addressed by the project especially through activities Activity 2.1.3.2 Facilitate development of biophysical flood control structures and Activity 2.1.2.7 Support rehabilitation of degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.). The project will enhance the conservation of water and soil resources. However, there is a potential risk of soil erosion during and after the construction of WASH models. Water and irrigation infrastructure. Efforts should be undertaken to ensure that these sites are properly restored with appropriate grasses and trees to avoid exposed landscapes. Communities and contractors shall be sensitized and trained to restore exposed degraded landscapes

Adherence to National Policies, Laws and Technical standards

174. Further to the compliance with the ESP of AF and other international laws and policies, the CARFEWW project is compliant with national laws, and adheres to all National Technical Standards that are applicable to the project. The implementation of project activities shall comply with these laws and standards as outlined in Part II (section E) of the proposal. And in line with the National Environment Act, 2019 and the National Environment (Environmental and Social Assessment) Regulations, 2020 an Environmental and social impact assessment has been undertaken for this Project and any environmental and social impacts and risks arising from the implementation of the project activities shall be managed according to the Project ESMP and the Grievance Redress Mechanism.

175. Furthermore, Audit regulations 2020, require that after the first year of operation, the project must undertake an initial environmental audit to assess levels of compliance with set standards, compare actual and predicted impacts, and assess effectiveness and level of implementation of respective ESMP mitigation measures. This allows for corrective measures to be taken in the early stages of project implementation.

Structure of the Grievance Redress Mechanism

176. The proposed project Grievance Redress Mechanism (GRM) will consist of Grievance Redress Committees (GRCs) at three levels who will aim to adopt participatory and conciliatory approaches as far as possible to ensure that practical solutions can be found through dispute prevention, dispute management and dispute resolution.

First Level of Redress: Community Level

177. The main targets at this level are the communities and project beneficiaries. The GRC at the community/ project site level will be comprised of seven people. At every community unit, three community leaders shall be appointed including a Representative of a local CBO or NGO/ Religious Leader and trained to handle complaints. These three community leaders shall work under the supervision of the Sub-County Community Development Officer also as a member of GRC. All project beneficiaries will be informed of the appointed recipients of complaints. The received complaint shall be recorded on a standardized form as shown in Appendix II. This Community Level GRC will be obligated to submit a quarterly report using the standardized format as in Appendix 4 of registered complaints to the Second Level Redress: District Level committee for onward transmission to the National Implementing Entity (NIE).

Points of receipt of complaints at community level

178. The community members will be advised to register their complaints at the following points:
- The three appointed community leaders
- Sub-County Community Development Office
- Head of Community Based Organizations (CBOs)
- Project/ Programme Manager from the Executing Entity (Water Aid) at project site office

Mode of receipt of Complaints and Timelines at First Level of Redress

- A grievance or complaint shall be submitted to the GRC through any of the following, through an online complaints form, mail, email, voice or video recording, letters dropped into a suggestion box that will be at the Project offices and offices of the Sub-County where the project is located or by calling a toll-free hotline that will be established and communicated by all stakeholders by each project site.
- A grievance or complaint may be submitted in English or any other language the complainant uses. Where the grievance or complaint is in a language other than English and the complainant is unable to submit a translation, the GRC will have it translated into English. The GRC may extend any deadlines in order to enable it to fulfil this requirement.
- The GRC shall provide confidentiality to complainants or those acting on their behalf, if so requested by the complainants, provided that, in the case of a representative, the GRC is satisfied that the confidentiality request is justified in the circumstances of the case.
- The officer receiving the complaints shall try to obtain relevant basic information regarding the grievance. It is anticipated that at this level, most complaints will be made verbally.
- The four Points of receiving complaints as illustrated above shall be in possession of a standardized complaint receiving form as shown in Appendix 2 which must be filled in for every complaint. As soon as a complaint is received, an acknowledgement receipt as shown in Appendix 5 shall be issued.
- After registering the complaint, the Grievance Handling Team under the guidance of the Sub-County Development Officer shall set a date to investigate the matter, after which they shall provide a recommendation. If necessary, meetings have to be held between the complainants and the concerned officers to find a solution to the problem and make arrangements for grievance redress. The deliberations of the meetings and decisions taken are recorded in a standardized format for proceedings as shown in Appendix 3.
- This stage is expected to benefit from the proximity of most of the members of GRC that involves the team leader, Project Manager as well as other members of the committee who are locally based to resolve the issue at site and avoid or minimize any delays in rectifying the problem. Tit is thus expected that resolution for complaints at the first level will be done within three weeks after receiving them and notified to the concerned party. Should the Grievance not be solved within this period it would be referred to the next level of Grievance Redress. However, if the complainant requests for an immediate transfer of the issue to the next level or is dissatisfied with the recommendation, the issue will be taken to the next level.

Second Level of Redress: District Level

179. The main targets at this level are the project implementers, executers, communities and project beneficiaries and their related institutions. At every district implementation level, a grievance handling committee shall be comprised of seven people appointed and trained to handle complaints and work under the supervision of the Chief Administrative Officer and will include District Environment Officer and district Community Development office. All stakeholders shall be informed of the existence of the grievance committee. If the complainant is not satisfied with the recommendation, they shall be advised to report to the third level of redress.

Points of receipt of complaints at Second Level of Redress: District Level

180. Any aggrieved person/organization shall be advised to register their complaints at the following points:

- The GRM Committee
- District Environment Officer
- Project/ Programme Manager from the Executing Entity
- District Community Development Officer
- Resident District Commissioners
- District Local Government Office

Mode of receipt of Complaints and Timelines at Second Level Redress

- A grievance or complaint shall be submitted to the GRC through any of the following, through an online complaints form, mail, email, voice or video recording, letters dropped into a suggestion box that will be at the Project offices and offices of the district where the project is located or by calling a toll-free hotline that will be established and communicated by all stakeholders by each project site.
- A grievance or complaint may be submitted in English or any other language the complainant uses. Where the grievance or complaint is in a language other than English and the complainant is unable to submit a translation, the GRC will have it translated into English. The GRC may extend any deadlines in order to enable it to fulfil this requirement.
- The officer receiving the complaints should try to obtain relevant basic information regarding the grievance. The points of receiving complaints as illustrated above shall be in possession of a standardized form as shown in Appendix 2 which must be filled in by every complaint. As soon as a complaint is received, an acknowledgement receipt as shown in Appendix 5 is issued.
- After registering the complaint, the Grievance Handling Team under the guidance of the District Community Officer shall set a date to investigate the matter, after which they shall provide a recommendation. If necessary, meetings have to be held between the complainants and the concerned officers to find a solution to the problem and make arrangements for grievance redress. The deliberations of the meetings and decisions taken are recorded in a standardized format for proceedings as shown in Appendix 3.
- At the second level, the resolution period will be within three weeks after receiving the complaints and notified to the concerned party. Should the Grievance not be solved within this period, this would be referred to the next level of Grievance Redress. However, if the complainant requests for an immediate transfer of the issue to the next level or is dissatisfied with the recommendation, the issue will be taken to the next level.

Third Level of Redress: National Level

181. The main targets the funding agencies, project implementers, executing entities, communities, project beneficiaries and their related institutions. At the national implementation level, a grievance handling committee of seven members shall be appointed and trained to handle complaints. Ministry of Water and Environment as the National Implementing Entity shall appoint a Grievance Handling Officer to operationalize the grievance handling processes. This committee shall work under the supervision of the Grievance Handling Officer. All stakeholders shall be informed of the existence of the grievance committee. If the complainant is not satisfied with the recommendation, they shall be advised to seek other recourse measures, such as the Courts of Law. The National GRM committee shall be obligated to do a quarterly report of registered complaints, and submit it to the National Implementing Entity Secretariat

Points of receipt of complaints at national level

182. Any aggrieved person/organization shall be advised to register their complaints at the following points:

- The National Implementing Entity (NIE) Grievance Handling Officer
- The National GRM Committee (hosted at MWE)
- The National Implementing Entity (NIE) Programme Coordinator
- The National Implementing Entity (NIE) Secretariat
- The relevant funding agencies' secretariat
- Project officers from Executing Entities (EE)
- The District Community Officers
- Resident District Commissioners

Mode of receipt of Complaints and Timelines at National Level Redress

- A grievance or complaint shall be submitted to the GRC through any of the following, through an online complaints

form, mail, email, voice or video recording, letters dropped into a suggestion box that will be at the Project offices and offices of the National Implementing Entity (NIE) or by calling a toll-free hotline that will be established and communicated by all stakeholders by each project site.

- A grievance or complaint may be submitted in English or any other language the complainant uses. Where the grievance or complaint is in a language other than English and the complainant is unable to submit a translation, the GRC will have it translated into English. The GRC may extend any deadlines in order to enable it to fulfil this requirement.
- The GRC shall provide confidentiality to complainants or those acting on their behalf, if so requested by the complainants, provided that, in the case of a representative, the GRC is satisfied that the confidentiality request is justified in the circumstances of the case.
- The officer receiving the complaints should try to obtain relevant basic information regarding the grievance. The issues that could not be resolved by Second Level Redress: District Level GRC, will be forwarded to the National Level GRC within five days (working days) of the final decision of the Second Level Redress: District Level GRC.
- The points of receiving complaints as illustrated above shall be in possession of a standardized form as shown in Appendix 2 which will be used to record each complaint. As soon as a complaint is received, an acknowledgement receipt as shown in Appendix 5 will be issued to the complainant.
- After registering the complaint, the Grievance Handling Committee under the guidance of the Grievance Handling Officer shall set a date to investigate the matter, after which they shall provide a recommendation. If necessary, meetings have to be held between the complainants and the concerned officers to find a solution to the problem and make arrangements for grievance redress. The deliberations of the meetings and decisions taken are recorded in a standardized format for proceedings as shown in Appendix 3.
- The main objective of National Level GRC is to review the issues in a policy point of view within 10 days after receiving the report and to take appropriate policy measures to overcome such issues. Accordingly National Level GRC is requested to convey its decisions to Second Level: District Level GRC and other relevant parties within three weeks' time from the date of receiving issues from Second Level: District Level GRC without further delay to take immediate actions: (Community Level GRC - 3 weeks + Second Level: District Level GRC – 3 weeks + National Level GRC - 3 weeks = 9 weeks). Should the grievance not be solved within this period, the complainant will be advised to seek recourse through national arbitration processes.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Project management and implementation arrangements

Project management

183. The Ministry of Water and Environment (MWE) will be responsible for the overall management and oversight of the CARFEWW project financed by the Adaptation Fund, including all the financial, monitoring, and reporting duties as an Accredited National Implementing Entity of the Adaptation Fund. Accordingly, the Ministry of Finance Planning and Economic Development (MoFPED), as the Designated Authority of the Adaptation, will receive the funds from the Adaptation Fund. The MoFPED will then channel the funds to MWE. The MWE will manage the disbursements to the Executing Entity (EE)-Water Aid Uganda (WAU) that will similarly release the activity based funds to the respective local level executing units including the Water Resources Institute, Kyoga Water Management Zone (KWMZ), Eastern Umbrella of Water and Sanitation(EUWS) and Water and Sanitation Development Facility (WSDF-East), Uganda Women Network (UWONET), and District Local Governments (DLGs) of the selected upstream, mid-stream and downstream districts of the Mpologoma catchment.

Project coordination

184. A National Steering Committee (NSC) and the Project Technical Committee will be established to coordinate the overall projection execution. The NSC will be the highest decision-making body of the CARFEWW project and will be responsible for overseeing project management. The NSC will be composed of representative stakeholders from the key institutions. The institutions will include: The Executing Entity Water Aid Uganda (which will be the secretary to the committee), National Designated Authority (NDA), Ministry of Health (MOH), National Environment Management Authority (NEMA), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Climate Change Department (CCD), Ministry of Gender, Labour and Social Development (MGLSD), Ministry of Lands and Urban Development (MLUD), Office of the Prime Minister (OPM) Disaster Preparedness, Ministry of Local Government, Private sector and CSOs/NGOs. Other organisations will be included where necessary and whenever they are deemed appropriate. Gender is a very important aspect of the proposed project. As such, the project will ensure representation of women, PWDs, elderly on the NSC. Women will be given the opportunity to participate in the NSC. This will be an opportunity for the women to be empowered in decision-making. A Project Technical Committee will also be designated by MWE to provide overall technical guidance to the project. The project Technical Committee will be drawn from different organizations and agencies that are closely linked and/or are related to major aspects of the project i.e. FEWS, WASH and Catchment management.

Implementing Entity

185. The CARFEWW project will be implemented by the Ministry of Water and Environment (MWE) as an accredited National Implementing Entity (NIE) of the Adaptation Fund. As a NIE, the MWE will be responsible for all the financial, monitoring and reporting aspects of the project to the Adaptation Fund. The NIE will be in charge of the overall reporting of project implementation information and is accountable to the Adaptation Fund. Therefore, MWE will also provide administrative and management oversight of the project to the Executing entities.

Executing Entity

186. The lead Executing Entity for the project will be Water Aid Uganda (WAU). WAU will be supported by the Directorate of Water Resources Management (DWRM) which will provide the operational over sight role to the nationally and regionally based implementation units namely the Water Resources Institute, Kyoga Water Management Zone (KWMZ), Eastern Umbrella for Water and Sanitation (EUWS), and Water and Sanitation Development Facility (WSDF-East). KWMZ will be responsible for implementing concrete adaptation actions on catchment protection and management at the regional and local levels. Eastern Umbrella for Water and Sanitation (EUWS) and Water and Sanitation Development Facility (WSDF-East) will be responsible for implementing the water, sanitation and hygiene interventions at the regional and local levels. The Water Resources Institute (WRI) will lead capacity-building interventions at national and regional levels. Uganda Women's Network (UWONET) will be responsible for providing strategic and technical guidance on gender and capacity building issues to the project partners including WRI, KWMZ and EUWS as well as WSDF-East as they implement respective interventions in the catchment. The other stakeholders that will be involved in project implementation will be the respective District Local Governments (DLGs) of the districts targeted in the upstream, midstream or downstream in Mpologoma catchment. The

Catchment Management Committees (CMCs) and selected Community Based Organisations (CBOs) will collaborate with the local government administrative structures at sub-counties to reach out to the targeted beneficiary communities in the catchment.

Local level implementation

187. At local levels, the local communities including women, men, youth and elderly and their leaders will be the key beneficiaries targeted by the project. The project execution offices based in the Eastern Region at the MWE offices will closely collaborate with local government structures to implement project interventions following the local authorities planning guidelines. Overall, WAU in collaboration with DWRM and her deconcentrated regional structures (KWMZ, EUWS, and WSDF), Water Resources Institute, DLGs as well as communities will execute the project with MWE as the NIE of the AF. Below is the organogram (Figure 4) for the project implementation arrangements. The specific roles and responsibilities of the NIE as well as the EEs are indicted in Table 4.

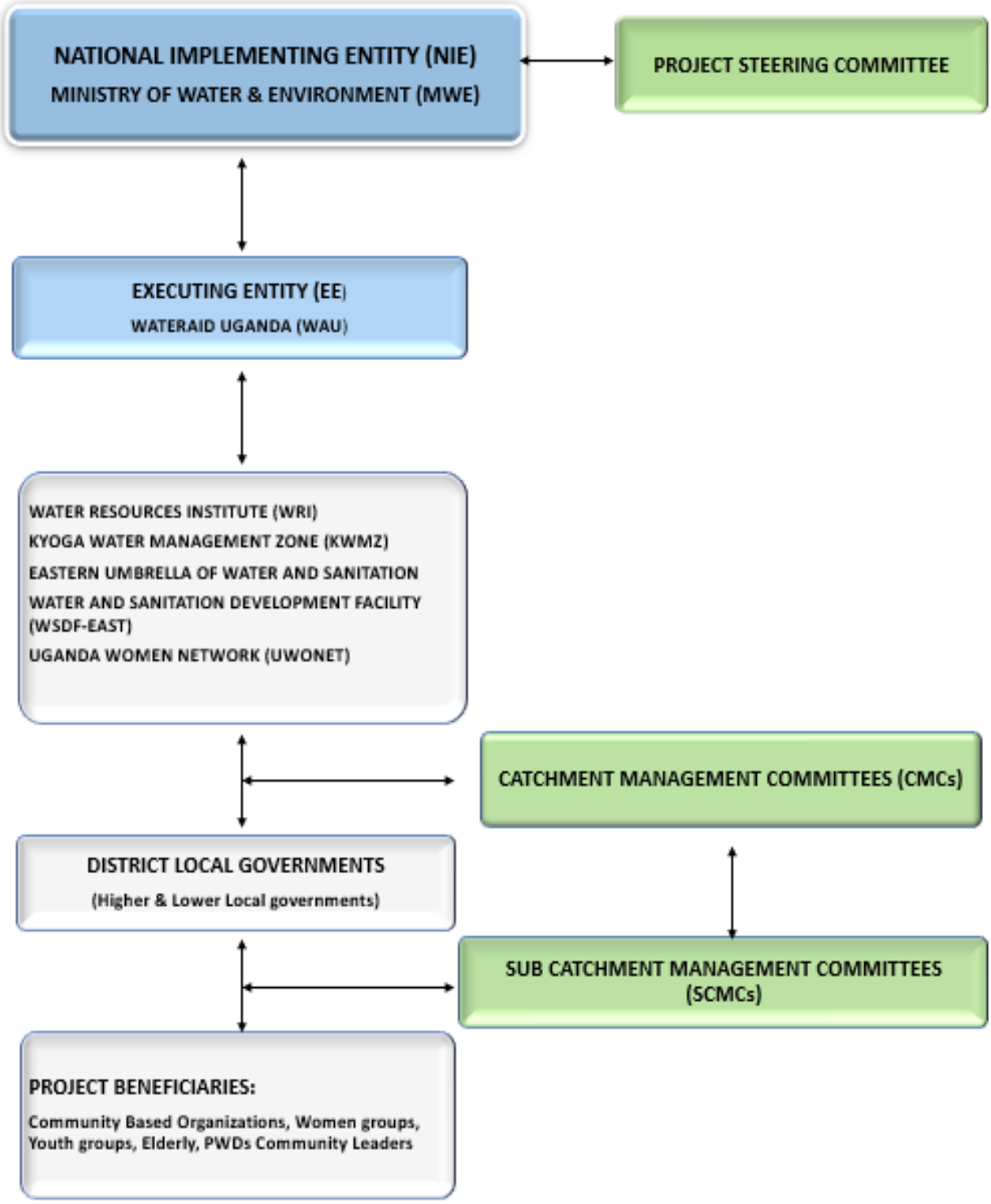

Figure 4: Project implementation structure

Table 9: Roles and responsibilities of project implementation partners

No	**National Implementing Entity (NIE)**	
Organisation		**Roles and Responsibilities**
1	Ministry of Water and Environment (MWE)	▪ For overall financial, monitoring and reporting project implementation ▪ Approves the annual work plans and budgets of the lead Executing Entities (WAU & DWRM) ▪ Approves annual financial and technical reports from the main Executing Entities (EE) (WAU & DWRM) ▪ Provides Liaison with National Designated authority (NDA) and Adaptation Fund (AF) ▪ Provides administrative and management support to the EE
		Project Coordination
1	Project Steering Committee	▪ Meet three times a year and provide strategic direction for the project where meetings will be organized back-to-back with other technical meetings; ▪ Facilitate cooperation between all project partners and facilitate collaboration between the Project and other relevant programmes, projects and initiatives in the catchment and region ▪ Advise on issues and problems arising during project implementation;
		Executing Entity (EE) Partners
1	Water Aid Uganda (WAU)	▪ Overall lead of project management, supervision, monitoring and reporting to the NIE ▪ Overall lead entity for execution of the WASH aspects of the project ▪ Provide technical guidance on implementation of WASH interventions ▪ Consolidation of project results ▪ Approval of quarterly and annual work plans and budgets from partner EE as well as their progress reports ▪ Ensure compliance of project interventions with other national frameworks
2	Directorate of Water Resources Management (DWRM)	▪ Overall oversight for interventions of the WRI, KWMZ and EUWSDF ▪ Responsible for implementation of interventions on catchment management ▪ Approval of annual, quarterly and progress work plans and budgets from the WRI, KWMZ and EUWSDF ▪ Ensure quarterly and annual reporting of project results from the WRI, KWMZ and EUWSDF ▪ Harmonise and assist WAU in quarterly and annual reporting to NIE ▪ Ensure project reporting for Government of Uganda standards are adhered to by EE
3	Water Resources institute (WRI)	• Undertake capacity building interventions at national and regional levels in coordination with DWRM and WAU • Prepare and submit quarterly, annual work plans and budgets to DWRM • Provide quarterly and progress reporting to DWRM on capacity building interventions at national and regional levels
4	Kyoga Water Management Zone (KWMZ)	• Undertake catchment protection and management interventions at national and regional levels in coordination with DWRM and WAU • Prepare and submit quarterly, annual work plans and budgets to DWRM • Provide quarterly and progress reporting to DWRM on catchment protection and management interventions at local level
5	Eastern Umbrella Water and Sanitation (EUWS)	• Undertake WASH interventions at national and regional levels in coordination with DWRM and WAU • Prepare and submit quarterly, annual work plans and budgets to DWRM • Provide quarterly and progress reporting to DWRM on WASH interventions at local level
6	Water and Sanitation Development Facility (WSDF-East)	• Responsible for water supply and maintenance • Prepare and submit quarterly, annual work plans and budgets to DWRM • Provide quarterly and progress reporting to DWRM on WASH interventions at local level
7	Uganda Women Network	• Provide strategic guidance on gender and capacity building to WRI, KWMZ and EUWSDF • Ensure considerations in planning, implementation, monitoring and reporting by partner EE of the project. • Prepare and submit quarterly, annual work plans and budgets to WAU

		• Prepare and submit quarterly, annual and progress reports on gender considerations on respective interventions to WAU
8	District Local Governments	• Undertake the mobilisation of project beneficiaries in the selected project sites • Participate in monitoring project interventions Prepare quarterly and progress reports on project implementation
9	UNMA	• Provide technical guidance on the implementation of interventions on the Flood Early Warning systems • Prepare quarterly and annual progress and monitoring of FEWS in and outside the project areas.
10	Cultural institutions	• Support project implementation in mobilisation and sensitization of communities

B. Financial and risk management measures

188. Generally, Mpologoma is a big catchment covering an area of approximately 7,862 km^2 of land area and 1,127 km^2 of water area[40]. It comprises 16 districts each with a local government structure from the district, to the Sub County and lower local levels up to the community levels. With such a structure, it is inevitable that the political and administrative related risks are likely to emerge during the implementation of such a project. Some of the likely risks that would impact on project financial resources and risk management measures are presented in Table 10.

Table 10: Project financial risks and management measures

Risk	Rating	Risk Mitigation Measure
Political risks		
Lack of political will to implement the project at national and local levels	Low	• National, regional and Local Government Authorities have all demonstrated commitment to the project • Undertaking comprehensive and rigorous stakeholder consultations at Full proposal development stage • Undertaking regular consultations and updates with involvement and reporting with relevant institutions during project implementation • The implementing entity and Executing Entity have previously implemented other projects in and nearby the proposed sites hence are trusted amongst government and local leaders and other institutions.
Low collaboration and conflicts over project involvement amongst the 16 district local governments	Low	• The 16 districts will be clustered for participating in different project activities depending on whether upstream, mid-stream or downstream. • The district political and technical leadership will be involved from the baseline survey stage, to national and regional consultations. • Project updates and briefs will be regularly provided to the district political and technical leadership through a focal office at the district.
Limited participation in project interventions by communities in different areas	Low	• The project plans awareness raising meetings at local community level to ensure that communities participate actively in project interventions • The project targets to involve community leaders and catchment and sub catchment committee members to lead project Managers and other partners to project beneficiaries at community level i.e. the farmers and pastoralists. • Also the Community Based Organizations (CBO) operating in proposed project sites will be sensitized on the project activities for implementation
Social risks		
Ineffective communication of project goal and objectives and targets	Low	• Ensure that translation from English to local languages is done at local meetings • Ensure that project staff recruited to implement the project at community level understand and are fluent in the local languages • Involve community facilitators /or local leaders in organizing and facilitating the local meetings.
Economic risks		
Project financial management and accountability	Medium	• Strict adherence to separation of roles in financial management and audit

[40] MWE, 2018. Mpologoma catchment management plan

		• Provide financial management and audit support under the Monitoring and evaluation costs of the project.
Unstable/fluctuations in US dollar currency that may affect project results	Medium	• MWE as the implementing Partner will monitor the economic situation and seek for support from Adaptation Fund, address/adjust accordingly in agreement with the executing entity
Environmental risks		
Adverse weather effects or extreme weather events	Medium	• Ensure that climate information is communicated and correctly interpreted for local communities in and outside project sites
Emergence of pandemics		• Ensure close coordination with relevant Ministries such as Ministry of health and district authorities to effectively communicate and address the associated health risks by project management, staff and other stakeholders.
Technical risks		
Poor monitoring and evaluation and delayed delivery of outputs	Low	• Develop a detailed participatory M&E framework with the key project partners • Conduct regular follow ups and timely continuous monitoring and evaluation
Limited capacity of communities and other stakeholders to undertake integrated flood control and landslide management measures in project sites	Medium	• Conduct capacity building sessions in meetings and workshops as indicated in the project narrative • Undertake training sessions for different stakeholders as indicated in components 1 and 2. Link the targeted project beneficiaries to project demonstration sites and implement the learning and exchange visits

C. Environmental and social risk management

189. The Environmental and Social Policy of the Adaptation Fund requires that projects /programme activities comply with environmental and social safeguard standards to enhance sustainable development benefits and avoid unnecessary harm to the environment and affected communities. This requirement is vital in avoiding, minimizing or mitigating the negative impacts that if not mitigated would endanger communities and other stakeholders and ecosystems. Implementing entities are required by the ESP of the Adaptation Fund to screen project interventions for potential environment and social risks and impacts. The E&S policy categorizes project activities by nature of adverse impacts that may be caused. For the proposed project, impacts levels are evaluated to be generally low or medium risks, hence the project will be under Category "B". This implies that the project interventions have minimal impacts that are limited to the project area. Such small-scale impacts can be easily managed through good environmental and social management practices.

190. The Ministry of Water and Environment - National Implementing Entity (NIE) has developed the Environmental, Social and Gender Risk Assessment Guidelines (ESGG) 2021. Further to the Environmental and Social Management Framework (2018) is the Environment and Social Management Plan (ESMP) within the Environmental and Social Management Framework (ESMF) (Annex 6) and Gender Action Plan (Annex 7) that will guide the management of environmental, social and gender risks. Table 6 below presents the environmental and social management.

Table 11: Identified risks and risk management measures

AF ES Principles checklist	Identified Risks	Level	Mitigation measures
1. Compliance with the Law	Project activities will comply with all the relevant National and laws, regulations and standards as well as the relevant international laws and regulations. Project activities will not generate risks.	None	The identified project activities do no need mitigation measures since they generate no risks.
2. Access and Equity	• Vulnerable groups including the elderly, youth and women likely to miss out of the project activities and accessing benefits due to dominance by men and other well positioned decision makers • Access and ownership of land and other related resources including finance is limited for Women, youth and other vulnerable groups and this may limit their participation, opportunities and benefits	Low	• Detailed stakeholder mapping, consultations and assessments have been undertaken during the proposal development stage ensuring that all stakeholders including the elderly, youth, refuges, WDs and women have been targeted participate and benefit from project interventions such as capacity building, improved availability of water, improved crop and pasture varieties as well

	from project activities that need reasonable amounts of money to start up like IGAs. • Elite capture and bias in allocating project benefits • Lack of interest to participate in project activities		as nature-based enterprises and access to markets equally without discrimination • Develop a beneficiaries selection criteria taking care of all categories of people including women youth, elderly, PLWDs and other vulnerable and marginalized groups • For groups with limited access to land they will be encouraged and targeted for activities that do not need a lot of land such as fecal sludge management among others • Project Grievance Redress Mechanism has been developed to handle any reported issues of inequality and lack of access to project benefits • Close monitoring of the project beneficiaries to assure equal access of men; women, youth and the most vulnerable
3. Marginalized and vulnerable groups	• Marginalized and Vulnerable groups including the elderly, youth and women likely to miss out of the project activities and accessing benefits due to dominance by men and other well positioned decision makers who may take up all the available project opportunities • Limited or no access to land other resources may affect the ability of the marginalized and vulnerable groups to participate and benefit from project activities • Limited knowledge and awareness about the project about the project, its activities and benefits	Low	• Marginalized and vulnerable groups will be deliberately targeted during project design to ensure that they participate and benefit from project activities. A beneficiaries' selection criterion with positive bias towards these groups will be developed. • Marginalized/ vulnerable groups and people who do not own land will be given priority for access to other project activities such as IGAs that do not require a lot of land to undertake • Conduct awareness raising campaigns about the project and possible benefits targeting all categories of people using broad cast media and IEC materials in local languages to ensure that all the target communities understand • Project team and partners will also closely monitor the targeting of all project beneficiaries to ensure equal access of men, women youth and the most vulnerable
4. Human rights	Most of the project activities do not generate risks related to human rights. However, for activities that will involve construction and for IGAs that may require additional labour, there may be issues arising from treatment of workers by the project Contractors	Low	• Contractors and other employees shall be sensitized and obliged to observe the human rights of their workers as well as the guidance provided by the employment Act, Workers' compensation Act, Occupational health and safety Act and other relevant local and internationals laws and regulations • Project Grievance Redress Mechanism will be used to resolve any human right issues that may arise
5. Gender Equality and Women empowerment	• Limited participation of Women and youth groups in project activities due to low representation and lack of land and other resources • Limited benefits accruing to Women, youth and disadvantaged groups	Medium	• Gender Assessment and Action Plan has been developed to ensure that gender issues and women are meaningfully integrated and engaged in project activities and realize an equitable share of project benefits • The project has been intentionally designed to emphasize gender equity and women

			empowerment through equal participation of both men and women in project activities e.g., activities including capacity building in climate smart WASH technologies and faecal sludge management will target women • Women will be empowered at the start and during project implementation in decision making through having representation on group management committees for the project investments and enterprises • The project monitoring plan as well as the Grievance mechanism shall incorporate gender equity and women empowerment issues such that they are closely followed during project implementation • Project Reports to emphasize Gender disaggregated data • Communication and sensitization of the population on the gender issues to ensure gender parity in all project activities • Project Grievance Redress Mechanism to handle all issues arising during project implementation
6. Core labour rights	• Activities under component 2 involving construction or rehabilitation will require hiring of additional labour and risks involved such as accidents and occupational hazards during the project preparation and implementation • Violation of existing labour laws and conventions including late or no payments, harsh working conditions and exploitation of workers, child labour, discrimination based on sex among others and general non- compliance with the National and international labour legislations and laws • Transmission of sexually transmitted diseases like HIV/AIDS especially during construction of Water infrastructure due to movement of workers from one area to another.	Medium	• Contractors for construction works will have site health and safety as well as emergency plans including risk assessment procedures and signage to reduce accidents • Contractors will sensitize workers on occupational health and safety procedures, employment and Workers' compensation Act to ensure that they meet the national and international standards, laws and guidelines • Provide workers with protective clothing (nose and mouth masks, ear muffs, overalls, industrial boots and gloves) and helmets as applicable and training them in their usage • Construction sites will have trained first Aiders and adequate first Aid Boxes to handle site emergencies • Workers will be paid Salaries in time and in line with the best common practices in the districts and villages; • Regular monitoring of all worksites by the PMU and District Environment officers to ensure compliance with the applicable national and international laws and standards • Contracts under this project shall have clear clauses on compliance with the National labour laws and regulations as well as requirements relating to the safety of workers in accordance with ILO Convention in so far as they are applicable to the project. • Positive discrimination in favor of women will be used to provide fair and equal

			opportunity to women who seek employment as labour and gain from wages earned under this project • Sensitize local communities and workers on the dangers of HIV/AIDs and provide free condoms.
7. Indigenous people	There is a risk that traditional natural resource use and land use rights are undermined	Low	A detailed analysis of resource use rights and land use rights particularly with regards to water, wetland and forest resources will be undertaken in the initial project phase
8. Involuntary resettlement	Project activities will not generate risks related to involuntary resettlement protected	he	The project will closely monitor particularly those people who have encroached on protected natural resources whose livelihood source may be affected by restoration activities to ensure that they have access to the revolving fund and are involved in income generating activities
9. Protection of natural habitats	• Risk of clearance of vegetation from sites for construction of WASH technologies may affect natural habitats • Destruction of vegetation and compaction of soils by labour concentration of labourers and compaction of soil by construction equipment	•	• No construction of WASH technologies in sensitive habitats • Vegetation clearance will be limited in scope as much as possible to only those areas that are necessary to enable construction to limit the environmental foot print. • Construction works will be done in the shortest time possible to limit environmental foot print of the labourers and machinery • Avoid unnecessary movement of machinery • Follow-up the implementation of all activities related to the protection and management of ecosystems and natural habitats; • Sensitization sessions to local communities on good environmental practices and protection of natural habitats • Clearly demarcating the boundaries of protected areas e.g., forests, wetlands, riverbanks within the project area
10. Conservation of biological diversity	• Vegetation clearance for establishment of WASH technologies will result in loss of biodiversity on those sites • Opening up of new lands for tree planting initiatives may also lead to vegetation loss	Medium	• Vegetation clearance should be minimized as much as possible. Only the areas required for siting the infrastructure facilities should be cleared. • Selection of proposed construction site areas should try as much as possible to avoid sensitive habitats that have high diversity of indigenous plants; • Offset planting should be undertaken where sizeable areas of biodiversity are to be cleared • Opening up of virgin lands for reafforestation should be discouraged where possible and improved land management practices promoted to improve the productivity of the existing agricultural lands.

			• Standards should be followed and relevant technical advice sought to ensure that trees species introduced are not invasive.
11. Climate change	e project activities do not generate risks related to climate change	None	• The project activities do not generate risks related to climate change so there are no mitigation measures to plan
12. Pollution prevention and resource efficiency	• There is potential of water contamination in the WASH technologies and storage reservoirs • Over use or un regulated usage of the water resources	Low	• Strengthen water resources management committees to ensure regular maintenance of water sources reducing changes of contamination • Regular quality control checks and monitoring to detect and address any sources of pollution and contamination. • Sensitization on water source protection • Regulated use of water resources through enactment of bylaws
13. Public Health	• Ponding from flood control structures may act breeding grounds for mosquitoes leading to increase in malaria cases • High concentration of workers during construction will increase the risk of spread of sexually transmitted diseases (STD) especially that most vulnerable members of communities	Medium	• Sensitize workers and community members on HIV/AIDS prevention and control and provide • Give priority to workers in the project sites to avoid migration of workers • Ensure fencing is done around excavations to ensure safety of people and animals
14. Physical and cultural heritage	ere is a possibility of encroachment of Mt. Elgon National Park and Mpologoma wetlands or other forest reserves either accidentally or intentionally especially for income generating activities purposed that may endanger cultural resources	Low	• Create awareness on the need to conserve cultural resources • Clearly demarcate boundaries of the park, wetland and the forest reserves within the project area.
15. Soil and land conservation	Construction activities may lead to soil exposure, erosion and compaction	Low	• Ensuring all exposed areas during construction are restored using grass or trees • Training project beneficiaries involved in agriculture activities/ enterprises in sustainable soil and water conservation measures

Arrangement and implementation responsibilities for the proposed mitigation measures

191. The Implementing Entity and executing entity will oversee and coordinate the implementation of all mitigation measures proposed in the ESMP. The District and Sub-County Political and Technical leadership will take lead in the monitoring of the ESMP implementation at Local levels. At this stage, a broader view of Environmental and Social Management Plan (ESMP) for the proposed program has been developed, but ESMP for each intervention will be formulated during the detail design for each sub-project. Key institutions and officers that will be involved in the implementation of this ESMP are presented in Table 7 below.

Table 12: Main institutions and officers that will be involved in the implementation of the ESMP

Institution	Mandate
National Environment Management Authority (NEMA)	Oversee, coordinate and supervise environmental management. NEMA's overall goal is to promote sound environmental management and prudent use of natural resources in Uganda.
Ministry of Water and Environment (MWE)	The Ministry, through its Directorate of Water Resources Management (DWRM) and Environmental Affairs will monitor all activities as well as providing technical backstopping and capacity building to field officers.

Water Aid	Supervise and monitor the overall implementation of ESMF, Facilitate and provide training for and other institutions' environmental and social specialists. Provide assistance during environmental and social screening and monitoring processes
Ministry of Gender, Labour and Social Development (MGLSD)	The objectives of the MGLSD are to minimize Occupational Accidents, Diseases and Injuries. Promote good Health of the Worker at the Workplace promote good Working Conditions, promote awareness of Occupational Safety and Health among Workers, Employers and the General Public through Training through its department of Occupational Health and Safety (OHS).
Local Government Administration Structures	District and Local Council Administrations (LC1-5) are stakeholders in the Project and will be involved in implementation of the project ESMP as well as subsequent monitoring. They will also take part in grievance mechanisms and sensitization of communities especially HIV/AIDS aspects.
District Local Governments represented by District, Natural Resources, Agriculture Water, Community, and Agriculture Officers	The Ministry if Water & Environment/ DWRM in collaboration with the respective Local Governments will be primarily responsible for program planning, management and overall coordination within the District and Sub-counties. The assigned environmental and social personnel will also be responsible in conducting environmental and social screening, monitoring and following up of the implementation of the proposed mitigation measures.
District Environment Officer (DEOs)	DEOs are expected to review and approve ESIA documents, and oversee the Environment and social aspects of the Project. They will carry out spot checks on programs to confirm that environmental and social screening and environmental management plans are properly done. They will also advise the implementers including contractors in regard to impacts beyond the generic issues, determining if the mitigation measures are acceptable or program redesign is required.
Catchment Management committees	Catchment management committees will act on behalf of the community in planning and managing of natural resources management activities and water resources management activities within the catchment. Committees will be responsible for facilitating participatory planning and ensuring that implementation of mitigation measures are carried out.
Beneficiary communities	Being the primary beneficiaries of the project, the community will be made to participate fully in all aspects of the program including project identification, preparation, implementation, operation and maintenance.
Construction contractors	Implement the ESMP for their specific sub-projects

Grievance Redress Mechanism

192. This Project GRM has been developed in line with the Ministry of Water and Environment – Grievance Redress Mechanism 2018,the eight internationally accepted principles for the design of grievance mechanisms as elaborated by the UN (UN Human Rights Council, 2011) that include Legitimate, Accessible, Predictable, Equitable, and Transparent and Rights compatible, enabling continuous learning and engagement and dialogue as well as the Ad Hoc Complaint Handling Mechanism (ACHM) of the adaptation fund. The purpose of this Grievance Redress Mechanism is to provide people that shall be affected by the Project activities with an independent mechanism through which their complaints and issues can be addressed. It is intended to resolve problems in an efficient, timely and cost-effective manner and in a cordial environment with the participation of all stakeholders including affected parties. The GRM shall consist of Grievance Redress Committees at three levels who shall aim to adopt participatory and conciliatory approaches as far as possible to ensure that practical solutions can be found through dispute prevention, dispute management and dispute resolution.
193. First Level of Redress: Community Level - targets the communities and project beneficiaries and will be comprised of seven people. At every community unit, three community leaders shall be appointed including a Representative of a local CBO or NGO/ Religious Leader and trained to handle complaints and work under the supervision of the Sub-County Community Development Officer also as a member of this committee as well as the Project/ Programme Manager, contractor and supervisor. All project beneficiaries shall be informed of the appointed recipients of complaints. This GRC shall be obligated to submit a quarterly report of registered complaints to the Second Level Redress: District Level committee for onward transmission to the National Implementing Entity.
194. Second Level of Redress: District Level - targets the project implementers, executers, communities and project beneficiaries and their related institutions. At every district implementation level, a grievance handling committee shall be comprised of

seven people appointed and trained to handle complaints and work under the supervision of the Chief Administrative Officer and will include District Environment Officer and district Community Development office. All stakeholders shall be informed of the existence of the grievance committee. If the complainant is not satisfied with the recommendation, they shall be advised to report to the third level of redress.

195. Third Level of Redress: National Level - targets the funding agencies, project implementers, executing entities, communities, project beneficiaries and their related institutions. At the national implementation level, a grievance handling committee of seven members shall be appointed and trained to handle complaints. Ministry of Water and Environment as the National Implementing Entity shall appoint a Grievance Handling Officer to operationalize the grievance handling processes. This committee shall work under the supervision of the Grievance Handling Officer. All stakeholders shall be informed of the existence of the grievance committee. If the complainant is not satisfied with the recommendation, they shall be advised to seek other recourse measures, such as the Courts of Law. The National GRM committee shall be obligated to do a quarterly report of registered complaints, and submit it to the National Implementing Entity Secretariat.

D. Monitoring and evaluation arrangements and Budget

196. The Monitoring and Evaluation (M&E) arrangements are aimed at providing regular updates on the progress of implementation of activities in terms of in-put delivery, work schedules and planned outputs/targets. It will involve routine information gathering, analysis and reporting to partners, executing institutions, communities and other stakeholders.

197. Project Monitoring and Evaluation will be carried out following the MWE standards. Accordingly, quarterly and annual performance reports will be prepared. The Adaptation Fund's Results Tracker will be used in the reporting exercise. To assess progress of activities and lesson learning, there will be independent mid-term review (MTR) and final project evaluation. The Ethics and Finance Committee (EFC) of the Adaptation Fund is the responsible committee for ensuring that projects comply with Monitoring and Evaluation. It is a requirement by the Adaptation Fund board for projects under implementation to submit annual status reports to EFC and ensuring that the Executing Entities have the necessary capacity to undertake Monitoring and Evaluation exercise.

198. The MWE as an implementing entity has the necessary capacity to undertake M&E activities. The Ministry has designated officers within its structures to monitor field activities and ensure that the project targets are on track. The MWE will assign a project manager who will be responsible for ensuring that the project interventions are implemented and are on track as proposed in the work plan. The MWE will ensure that timely progress reports are prepared and submitted to the Adaptation Fund. These will indicate status of project implementation. The reports will include: Progress based on the submitted project results framework, Lessons learned and good practices emanating from project interventions. The project has designed an M&E work plan and budget (Table 12) detailed the M&E activity to be performed and the corresponding budget are provided in Table 12.

199. Midterm and end of the project evaluation will be conducted in the second and last year of the project and will enable assessment of the outputs and outcome of the project, by comparing the situation before and after the interventions, while also providing for attribution to the resources invested by the project. The evaluation will apply the same methodology as the baseline, combined with additional qualitative FDGs and key informant interviews (KIIs) to measure proxy changes at the population level in terms benefits and environmental messages reached to target populations. Multiple information sources will be utilized, and information from these sources will be triangulated, to provide contextual information relevant to the key evaluation questions.

Routine Monitoring & Reflections

200. Activity and budget tracking and monitoring of the project will be undertaken monthly by the Project Manager supervised through the Head of Programmes. Implementation achievements will be compared with planned activity targets, and budgets compared with actual spent.

201. Output and Outcome monitoring will be undertaken according to the M&E Plan, which will be further refined in consultation with the MWE and the District Environment Team. Oversight of monitoring data will be with the District Environment Officer(s) (DEO), Supervised by the WAU Quality Assurance Technical Lead who will also provide capacity building to partners as necessary in order to facilitate successful monitoring. At the inception workshop, the indicators will be reviewed together with the District Technical Teams, and responsibility and timelines for data collection, analysis, and sharing will be allocated and documented. Existing monitoring tools of WAU and MWE will be reviewed and adapted as necessary to ensure alignment with the data requirements of the M&E framework or will be collaboratively developed.

202. Monitoring data will be entered into a purposefully created project level database(s) and progress on each indicator up dated in the Water Aid MIS the Project Center.

203. The Adaptation Fund Board requires that Implementing Entities submit their annual status reports on projects and programmes under their implementation to the Ethics and Finance Committee (EFC) of the Adaptation Fund. The EFC with support of the Adaptation Fund Secretariat monitors the Adaptation Fund portfolio of projects and programmes.

Implementing Entities therefore, ensure that the capacity to measure and monitor results of Executing Entities at the country-level exists.

204. Based on this background, MWE as an Implementing Entity for the proposed project will supervise all the M&E activities of the project. MWE will also prepare Annual Project Reports and submit to the Adaptation Fund to monitor progress. The reporting will focus on the project results framework by highlighting the following aspects: Progress made towards project objectives and project outcomes - each with indicators, baseline data, mid and end-of-project targets and milestones cumulatively. Project outputs delivered per project outcome (annual); Lessons learned/good practices; Annual expenditure reports; as well as reporting on project risk management.

205. As part of generation of lessons and best practices under output 3.1.1: Good practices and lessons learned on WASH documented and disseminated, quarterly learning and accountability meetings with project stakeholders will be facilitated by the project team. Key learnings and best practices arising from these meetings will be documented by the Project Manager and analyzed together with the Quality Assurance Technical Lead and Communications Specialist and shared in the different forums. The detailed M&E budget and work plan is presented in Table 11.

Table 13: Project monitoring and evaluation arrangements and budget

M&E activity	Responsible parties	Budget (USD)	Time frame															Notes
			2022	2023				2024				2025				2026		
			4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	
Detailed studies: ESMP, Gender analysis and social, economic and environmental baseline study and other status assessments	Project Manager, WAU/ Consultants	70,000																	Status assessments/baselines to be undertaken at project inception to facilitate tracking changes And/or impact
Regular/ routine monitoring	Project Manager, WAU	80,000																	Will be undertaken quarterly
Mid-term evaluation	Project Manager, WAU and MWE	30,000																	Will be done after two years
Final evaluation	Project Manager, WAU/MWE	40,000																	Will be done at least two months before the end of the Project
Terminal project report	Project Manager, WAU/MWE	30,000																	Will be submitted at the end of the Project
Final Audit	MWE	50,000																	Will be done at least two months before the end of the Project
Total M&E Costs		**300,000**																	

E. Results framework with milestones, targets and indicators

Result	Indicators	Baseline	Milestones (After 2 years)	End of Project Targets	Means of Verification	Responsible Parties	Risks and Assumptions
Objective: To increase the resilience of communities to climate change risks of floods and landslides through sustainable community access to water, sanitation and hygiene services and integrated catchment management measures in Mpologoma catchment.	• Proportion (%) of beneficiaries/households and users of FEW information and WASH technologies • Proportion (%) of beneficiary households engaged in adaptation measures against floods and landslides • Proportion (%) of community members with increased incomes due from controlled floods and landslides.	(To be determined at baselines)	• Number of beneficiaries/households and users of WASH technologies (to be determined) • Number of beneficiary communities undertaking adaptation measures (to be determined) • At least 20% of beneficiary community/household members with increased incomes.	Number of beneficiaries/households and users of WASH technologies (to be determined) Number of beneficiary community members undertaking adaptation measures (to be determined) At least 60% of beneficiary community members/households with increased incomes.	• Project implementation reports • Field visits • M&E reports • Interviews with community leaders/ or beneficiary members of communities/households	• MWE, • WRI, WAU and Focal persons in MWE and WAU	• Conflicts over access and use of water and land resources in the catchment • Availability of adequate security so as to enable project implementation (Assumption) • Political will to support project activities at regional, national and local levels
Component 1: Strengthening the capacity of institutional catchment management framework for WASH planning, designing, implementation and monitoring							
Outcome 1.1 Increased use of effective and efficient Flood Early Warning Systems (FEWS) and climate resilient WASH technologies by stakeholders	• Proportion of community households using FEWS and WASH technologies	There are inadequate and limited Flood Early Warning Systems as well as limited and inadequate climate proof WASH technologies in the catchment. Early Warning information rarely received and utilised	At least 30% of targeted beneficiaries access and utilise EW information and climate resilient WASH	At least 70% of targeted beneficiaries access and utilise EW information and climate resilient WASH	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and local leaders	• MWE, • WRI, and • Focal persons in MWE and WAU	• EW systems are functional • Project beneficiaries access EW information timely • Project beneficiaries embrace and utilize climate resilient WASH technologies
Result	**Indicators**	**Baseline**	**Milestones (After 2 years)**	**End of Project Targets**	**Means of Verification**	**Responsible Parties**	**Risks and Assumptions**

Output 1.1.1 **E**fficient and effective FEWS and climate resilient WASH technologies developed/in place	• FEWS status report • Climate resilient WASH application status report • Number of weather stations set up and upgraded • Number of times FEW information has been released by mandated institutions • Number of households utilizing FEW and climate resilient WASH technologies • Guidelines for integrated floods and WASH planning, design, implementation and monitoring	• Inadequate and limited FEWS and WASH technologies exist in the catchment • EW information and climate resilient WASH information rarely received and utilised	• 1 FEWS status report • 1 Climate resilient WASH application status report • 6 weather stations set up and upgraded • FEW information released by mandated institutions 3 times every quarter (48) times • At least 30% of targeted households utilizing FEW and climate resilient WASH technologies • 1 Copy of Guidelines for integrated floods and WASH planning, design, implementation and monitoring	• 1 FEWS status report • 1 Climate resilient WASH application status report • 12 weather stations set up and upgraded • FEW information released by mandated institutions 4 times per quarter (64) times • At least 60% of targeted f households utilizing FEW and climate resilient WASH technologies • 1 Copy of Guidelines for integrated floods and WASH planning, design, implementation and monitoring	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	Timely release of funds for interventions
Result	**Indicators**	**Baseline**	**Milestones (After 2 years)**	**End of Project Targets**	**Means of Verification**	**Responsible Parties**	**Risks and Assumptions**
Outcome 1.2 Improved Capacity of key stakeholders at national, district and local levels for FEWS, WASH planning, designing, implementation and monitoring	• Proportion (%) of staff in targeted institutions at national, regional, district and local level with enhanced capacity in WASH planning, designing, implementation and monitoring • Proportion (%) of households/community members with knowledge and skills in climate resilient WASH planning, designing, implementation and monitoring and technologies	• Inadequate capacity of institutions, community leaders and community members and/or households to plan, design and undertake climate resilient WASH measures	• Proportion (%) of staff in targeted institutions trained (to be determined) • At least 30% of targeted community members trained	• Proportion (%) of staff in targeted institutions trained (to be determined) • At least 80% of targeted community members trained	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	

Output 1.2.1 Capacity to plan, design, implement and monitor Climate adaptive WASH among stakeholders at different levels improved	• Number of Capacity needs assessment report • Number of Copies of capacity building plans, • Number Copies of training manuals/guidelines • Number of stakeholders trained • Number of exchange learning visits conducted • Number of stakeholders applying knowledge and skills/engaged in climate adaptive WASH measures • Number of follow up and supervision visits undertaken	• Stakeholders at different levels have inadequate knowledge and skills to undertake Climate adaptive WASH	• Capacity needs assessment report • 3 Copies of capacity building plans • 3 Copies of training manuals • At least 30% of targeted stakeholders trained • 9 Exchange learning visits conducted • At least 30% of stakeholders trained are engaged in climate adaptive WASH measures • At least 30% of follow up and supervision visits undertaken	• Capacity needs assessment report • 3 Copies of capacity building plans • 3 Copies of training manuals • At least 80% of targeted stakeholders trained • 18 Exchange learning visits conducted • At least 80% of stakeholders trained are engaged in climate adaptive WASH measures • At least 80% of follow up and supervision visits undertaken	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	
Output 1.2.2 Institutional linkages and partnerships for WASH information utilisation and review established/improved	• Number of Functional frameworks for resilient WASH information utilisation and review at different levels • Number of governance CMOs or SCMOs with WASH integrated • Number of forums and platform events on WASH organized for information • Number of partnership agreements or MOUs reviewed or developed • Number of inter-ministerial and inter-sectoral WASH events supported and held	• The existing frameworks are not fully utilized to undertake climate resilient WASH measures. In some areas partnerships and coordination mechanisms are conspicuously lacking or weak and dysfunctional. Ministries and sectors such as water and environment, health and education undertake and communicate WASH information separately and disjointed to the same communities.	• At least 3 Functional frameworks for WASH established • At least 3 governance CMOs or SCMOs with WASH are functional • At least 6 press releases held • At least 2, partnership agreements/MOUs, and 2 forum/platform developed • At least 3 inter-ministerial and inter-sectoral WASH events held	• At least 9 Functional frameworks for WASH established • At least 9 governance CMOs or SCMOs with WASH are functional • At least 12 press releases held • At least 6, partnership agreements/MOUs, and 3 forum/platform developed • At least 3 inter-ministerial and inter-sectoral WASH events held	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	

Result	Indicators	Baseline	Milestones (After 2 years)	End of Project Targets	Means of Verification	Responsible Parties	Risks and Assumptions
Component 2: Facilitating communities to undertake adaptation actions for climate resilient WASH that reinforce community resilience against floods and landslides							
Outcome 2.1: Increased uptake and use of climate-smart WASH technologies	• Proportion (%) of community members/households undertaking climate-smart WASH technologies • Proportion (%) of quality water points/sources due to erosion, floods, landslides occurrences	There are limited opportunities and options for undertaking climate-smart WASH measures among the vulnerable community members.	• At least 30% of community members/households are undertaking climate-smart WASH technologies	• At least 60% of community members/households are undertaking climate-smart WASH technologies	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and • Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	
Output 2.1.1 Efficient and sustainable WASH technologies demonstrated	• A KAP report on sustainable WASH technologies • Number of sustainable WASH demonstration sites established • Number of training sessions conducted/hosted	WASH demonstration sites are non-existent in the catchment. Model learning and cross learning continue to be limited thereby aggravating vulnerability of populations and ecosystems to floods and landslides.	• A draft KAP report on sustainable WASH technologies • At least 1 functional demonstration site • At least 2 WASH technologies demonstrated per sub-catchment • At least 18 training sessions hosted per demonstration site	• A final comprehensive KAP report on sustainable WASH technologies • 3 functional demonstration sites • At least 5 WASH technologies demonstrated per sub-catchment • At least 36 training sessions hosted per demonstration site	• Project implementation reports • Field visits • M&E reports terviews with Catchment Management governance structures and • Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	

Output 2.1.2: Adaptive catchment protection measures promoted	• A water point and source protection assessment report • Number of source points established • Number of source points protected • Number of community groups undertaking source protection measures • Number of hectares mapped • Number of community awareness workshops held • Number of hectares restored/rehabilitated • Number of sensitization meetings and workshops on revolving fund held • Number of community groups trained and prepared to access the revolving fund • Number of SACCOs branches formed and managing the revolving fund. • Number of community members benefiting from the revolving fund • Rates of return of the revolving fund	The status of water points and source protection situation are not known. communities are constrained by low water deliveries/ supplies, contamination /pollution and limited knowledge in management of water points. There is limited awareness on source protection technologies. Degraded ecosystems are not checking floods and landslides thereby aiding erosion and contributing to pollution and contamination of water resources in the catchment There is no revolving fund solely focused on natural resources management (IWRM and CC adaptation	• A water point and source protection assessment report • At least 6 source points established per sub-catchment • At least 6 source points protected • At least 8 community groups undertaking source protection measures • 30 hectares of degraded ecosystems mapped • 13 Community workshops held • 30 hectares of degraded ecosystems restored/rehabilitated • At least 3 community groups per sub-catchment) trained • At least 250 HH per sub-catchment are accessing the revolving fund • About 60% rates of return on investment	• A water point and source protection assessment report • At least 12 source points established per sub-catchment • At least 12 source points protected • At least 3 water well/spring/oasis protected • At least 12 community groups undertaking source protection measures • 60 hectares of degraded ecosystems mapped • 14 community workshops held • 30 hectares of degraded ecosystems restored/rehabilitated • At least 6 community groups per sub-catchment) trained • At least 500 HH per sub-catchment are accessing the revolving fund • About 80% rates of return on investment	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and • Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	

Output 2.1.3 Adaptive flood control and landslide management measures (including soil conservation, erosion control etc.) promoted	• Number of flood control structures constructed • Number of landslide management structures constructed • Number of domestic rain water harvesting facilities constructed • Number of community members/ households undertaking flood and landslide management measures	Although some floods and landslide management measures are practiced by communities, their knowledge and skills on adaptive landscape flood and landslide management measures is limited.	• Annex 5 units for flood control constructed per sub-catchment • At least 24 units for landslide management constructed per sub-catchment • At least 36 units of domestic rain water harvesting facilities constructed • At least 30% of community members/ households undertaking flood and landslide management measures.	• At least 48 units for flood control constructed per sub-catchment • At least 48 units for landslide management constructed per sub-catchment • At least 72 units of domestic rain water harvesting facilities constructed • At least 80% of community members/ households undertaking flood and landslide management measures.	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and • Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	
Outcome 2.2 Uptake and usage of concrete adaptation actions and WASH measures increased	• Proportion (%) of community households undertaking concrete adaptation actions and WASH measures • Proportion of (%) of community households with improved alternative livelihoods	There are limited opportunities and options for undertaking climate resilient WASH actions for communities vulnerable to floods and landslides	• At least 30% of community members and households are undertaking climate resilient WASH actions • At least 30% of households and community members have improved alternative livelihoods	• At least 70% of community members and households are undertaking climate resilient WASH actions • At least 70% of households and community members have improved alternative livelihoods	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and • Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	
Output 2.2.1 Sanitation services in small towns and rural growth centres improved	• Number of women groups operating sanitation facilities as alternative livelihoods • Number of climate proof fecal sludge management facilities • Number of climate proof wastewater re-use and waste management facilities • Number of community training meetings • Number of behaviour change awareness meetings in communities, schools and healthcare centres	Sanitation facilities in emerging small towns and rural growth centres in the catchment are limited yet human populations therein are high and concentrated. This presents an alternative source of income to the women as the most vulnerable members of the communities in the catchment.	• At least 4 women groups operating sanitation facilities in small towns and rural growth centres • 3 climate proof fecal sludge management facilities • 18 climate proof wastewater re-use and waste management facilities • 12 Community training meetings for operators held • 48 behaviour change awareness meetings in communities, schools and health centres,	• At least 6 women groups operating sanitation facilities in small towns and rural growth centres • 36 climate proof fecal sludge management facilities • 36 climate proof wastewater re-use and waste management facilities • 24 Community training meetings for operators held • 48 behaviour change awareness meetings in communities, schools and health centres	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and • Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	

Output 2.2.2 Domestic water supply infrastructure among vulnerable communities improved	• Assessment report of climate proof water supply infrastructure • Number of domestic water tanks constructed • Number of women groups undertaking sanitation value chains • Number of infrastructural facilities reinforced water abstraction, storage and transmission	Domestic water supply infrastructure is weak, inadequate, vulnerable, and easily washed away by floods and landslides. These water supply infrastructures are not climate proof.	• Assessment report of climate proof water supply infrastructure • 4 Domestic water tanks constructed • 3 women groups undertaking sanitation value chains • Reinforce 9 water abstraction, 9 storages and 9 transmission infrastructure/ facilities	• Assessment report of climate proof water supply infrastructure • 9 Domestic water tanks constructed • 6 women groups undertaking sanitation value chains • Reinforce 9 water abstraction, 9 storages and 9 transmission infrastructure/ facilities	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and • Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	
Component 3: Enhancing knowledge management, awareness and information sharing in FEWS and climate resilient WASH approaches and technologies							
Result	**Indicators**	**Baseline**	**Milestones (After 2 years)**	**End of Project Targets**	**Means of Verification**	**Responsible Parties**	**Risks and Assumptions**
Outcome 3.1: Knowledge, awareness and information dissemination on FEWS and WASH increased	• Proportion (%) of households of targeted communities practicing climate resilient WASH measures	A small percentage of community members and households have access to adequate information and inadequate knowledge in FEWS and climate resilient WASH issues, approaches and technologies	At least 40% of the targeted actors including community members, gender and disability rights groups and policy makers are knowledgeable, access information, participate, share and disseminate information on FEWS and climate resilient WASH	At least 80% of the targeted actors including community members, gender and disability rights groups and policy makers are knowledgeable, access information, participate, share and disseminate information on FEWS and climate resilient WASH	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and • Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	Stakeholders at different levels are willing to engage with the project and each other

Output 3.1.1 Good practices and lessons learned on FEWS and WASH documented and disseminated	• Number of knowledge products e.g., documents on lessons and best practices from project interventions • Number of case studies and lessons learnt documented and shared among project beneficiaries • Number of study tours organised for cross learning • Number of influencing and lesson sharing presentations done to recognised national high level platform • Number of influencing and lesson sharing presentations to recognised Regional and Global platforms.	Information on successful cases studies documentations and experiential learning on climate resilient WASH are still limited and not readily accessible. Communities	• At least 2 publication (documents) on lessons and best practices from project interventions • At least 2 case studies /lessons on FEWS and climate resilient WASH technologies documented, packaged and shared with key stakeholders • At least 2 study tours for 3 community groups per sub-catchment organised • At least 2 national high level presentations done • At least 1 Regional and Global platform presentation done	• At least 4 publications (documents) on lessons and best practices from project interventions • At least 4 case studies /lessons learn documented, packaged and shared with key stakeholders on FEWS and climate resilient WASH • At least 3 study tours for 3 community groups per sub-catchment organised • At least 2 national high level presentations done • At least 1 Regional and Global platform presentation done	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and • Local leaders • Community groups	• MWE, • WRI, and Focal persons in MWE and WAU	Target projects are willing to share information
Output 3.1.2 FEWS and WASH information sharing platforms strengthened	• Number of meeting Platforms or fora organized jointly for gender and women rights disability groups • Number of media features (e.g., electronic and print media shows • Number of Policy engagement meetings conducted • Number of National and Sectoral plans for integrating water security and climate resilience issues into National and Sectoral Development Plans •	• Limited opportunities including platforms and forums for information sharing on resilient WASH measures • No policy engagement meetings have been conducted for the benefit of communities vulnerable to floods and landslides • The water security and climate resilience issues are not integrated in existing National and sectoral development plans •	• Minutes of 2 meetings held for information generation and sharing on WASH • Minutes of 24 meetings on policy engagement at national level • At least 2 information sharing events organized per sub-catchment • At least 90% of Development plans at district, Sub County and National levels integrate water security and climate resilience issues •	• Minutes of 2 meetings held for information generation and sharing on WASH • Minutes of 24 meetings on policy engagement at national level • At least 4information sharing events organized per sub-catchment	• Project implementation reports • Field visits • M&E reports • Interviews with Catchment Management governance structures and Local leaders	• MWE, • WRI, and Focal persons in MWE and WAU	

F. Alignment with the Results Framework Adaptation Fund

Project Objective(s)[41]	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
To increase the resilience of communities to climate change risks of floods and landslides through sustainable community access to water, sanitation and hygiene services and integrated catchment management measures in Mpologoma catchment.	portion (%) of beneficiaries/households and users of FEW information and WASH technologies	**Outcome 1:** Reduced exposure to climate-related hazards and threats	**1.** Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	**9,504,600**
	Proportion (%) of beneficiary households engaged in adaptation measures against floods and landslides	**Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**3.1**. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	
			3.2. Percentage of targeted population applying appropriate adaptation responses	
		Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	**4.1**. Responsiveness of development sector services to evolving needs from changing and variable climate	
			4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	
	Proportion (%) of community members with increased incomes due from controlled floods and landslides	**Outcome 6:** Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	**6.1** Percentage of households and communities having more secure (increased) access to livelihood assets	
			6.2. Percentage of targeted population with sustained climate-resilient livelihoods	
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
Outcome 1.1 increased use of effective and efficient Flood Early Warning Systems (FEWS) and climate resilient WASH technologies by stakeholders	Proportion of community households using FEWS and WASH technologies	**Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**3.1**. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	**486,000**
			3.2. Percentage of targeted population applying appropriate adaptation responses	
Outcome 1.2 Improved Capacity of key stakeholders at national, district and local	Proportion (%) of staff in targeted institutions at national, regional, district and local level with enhanced	**Output 2**: Strengthened capacity of national and sub-national centres and	**2.1.1**. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	**923,000**

[41] The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

levels for FEWS, WASH planning, designing, implementation and monitoring	capacity in WASH planning, designing, implementation and monitoring	networks to respond rapidly to extreme weather events		
	Proportion (%) of households/community members with knowledge and skills in climate resilient WASH planning, designing, implementation and monitoring and technologies		**2.1.2** No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
Outcome 2.1: Increased uptake and use of concrete adaptive climate-smart WASH technologies and catchment protection measures	Proportion (%) of community members/households undertaking climate-smart WASH technologies	**Output 4:** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	**4.1.1.** No. and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate variability and change (by type)	**2,833,000**
	Proportion (%) of quality water points/sources due to erosion, floods, landslides occurrences		**4.1.2.** No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)	
Outcome 2.2 Uptake and usage of concrete adaptation actions for water supply and sanitation measures increased	Proportion (%) of community households undertaking concrete adaptation actions and WASH measures	**Output 6:** Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	**6.1.1.**No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community-livelihood strategies	**3,147,000**
	Proportion of (%) of community households with improved alternative livelihoods		**6.1.2**. Type of income sources for households generated under climate change scenario	
Outcome 3.1: Knowledge, awareness and information on FEWS and WASH increased	Proportion (%) of households of targeted communities practicing climate resilient WASH measures	**Output 3:** Targeted population groups participating in adaptation and risk reduction awareness activities	**3.1.1** No. and type of risk reduction actions or strategies introduced at local level	**311,200**
			3.1.2 No. of news outlets in the local press and media that have covered the topic	

G. Detailed budget

Component/Outcome/Output/Activity	Unit cost	No. of Units	Total Budget ('000 USD)	Budget notes
COMPONENT 1: Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies			**1,409,000**	
Outcome 1.1: Increased use of effective and efficient Flood Early Warning Systems and climate resilient WASH technologies by stakeholders			**486,000**	
Output 1.1.1: Efficient and effective FEWS and climate resilient WASH technologies developed/in place			**486,000**	

Activity 1.1.1.1 Assess the status of FEWS at different levels and incorporate indigenous traditional FEWS options with modern FEW technologies	500	52	**26,000**	This study will take 45 man-days @ USD 500/day and associated costs of USD 3,500 for workshop and meetings for inception and validation of findings in the catchment.
Activity 1.1.1.2 Assess application status of Climate resilient/climate proof WASH technologies at different levels	500	52	**26,000**	This study will take 45 man-days @ USD 500/day associated costs of USD 3,500 for workshop, meetings for inception and validation of the findings In the catchment.
Activity 1.1.1.3 Support integration of FEWS and Climate-smart WASH technologies in planning, design, implementation and monitoring in national, regional, district and community level planning and development frameworks	400	120	**48,000**	Consultancy @ 60 man days spread over 6 months @USD 400 and associated costs of USD 6,000 at national, regional, district and community level meetings/workshops (i.e. USD 24,000)
Activity 1.1.1.4 Equip/upgrade selected weather stations in the catchment for timely and effective weather information	25,000	12	**300,000**	Set up 3 modern weather station @USD 40,000 and upgrade 3 other weather stations @USD 20,000 per in the upstream, midstream and downstream of the catchment.
Activity 1.1.1.4 Develop guidelines for integrated floods and WASH planning, design, implementation and monitoring	400	140	**56,000**	Consultancy @ 60 man days spread over 6 months @USD 400 and associated costs of USD 8,000 at national, regional, district and community level meetings/workshops (i.e. USD 32,000)
Activity 1.1.1.5 Popularise and disseminate the developed guidelines	5,000	6	**30,000**	This includes costs for translating and printing 150 copies of Floods and WASH Guidelines @USD 40 and conducting 2 dissemination workshops at community and district levels at USD 3,000 and USD 5,000 respectively in the 3 catchment levels i.e. Upstream, midstream and downstream.
Outcome 1.2 Improved Capacity of key stakeholders at national, district and local levels for FEWS, WASH planning, designing, implementation and monitoring			**923,000**	
Output 1.2.1: Capacity to plan, design, implement and monitor Climate adaptive WASH among stakeholders at different levels improved			**756,000**	
Activity 1.2.1.1 Undertake a WASH capacity needs assessment for national, district and local levels	400	150	**60,000**	This activity involves a study taking 60 man-days @ USD 400/day and associated costs of USD 12,000 for meetings and workshops for inception and validation of study findings per sub-catchment.
Activity 1.2.1.2 Develop a capacity-building plan and materials for different levels at national. Regional, district and community levels	400	120	**48,000**	This activity is a consultancy taking 45 man days @USD 400 and associated costs of USD 10,000 per upstream, midstream and downstream in the catchment
Activity 1.2.1.3 Train stakeholders at different levels in climate resilient WASH technologies	9,000	24	**216,000**	This activity involves quarterly training @ USD 9,000 at three catchment levels (i.e. upstream, midstream and downstream) within two years.
Activity 1.2.1.4 Facilitate learning exchange visits for WASH	20,000	18	**360,000**	This activity involves conducting learning and exchange visits @USD 20,000 per upstream, midstream and downstream at district and community levels per year for three years.
Activity 1.2.1.5 Conduct a Capacity follow up monitoring and supervision	3,000	24	**72,000**	This activity involves two community workshops and two district level workshops @USD 3,000 each per upstream, midstream and downstream in the catchment per year for two years as a follow up and supervision for training.
Output 1.2.2: Institutional linkages/partnerships for WASH information utilisation and review established/improved			**167,000**	
Activity 1.2.2.1 Establish and incorporate climate resilient WASH into governance committees in Catchment and Sub-catchment organisations	4,600	5	**23,000**	This includes costs for five (5) workshops one at the catchment level and four (4) others at upstream, midstream and downstream in the catchment @USD 4,600 for one year.
Activity 1.2.2.2 Support establishment of WASH platforms at different levels for community learning	2,000	12	**24,000**	This is the cost of quarterly meetings @USD 2,000 organised by stakeholders involved in WASH for 3 years
Activity 1.2.2.3 Develop/review WASH information sharing forums for Catchment Management Organisations	2,000	12	**24,000**	This involves the cost of quarterly meetings for CMOs @USD 2,000 for 3 years
Activity 1.2.2.4 Develop MOUs and implementation action plan for climate resilient WASH information Forums at regional, district and Sub-County levels (CM stakeholders e.g. CBOs, LG Authorities, MWE structures)	20,000	3	**60,000**	Consultative meetings and workshops at regional @USD 5,000, national @USD 10,000 and local levels @ USD 5,000 per year for three years
Activity 1.2.2.5 Support inter-ministerial and inter-sectoral climate resilient WASH information sharing (Water, Health, Education)	6,000	6	**36,000**	This activity involves national level semi-annual meetings between key Government Ministries, Departments and Agencies (MDAs) and sectors engaged in WASH to share information for disseminating to various stakeholders @USD 6,000 biannually for

				3 years.
COMPONENT 2: Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides			**5,980,000**	
Outcome 2.1: Increased uptake and use of concrete adaptive climate-smart WASH technologies and catchment protection measures			**2,833,000**	
Output 2.1.1: Efficient and sustainable WASH technologies demonstrated			**384,000**	
Activity 2.1.1.1 Conduct a KAP survey on WASH in the catchment	400	120	**48,000**	This activity involves a study taking 30 man-days @USD 400/day and associated costs of USD 12,000 for inception and validation workshops per catchment level (i.e. upstream, midstream and downstream)
Activity 2.1.1.2 Establish demonstration sites for climate resilient WASH models	45,000	3	**135,000**	This activity entails the costs for WASH demonstration sites in each sub-catchment @ USD 45,000 per sub-catchment.
Activity 2.1.1.3 Conduct quarterly training sessions on climate resilient WASH	3,000	36	**108,000**	This activity involves holding quarterly training sessions @USD 3,000 at per catchment community level (i.e. upstream, midstream and downstream) for 3 years.
Activity 2.1.1.4 Support Communities and other stakeholders/project beneficiaries to access WASH information	15,500	6	**93,000**	This activity involves the cost of airtime for MWE and local government technical staff as well as CMC members and other community leaders to engage communities in quarterly radio talk shows @ USD 7,000 for 3 years and biannual media supplements @ USD 2,500 per year for 3 years.
Output 2.1.2: Adaptive catchment protection measures promoted			**1,747,000**	
Activity 2.1.2.1 Assess status of water points and protection measures in the catchment	3,000	9	**27,000**	This is a study will take 45 man days @ USD 400/day and associated costs of USD 3,000 for workshops and meetings for inception and validation of findings per catchment level (i.e. upstream, midstream and downstream).
Activity 2.1.2.2 Train communities in source protection measures against floods and landslides	3,000	48	**144,000**	This activity involves quarterly training @ USD 3,000 at two levels for 3 catchment levels (i.e. upstream, midstream and downstream) within a year for two years.
Activity 2.1.2.3 Support establishment of source protection and management measures	400	107	**43,000**	This activity involves studies and development of source protection and management measures taking 30 man-days @USD 400/day and 3-community workshops @USD 3,000 per catchment level (i.e. upstream, midstream and downstream).
Activity 2.1.2.4 Facilitate indigenous community source monitoring	2,000	12	**24,000**	This is the cost of quarterly field visits and meetings @USD 2,000 organised by CMCs and Community leaders for 3 years.
Activity 2.1.2.5 Provide inputs to communities for source protection	12,000	24	**288,000**	This activity involves the cost of inputs such as live markers, stones and embankments for protecting at least 6-water sources structure units @USD 8,000 per structure per catchment level (i.e. upstream, midstream and downstream) for 2 years.
Activity 2.1.2.6 Assess, demarcate and map degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)	8,500	60	**510,000**	This activity includes costs for inputs and technical labour for assessing, demarcating and mapping 20 units (i.e. 5 forests, 5 wetlands, 5 riverbanks and 5 swamp forests) @USD 8,500 per unit per catchment levels (i.e. upstream, midstream and downstream).
Activity 2.1.2.7 Raise awareness on ecosystem restoration/rehabilitation among communities upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)	3,000	27	**81,000**	This activity includes 3 bi-annual community workshops conducted @USD 3,000 each per year per each of the 3 catchment levels (i.e. upstream, midstream and downstream) for 3 years.
Activity 2.1.2.8 Support rehabilitation of degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)	5,250	60	**315,000**	This activity includes the costs for inputs to rehabilitate 20 units of degraded ecosystems (i.e. 5 forests, 5 wetlands, 5 riverbanks and 5 swamp forests) @USD 5,250 per unit per each of the 3 catchment levels (i.e. upstream, midstream and downstream).
Activity 2.1.2.9 Support and promote a revolving fund scheme for alternative income generating activities	8,750	36	**315,000**	This activity includes the costs for 36 community groups accessing the revolving fund @USD 8,750 per group in the 6 sub-catchments.
Output 2.1.3 Adaptive flood control and landslide management measures (including soil conservation, erosion control etc.) promoted			**702,000**	
Activity 2.1.3.1 Train communities in landscape flood control and landslide management	12,000	6	**72,000**	This activity includes 2 quarterly rainy season community training @USD 6,000 per each of the 3 catchment levels (i.e. upstream, midstream and downstream) per year for 2 years.

Activity 2.1.3.2 Facilitate construction of landscape flood control structures	10,000	12	**481,700**	This activity includes the costs for the inputs for constructing 12 units of water harvesting and 12 units of flood control structures @USD 10,000 per unit (i.e. 4 units of water harvesting and 4 units of RWH per each of the catchment levels i.e. upstream, midstream and downstream).
Activity 2.1.3.3 Construct landslides resilient WASH technologies	15,000	10	**150,000**	This activity involves the cost of construction materials and equipment for at least 5 technologies @USD 15,000 per technology in two sub-catchments mid and upstream).
Outcome 2.2 Uptake and usage of concrete adaptation actions for water supply and sanitation measures increased			**3,147,000**	
Output 2.2.1 Sanitation services in small towns and rural growth centres improved			**2,088,000**	
Activity 2.2.1.1 Support women groups to construct and operate public sanitation facilities in small towns and rural growth centres	12,000	54	**648,000**	This involves inputs for constructing 6 units for women groups @USD12,000 per unit for 3 towns and rural growth centres per sub-catchment.
Activity 2.2.1.2 Support construction of climate proof fecal sludge management facilities	216,000	3	**648,000**	This involves inputs for constructing a climate proof faecal sludge for in 1 small towns/rural growth centres @USD 648,000 per town per each of the 3 catchment levels (i.e. upstream, midstream and downstream).
Activity 2.2.1.3. Support construction of climate proof wastewater re-use and waste management facilities	12,000	36	**432,000**	This involves inputs for constructing 4-climate proof wastewater re-use and management units in 3 towns and rural growth centres @USD 12,000 per small town /rural growth centre per each of the 3 catchment levels (i.e. upstream, midstream and downstream).
Activity 2.2.1.4 Train community operators on life cycle costing and maintenance of WASH facilities in towns and rural growth centres	3,000	24	**72,000**	This activity includes quarterly training for community operators at 2 levels (district and community) @USD 3,000 per each of the 3 catchment levels (i.e. upstream, midstream and downstream) for one year.
Activity 2.2.1.5 Hold hygiene behaviour change awareness meetings in communities	3,000	96	**288,000**	This activity includes quarterly meetings for 2 community groups, 2 schools and 2-health centres @USD 2,000 per each of the six sub-catchment for one year.
Output 2.2.2 Domestic Water supply infrastructure among vulnerable communities improved			**1,059,000**	
Activity 2.2.2.1 Undertake assessment of low cost climate proof water supply infrastructure	400	150	**60,000**	This activity involves a study taking 60 man-days @ USD 400/day and associated costs of USD 12,000 for meetings and workshops for inception and validation of study findings per each of the 3 catchment levels (i.e. upstream, midstream and downstream).
Activity 2.2.2.2 Support women groups to undertake construction and promotion of household rain water harvesting technologies	10,000	9	**90,000**	This involves a small grant for 3 women groups per each of the 3 catchment levels (i.e. upstream, midstream and downstream) to undertake construction of domestic water harvesting tanks for vulnerable households @USD 10,000 per group.
Activity 2.2.2.3 Reinforce water abstraction, storage and transmission infrastructure/facilities	8,500	18	**153,000**	This involves inputs for reinforcing 6 units of water infrastructural facilities for abstraction, storage and transmission @USD 8,500 per each of the 3 catchment levels (i.e. upstream, midstream and downstream).
Activity 2.2.2.4 Undertake awareness raising meetings on piped water supply, wasteful water supply and other water losses	3,000	12	**36,000**	This activity includes quarterly community for communities, CMCs and local leader's workshops on water supply, as well as associated wastage and losses @USD 3,000 per each of the 3 catchment levels (i.e. upstream, midstream and downstream) for one year.
Activity 2.2.2.3 Construct domestic rain water harvesting facilities for communities	10,000	72	**720,000**	This activity involves the costs for inputs of constructing 24 units of rainwater harvesting @USD 10,000 per unit per each of the 3 catchment levels (i.e. upstream, midstream and downstream).
COMPONENT 3: Enhancing knowledge management, awareness and information sharing in FEWS, climate resilient WASH approaches and technologies			**311,000**	
Outcome 3.1: Knowledge, awareness and information on WASH increased			**311,000**	
Output 3.1.1 Good practices and lessons learned on WASH documented and disseminated			**95,000**	
Activity 3.1.1.2 Document good practices and lessons learned on FEWS, climate resilient WASH technologies and practices	300	50	**15,000**	Cost of documenting taking 30 main-days @USD 300, printing the materials estimated @USD 6,000 for two years (i.e. USD 3000 per year).

Activity 3.1.2.1 Generate, package and develop information materials on FEWS, climate resilient WASH technologies and practices	20,050	4	**80,200**	Costs of using various communication platforms and channels estimated @USD 20,050 per year for four years
Output 3.1.2 WASH information sharing platforms strengthened			**216,000**	
Activity 3.1.2.2 Support gender and disability rights groups to share climate resilient WASH information at different levels	18,000	4	**72,000**	This activity involves the cost of airtime for gender and disability rights groups to share WASH information at National. District, regional and community levels radio talk shows @ USD 4,000 for 3 years, semi-annual national level workshops @USD 5,000, Regional and district biannually @ USD 4000 and quarterly @USD 3000 per year for 2 years.
Activity 3.1.2.3 Engage policy makers in dissemination of best practices on climate resilient WASH technologies	3,000	48	**144,000**	This activity includes quarterly meetings for communities, 2 schools and 2 health centres @USD 3,000 per sub-catchment for one year.
Monitoring and evaluation	20,000	15	**300,000**	Costs for quarterly monitoring, mid-term review (MTR), End of project evaluation and audit @USD 20,000.
Project activities Total Budget (component 1, 2, 3, & M&E)			**8,000,000**	
Project Co-ordination and Management				
Executing Entity fees			**760,000**	To be used for Project inception launch activities, salaries and fees of experts in charge of the project for planning, daily management, M&E, and implementation, as well as equipment and consumables, etc.
Implementing Entity fees			**744,600**	To be used for e.g.: salaries and fees of experts in charge of the project for planning, daily management, M&E, and implementation, as well as equipment and consumables, etc.
Grand total			**9,504,600**	

H. Disbursement schedule with time-bound milestones

Component/Outcome/Output/Activity	Unit cost	No. of Units	Total Budget ('000 USD)	Disbursement (USD)			
				Year 1	Year 2	Year 3	Year 4
COMPONENT 1: Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies			**1,409,000**	**235,000**	**548,000**	**366,000**	**260,000**
Outcome 1.1: Increased use of effective and efficient Flood Early Warning Systems and climate resilient WASH technologies by stakeholders			**486,000**	**108,000**	**228,000**	**150,000**	
Output 1.1.1: Efficient and effective FEWS and climate resilient WASH technologies developed/in place			**486,000**	**108,000**	**228,000**	**150,000**	
Activity 1.1.1.1 Assess the status of FEWS at different levels and incorporate indigenous/traditional FEWS options with modern FEW technologies	500	52	26,000	26,000			
Activity 1.1.1.2 Assess application status of Climate resilient/climate proof WASH technologies at different levels	500	52	26,000	26,000			
Activity 1.1.1.3 Support integration of FEWS and Climate-smart WASH technologies in planning, design, implementation and monitoring in national, regional, district and community level planning and development frameworks	400	120	48,000		48,000		
Activity 1.1.1.4 Equip/upgrade selected weather stations in the catchment for timely and effective weather information	25,000	12	300,000		150,000	150,000	
Activity 1.1.1.4 Develop guidelines for integrated floods and WASH planning, design, implementation and monitoring	400	140	56,000	56,000			
Activity 1.1.1.5 Popularise and disseminate the developed guidelines	5,000	6	30,000		30,000		
Sub-Total			**486,000**	**108,000**	**228,000**	**150,000**	

Outcome 1.2 Improved Capacity of key stakeholders at national, district and local levels for FEWS, WASH planning, designing, implementation and monitoring			**923,000**	**127,000**	**320,000**	**216,000**	**260,000**
Output 1.2.1: Capacity to plan, design, implement and monitor Climate adaptive WASH among stakeholders at different levels improved			**756,000**	**80,000**	**266,000**	**180,000**	**230,000**
Activity 1.2.1.1 Undertake a WASH capacity needs assessment for national, district and local levels	400	150	60,000	60,000			
Activity 1.2.1.2 Develop a capacity-building plan and materials for different levels at national. Regional, district and community levels	400	120	48,000		48,000		
Activity 1.2.1.3 Train stakeholders at different levels in climate resilient WASH technologies	9,000	24	216,000		108,000		108,000
Activity 1.2.1.4 Facilitate learning exchange visits for WASH	20,000	18	360,000		90,000	180,000	90,000
Activity 1.2.1.5 Conduct a Capacity follow up monitoring and supervision	3,000	24	72,000	20,000	20,000		32,000
Sub-Total			**756,000**	**80,000**	**266,000**	**180,000**	**230,000**
Output 1.2.2: Institutional linkages/partnerships for WASH information utilisation and review established/improved			**167,000**	**47,000**	**54,000**	**36,000**	**30,000**
Activity 1.2.2.1 Establish and incorporate climate resilient WASH into governance committees in Catchment and Sub-catchment organisations	4,600	5	23,000	23,000			
Activity 1.2.2.2 Support establishment of WASH platforms at different levels for community learning	2,000	12	24,000		24,000		
Activity 1.2.2.3 Develop/review WASH information sharing forums for Catchment Management Organisations	2,000	12	24,000	24,000			
Activity 1.2.2.4 Develop MOUs and implementation action plan for climate resilient WASH information Forums at regional, district and Sub-County levels (CM stakeholders e.g. CBOs, LG Authorities, MWE structures)	20,000	3	60,000		30,000		30,000
Activity 1.2.2.5 Support inter-ministerial and inter-sectoral (Programme) climate resilient WASH information sharing (Water, Health, Education)	6,000	6	36,000			36,000	
Sub-Total			**167,000**	**47,000**	**54,000**	**36,000**	**30,000**
COMPONENT 2: Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides			**5,979,800**	**1,163,800**	**1,859,500**	**2,017,500**	**939,000**
Outcome 2.1: Increased uptake and use of concrete adaptive climate-smart WASH technologies and catchment protection measures			**2,832,800**	**471,800**	**916,500**	**1,075,500**	**369,000**
Output 2.1.1: Efficient and sustainable WASH technologies demonstrated			**384,000**	**75,000**	**255,000**	**27,000**	**27,000**
Activity 2.1.1.1 Conduct a KAP survey on WASH in the catchment	400	120	48,000	48,000			
Activity 2.1.1.2 Establish demonstration sites for climate resilient WASH models	45,000	3	135,000		135,000		
Activity 2.1.1.3 Conduct quarterly training sessions on climate resilient WASH	3,000	36	108,000	27,000	27,000	27,000	27,000
Activity 2.1.1.4 Support Communities and other stakeholders/project beneficiaries to access WASH information	15,500	6	93,000		93,000		
Sub-Total			**384,000**	**75,000**	**255,000**	**27,000**	**27,000**
Output 2.1.2: Adaptive catchment protection measures promoted			**1,746,800**	**324,800**	**421,500**	**658,500**	**342,000**
Activity 2.1.2.1 Assess status of water points and protection measures in the catchment	3,000	9	27,000	27,000			
Activity 2.1.2.2 Train communities in source protection measures against floods and landslides	3,000	48	144,000		72,000	72,000	

Activity 2.1.2.3 Support establishment of source protection and management measures	400	107	42,800	42,800			
Activity 2.1.2.4 Facilitate indigenous community source monitoring	2,000	12	24,000		24,000		
Activity 2.1.2.5 Provide inputs to communities for source protection	12,000	24	288,000			144,000	144,000
Activity 2.1.2.6 Assess, demarcate and map degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)	8,500	60	510,000	255,000	127,500	127,500	
Activity 2.1.2.7 Raise awareness on ecosystem restoration/rehabilitation among communities upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)	3,000	27	81,000		40,500		40,500
Activity 2.1.2.8 Support rehabilitation of degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)	5,250	60	315,000		157,500	157,500	
Activity 2.1.2.9 Support and promote a revolving fund scheme for alternative income generating activities	8,750	36	315,000			157,500	157,500
Sub-Total			**1,746,800**	**324,800**	**421,500**	**658,500**	**342,000**
Output 2.1.3 Adaptive flood control and landslide management measures (including soil conservation, erosion control etc.) promoted			**702,000**	**72,000**	**240,000**	**390,000**	
Activity 2.1.3.1 Train communities in landscape flood control and landslide management	12,000	6	72,000	72,000			
Activity 2.1.3.2 Facilitate construction of landscape flood control structures	10,000	48	480,000		240,000	240,000	
Activity 2.1.3.3 Construct landslides resilient WASH technologies	15,000	10	150,000			150,000	
Sub-Total			**702,000**	**72,000**	**240,000**	**390,000**	
Outcome 2.2 Uptake and usage of concrete adaptation actions for water supply and sanitation measures increased			**3,147,000**	**692,000**	**943,000**	**942,000**	**570,000**
Output 2.2.1 Sanitation services in small towns and rural growth centres improved			**2,088,000**	**422,000**	**550,000**	**666,000**	**450,000**
Activity 2.2.1.1 Support women groups to construct and operate public sanitation facilities in small towns and rural growth centres	12,000	54	648,000	162,000	162,000	162,000	162,000
Activity 2.2.1.2 Support construction of climate proof fecal sludge management facilities	216,000	3	648,000		216,000	216,000	216,000
Activity 2.2.1.3. Support construction of climate proof wastewater re-use and waste management facilities	12,000	36	432,000	116,000	100,000	216,000	
Activity 2.2.1.4 Train community operators on life cycle costing and maintenance of WASH facilities in towns and rural growth centres	3,000	24	72,000	72,000			
Activity 2.2.1.5 Hold hygiene behaviour change awareness meetings in communities	3,000	96	288,000	72,000	72,000	72,000	72,000
Sub-Total			**2,088,000**	**422,000**	**550,000**	**666,000**	**450,000**
Output 2.2.2 Domestic Water supply infrastructure among vulnerable communities improved			**1,059,000**	**270,000**	**393,000**	**276,000**	**120,000**
Activity 2.2.2.1 Undertake assessment of low cost climate proof water supply infrastructure	400	150	60,000	60,000			
Activity 2.2.2.2 Support women groups to undertake construction and promotion of household rain water harvesting technologies	10,000	9	90,000	90,000			
Activity 2.2.2.3 Reinforce water abstraction, storage and transmission infrastructure/facilities	8,500	18	153,000		153,000		
Activity 2.2.2.4 Undertake awareness raising meetings on piped water supply, wasteful water supply and other water losses	3,000	12	36,000			36,000	
Activity 2.2.2.3 Construct domestic rain water harvesting facilities for communities	10,000	72	720,000	120,000	240,000	240,000	120,000

Sub-Total			**1,059,200**	**270,000**	**393,000**	**276,000**	**120,000**
COMPONENT 3: Enhancing knowledge management, awareness and information sharing in FEWS, climate resilient WASH approaches and technologies			**311,200**	**80,000**	**62,000**	**59,000**	**110,200**
Outcome 3.1: Knowledge, awareness and information on WASH increased			**311,200**	**80,000**	**62,000**	**59,000**	**110,200**
Output 3.1.1 Good practices and lessons learned on WASH documented and disseminated			**95,200**			**15,000**	**80,200**
Activity 3.1.1.2 Document good practices and lessons learned on FEWS, climate resilient WASH technologies and practices	300	50	15,000			15,000	
Activity 3.1.2.1 Generate, package and develop information materials on FEWS, climate resilient WASH technologies and practices	20,050	4	80,200				80,200
Sub-Total			**95,200**			**15,000**	**80,200**
Output 3.1.2 WASH information sharing platforms strengthened			**216,000**	**80,000**	**62,000**	**44,000**	**30,000**
Activity 3.1.2.2 Support gender and disability rights groups to share climate resilient WASH information at different levels	18,000	4	72,000	40,000	32,000		
Activity 3.1.2.3 Engage policy makers in dissemination of best practices on climate resilient WASH technologies	3,000	48	144,000	40,000	30,000	44,000	30,000
Sub-Total			**216,000**	**80,000**	**62,000**	**44,000**	**30,000**
Monitoring and evaluation	20,000	15	**300,000**	**50,000**	**120,000**	**30,000**	**100,000**
Project activities Total Budget (component 1, 2, 3, & M&E)			**8,000,000**	**1,528,800**	**2,589,500**	**2,472,500**	**1,409,200**
Project Co-ordination and Management							
Executing Entity fees			**760,000**	**190,000**	**190,000**	**190,000**	**190,000**
Implementing Entity fees			**744,600**	**186,150**	**186,150**	**186,150**	**186,150**
Grand total			**9,504,600**	**1,904,950**	**2,965,650**	**2,848,650**	**1,785,350**

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[2] Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:

(***Mr. Keith Muhakanizi Permanent Secretary, Ministry of Finance, Planning and Economic Development***)	Date: ***8 August 2022***

B. Implementing Entity certification Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (……list here…..) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

[6.] Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Name & Signature: *: **Mr. Alfred Okot Okidi*** Implementing Entity Coordinator: **Permanent Secretary, Ministry of Water and Environment**	
Date: *8 August 2022*	Tel. and email: **Dr. Callist Tindimugaya and Mr. James Kaweesi**
Project Contact Person: **:+256772521413; email: callist_tindimugaya@yahoo.co.uk/jkaweesi11@gmail.com**	

ANNEX I: Endorsement letter

Annex II: NEMA Approval Letter

Annex III: Stakeholders Consultation process report

Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda

JULY 2022

1.0 INTRODUCTION

There is rapid socio-economic development and widespread environmental change within Mpologoma catchment. The environmental changes therein are impacting heavily on the people who rely on ecosystem goods and services for their livelihoods. Subsistence agriculture is the economic mainstay and crop farming is predominant and widely practiced in the catchment. Commercial agriculture also exists with crops for instance rice planted at large scale in some areas especially wetland. The increase in land use for agricultural practices is impacting heavily on the ecosystems in the catchment. The major issues related to environmental change in the Mpologoma catchment include among others;

- Landslides and floods due to excessive loss of top soil through runoffs, poor methods of farming, deforestation and forest degradation leading to excessive loss of forest cover evidenced by reduction in spatial extent of forested areas from 63% (8,739km^2) in 1999 to 5% (734.3km2) in 2017, of the total land area in the catchment
- Wetland reclamation due to excessive drainage of wetlands and riverbanks also degraded in the catchment through agriculture, sand mining, growing of eucalyptus, and brick making among others
- Soil erosion especially in hilly parts of the catchment such as Bududa, Manafwa, Tororo, etc., due to lack of soil and water management infrastructure
- Severe floods and landslides characterized by heavy rainfall leading to destruction of houses, crops, animals and displacement of people thus leaving communities fraught
- Food insecurity resulting from poor agricultural harvests leading to tremendous decline in yields of staple foods, or even total crop failure. The major drivers of food insecurity are crop pests, soil infertility, crop destruction by floods and landslides, and human diseases caused by WASH issues.

One of the areas that is severely affected and highly vulnerable to extreme landslides and flooding is Eastern Uganda in Mpologoma catchment. Mpologoma catchment covers 7,862 square kilometers of land area and 1,127 $Km^2$of water. It is one of the catchments within the Kyoga Water Management zone that is bordered on the south by a narrow strip of the Victoria Water Management zone that forms a boundary with Lake Victoria. At the extreme north east, it boarders Mount Elgon. The catchment is characterized by a variety of ecosystems such as wetlands, farmlands, bush land, and forest land.

Extreme weather events coupled with natural resource degradation, subsistence rain-fed agriculture and limited livelihoods have not only led to landslides and floods but also resulted in increased pollution of water resources, unsafe water sources and outbreak of waterborne diseases such as diarrhea, typhoid and cholera and land conflicts related to competition for arable land. Therefore, climate change not only exacerbates health, food security, water scarcity, water insecurity and water quality problems in drought prone areas. It also impairs similar attributes and water quality in areas susceptible to floods and landslides

In view of the issues outlined, and with the aim of strengthening resilience of communities and ecosystems in Mpologoma catchment, the Ministry of Water and Environment (MWE) in partnership with WaterAid Uganda prepared and submitted to the Adaptation Fund (AF) a concept for a national project entitled "*Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda*"**.** The overall goal of the project is to increase the resilience of communities to climate change risks of floods and landslides through timely response to climate hazards, sustainable community access to water, sanitation and hygiene services and integrated catchment management measures in Mpologoma catchment. The Adaptation Fund Board approved the project concept note and consequently a detailed, full scale project document needs to be developed and submitted to AF Board in order to access the secured funding worth USD **9,504,600** million for project implementation.

To successfully submit to the AF a detailed, full scale project document that meets the Adaptation Fund's requirements, MWE engaged Nature Conservation Partners Uganda Limited (NACOPART) to undertake detailed preparatory studies, used to design and develop the full project document. The specific preparatory studies include,

(i) Socio-economic and environmental baselines
(ii) Vulnerability and adaptation capacity assessment report
(iii) Gender analysis and Gender Action Plan
(iv) Project Cost effectiveness and Financial sustainability report
(v) Adaptation Fund Compliant ESMF and ESMP with Grievance Redress Mechanism
(vi) Detailed Stakeholder Consultations report

Itinerary for filed level engagements to inform the production of the preparatory studies, and Program for national level consultative and engagement meeting for the project are attached as appendices I & II respectively.

1.1 APPROACH

The approach involved gender and social inclusion in the course of data collection and analysis, to inform the designing of the project proposal. Consultative meetings, document reviews, workshops, interviews, expert-led design and validation were the methods the consultant used to achieve the desired deliverables. Several stakeholders participated in these processes through physical and virtual meetings, and in a national level workshop arranged by the Client. The consultative meetings were critical in ensuring project ownership, discussing the potential areas of intervention, partnerships, roles and responsibilities of the divergent stakeholders.

1.2 PURPOSE AND OBJECTIVES OF THE ASSESSMENTS

1.2.1 Overall Objectives

The main objective was to develop a full project proposal on Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda in accordance with the Adaptation Fund's requirements and template.

1.2.2. Specific objectives

The specific objectives of the field consultative assessment meetings were;

1. To undertake detailed feasibility studies including Socio-economic and environmental baselines, Vulnerability and adaptation capacity assessment report, Gender analysis and Gender Action Plan development, Project Cost effectiveness and Financial sustainability report, and Adaptation Fund Compliant ESMF and ESMP with Grievance Redress Mechanism for the project
2. To carry out stakeholder consultations through various methods at the district, regional and central levels with the view of soliciting views/input during the proposal preparation process.
3. To prepare the final project proposal and submit to MWE management for submission to AF

2.0 SCOPE OF WORK

The scope of work entailed undertaking detailed preparatory studies including Baseline study, socio-economic and Vulnerability assessment; Gender analysis and Gender Action Plan and Environmental and Social Assessment study and Grievance redress mechanism. It comprises of the following:

a. **Socio-economic and environmental baselines:** This activity involved undertaking an assessment of existing socio-economic and environmental scenarios in the targeted project sub catchments. The social economic variables assessed included Location and administrative units specifying project locations; Demographic profiles within the project targeted sub catchment districts, Livelihoods (livelihood activities, IGAs etc) including land use and energy; WASH (Water, Sanitation and Hygiene – Hand) in relation to the project e.g. safe water coverage, sanitary facilities, housing etc. While environmental aspects involved: Climate, Geology and Soils, Relief, Topography, Hydrology and drainage, Biodiversity (fauna, flora, ecosystems), Land Cover and Land Use, Land use change (including Protected Areas), Land degradation (including soil, wetland degradation, river banks, forest degradation etc), including identification of hotspots that will require intervention.

b. Vulnerability and adaptation capacity assessment report: This activity involved assessing the susceptibility of communities and ecosystems to impacts of climate change in the project area. Specifically, Vulnerability (exposure, sensitivity) included assessment of climate change related threats and consequences among the population (by how many, how much, to what extent) – disaggregated by gender and social categories (Youths, PWDs, Elderly), while Adaptive capacity has involved assessment of how communities are coping and what their limitations, needs and gaps are– (in relation to proposed intervention!); Suggested interventions and appropriate approaches (by target communities), showing that recommended interventions target the most vulnerable, and sustainability of interventions (demonstrate that when implemented, communities will continue beyond project life). NACOPART undertook consultations with grassroots stakeholders, key informants at local governments within Mpologoma catchment (this will include politicians and technical staffs etc.); analysis of collected data and report writing.

c. Gender analysis and Gender Action Plan development: This study has assessed how Gender is incorporated/mainstreamed into climate change and natural resources management frameworks, gender and governance in the existing structures in the project area sub catchments as well as gender roles and responsibilities in the proposed WASH and FEWS interventions.

d. Project Cost effectiveness and Financial sustainability report:
The report demonstrates project costs and returns, hence evidencing feasibility/viability of the project interventions. This confirms that the project is worth investing in i.e. should be funded. Sustainability dimensions (socio-economic, environmental, technological, financial, institutional) of project interventions were addressed including. Important data needs for the analyses included:
- Monetary costs (refer to budget), products, units, quantities and prices – per project
- Alternative scenarios and synergies (including existing projects)
- Number of target beneficiaries; - Quantify benefits/ returns from trainings

e. Adaptation Fund Compliant ESMF and ESMP with Grievance Redress Mechanism:
This activity has involved undertaking an assessment of existing environment, social issues/risks and Unidentified Sub-Projects (USPs) of the proposed project sub catchments in relation to the national (EIA and ESMP) and Environment and Social Policy and Gender Policy of the AF. In addition, a Grievance Redress Mechanism (GRM) for the project has been developed in consultation with stakeholders. To ensure consistency, lessons will be learned from the MWE Grievance and complaints available system to assist in designing for the Mpologoma catchment project areas. The scope of work included: reviewing existing documents, consultations of key stakeholders in the areas and data collection in relation to the grievance redress mechanism.

f. Consultative meetings and workshops: The main purpose of consultations is to generate understanding of the project amongst all stakeholders, ensure ownership, understand community expectations, and incorporate stakeholders' views. This ensures stakeholders' involvement in the project activities. During the consultation meetings and workshop, the consultant considers gender dimensions and focus on women involvement especially in WASH and FEWS activities.

Elaboration of the full project document: The full proposal will be developed in accordance with the Adaptation Fund's requirements and template, integrating the data and information collected and generated in the analyses and studies developed under the sections above and the consultation workshops. NACOPART is reviewing the approved project concept and updating the baseline as appropriate. This will enable the measurement of project milestones and aid the determination of the Cost effectiveness and impact after project execution and closure. The itinerary of field level engagements is attached as appendix 1'

3.0 PROJECT AREA

The proposed project will be implemented in Upper Manafwa, Middle Manafwa, Lower Manafwa, Upper Mplogoma, Middle Mpologoma and Lower Mpologoma sub catchments highlighted in figure 1 below. These sites are considered to be most vulnerable and prone to floods and landslides and to climate change impacts. The sites were selected based on the following criteria:

- The sites have high rainfall variability with increasing frequency and intensity of floods and landslides
- There is high environmental degradation (vegetation and soil degradation), loss of biodiversity resources (flora and fauna) as well as the deterioration of water (quality and quantity) and water resources on which communities depend for alternative livelihoods.
- Most communities practice and depend on rain-fed subsistence agriculture and have low-incomes and limited livelihood options to enable them cope with floods and landslides and associated climate change impacts.
- Socially, there are many vulnerable members among the communities especially women, children, HIV/Aids affected groups, and the elderly.
- Have experienced continuous challenges of timely responding to climate change disasters due to inadequate and limited Early Warning Systems.

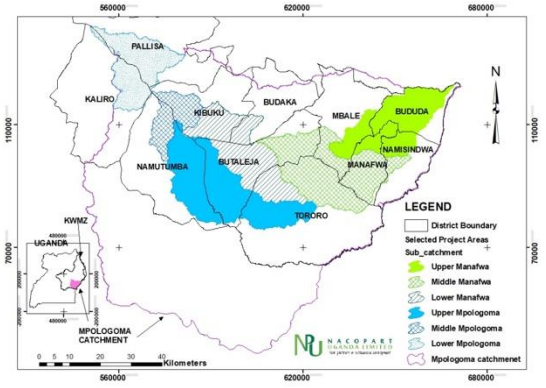

Figure 1 Location of project areas within the Mpologoma catchment

4.0 STAKEHOLDER ENGAGEMENT PROCESSES

4.1 PRIORITIZATION OF HOTSPOT AREAS FOR THE FIELD CONSULTATIONS.

Several parameters such as vulnerability to landslides and/or floods, high rainfall variability, climate change impacts, severity of degradation, agriculture as main source of livelihood, poverty levels, Inadequate and or limited EWS, deterioration of water (quality and quantity) and water resources were used by NACOPART consultants to map out project hotspot areas. This was followed by a validation and planning meeting held with the Kyoga Water Management Zone (KWMZ) technical team based in Mbale, which guided refining and confirming priority vulnerable sub counties in respective project targeted six sub catchments. Key informant interviews in the respective sub counties identified and confirmed the specific parishes for focus group discussions at community level. Districts, Sub Counties and Parishes prioritized as hotspots where the studies were conducted are presented in Table 1.

Table 1. Prioritized areas for the consultation process

DRAINAGE	SUB CATCHMENT	DISTRICTS	STUDY SUB COUNTIES	PARISHES	PARISH LEVELS OF DEGRADATION	Prone/Landslides	Flood prone	CC impact	High rainfall variability	Agric as main IGA	Poverty levels	nadequate and Limited EWS	deterioration of water (quality and quantity) and water resources
Upstream	**Upper Manafwa**	Bududa	Bukibokolo	Bulumino	Severely degraded	x		x	x	x			
	Middle Manafwa	Manafwa	Kaato	Bumukari	Severely degraded	x		x	x	x			x
Midstream	**Lower Manafwa**	Tororo	Kirewa	Katandi	20% severely, 80% highly degraded; Sala CFR			x	x	x	x		x
			Iyolwa	Iyolwa									
			Ojilai	Ojilai									
	Upper Mpologoma	Butaleja	Budumba	Banawale	50% severely & 50% highly degraded		x	x	x	x	x		x
Downstream	**Middle Mpologoma**	Namutumba	Nangode		Highly degraded		x	x	x	x	x		x
			Nangode T/C										
	Lower Mpologoma	Palisa	Gogonyo	Gogonyo	75% severely degraded;25% highly degraded		x	x	x	x	x		x
			Obutete (cut from Gogonyo)	Agure	75% severely degraded;25% highly degraded		x	x	x	x	x		x

4.2 STAKEHOLDER CONSULTATIONS

The planning meeting with KWMZ technical team reviewed the generated list of stakeholders by the consultants based on literature, discussed and confirmed key stakeholders for the consultations, including a list of vulnerable groups such as the women, youths, children, elderly and people living with disabilities. These were drawn from the prioritized project sites in the 6 sub catchments within the Mpologoma catchment. The KWMZ team made prior contacts to arrange KIIs and also introduced the consultants to the districts and sub county officials.

Confirmed key stakeholders at district and sub county levels through KIIs, participated in the identification of the vulnerable groups, and the generated list was qualified as a true record to include; women, youth, children, elderly and people living with disabilities as most vulnerable local community members. Grassroot level consultations were conducted in the sub catchment, at particular villages in respective parishes, for the targeted sub-counties. These were confirmed as project hotspots.

Community consultations were conducted in form of focused group discussions (FGDs) consisting of 6-10 participants in each group as shown in figure 3.

Fig. 3 **Fig. 4**

Figure 3. Key Informant Interview with the CAO, Tororo district, Mr Dunstan Balaba; Figure 4. Youth group in Bumukari parish, in Manafwa drawing a resource map in a FGD

The participants in the FGDs were split into three categories i.e. (i) Adult Males, (ii) Adult Females and (iii) Youths (Male and female). Each group was consulted separately. Adult male and female categories at community level included People with Disabilities (PWDs) and the elderly. The Youth category for community level consultations included male youth, female youth and PWDs. An FGD guide having a set of selected qualitative questions was used to collect information on the following aspects:

i. *Livelihoods and Income generating activities.*
ii. *Access and control of land resources*
iii. *Access, equity management and gender*
iv. *Availability of WASH facilities including WASH challenges*
v. *Participation in decision making:*
vi. *Implications of gender issues on the on the resilience and adaptive capacity to climate change.*
vii. *Possible solutions and recommendation of addressing impacts of climate hazards and WASH challenges at the local level.*

The stakeholder consultations were held in the prioritized areas highlighted in Table 1. in the districts of Bududa, Manafwa, Butaleja, Tororo, Pallisa and Namutumba, covering the upstream, Midstream and downstream drainage basins of the Mpologoma catchment. Composition of the key stakeholders included: KWMZ (Team leader, Hydrologists, Water engineers, Economists, Sociologists; Eastern Umbrella Of Water And Sanitation-**WSDF**; Water And Sanitation Development Facility-**WSDF-East**), District level staffs (Natural Resource officers, Environmental Officers, Forestry officers, Engineering officers, District Community Development Officers, District Production Officers, District Secretary for Natural Resources CAOs and RDCs), Civil Society Organizations (WAU, UWONET Staffs), Sub County level Officials (Parish Chiefs, SAS, CDO, Secretary Environment officers, Agriculture Officers) Local Council leadership (LCs), and Local Communities..

Outputs from the different level engagements informed the write up and production of six study draft reports. The draft reports and the draft project proposal were presented in a National level workshop held at the Water Resources Institute in Entebbe (Figure 5). This provided an opportunity for national level stakeholders to review, validate, and streamline the draft documents following relevant national policy frameworks, and guide production of the final study reports and proposal deliverables.

The National Level consultative workshop was organized by the Ministry of Water and Environment and key among the participants were Ministry of Finance and Economic planning (The National Designation Authority), Climate Change Department, Directorate of Environmental Affairs in the MWE, Civil Society Organizations such as WaterAid Uganda, Global Water Partnership Eastern Africa and Uganda Women Network (UWONET), Uganda National Metrological Authority (UNMA) worthy to mention. Details of the national level participants are shown in Appendix IV. Emerging information needs were raised (Appendix V) by the consultants and fully discussed in a plenary.

Figure 5. Participants of the National level engagement held at the Water Resources Institute

4.2.1 Key inputs and Lessons that emerged from national level engagement workshop

- Addition of some more key stakeholders such as Uganda National Metrological Authority as it is instrumental in provision of early warning systems and information; Others include Ministry of Health, Ministry of Agriculture Animal Industry and Fisheries; Office of the Prime Minister
- Need to further strengthen and clarify on the gender roles and responsibilities, including the different socio groups such as the youths and elderly, PWDs, HIV in the proposal
- Livelihood component needs to come out clearly in the proposal
- Indigenous knowledge should be incorporated amongst the project Early Warning Systems
- The designed project should seek probable synergies with government development programs such as the Parish Development Model
- Need to review proposed project outputs and outcomes to make them SMART
- Climate Change Department to provide information Climate Change Knowledge Portal to access to access up to date County Climate Information references
- Aligning the projects Conflict Redress Mechanism with the existing Ministry's redress and National level redress mechanisms. Catchment Management Committees are central in the Ministry's redress mechanism

4.2.2 Consulted key stakeholders

A summary of the stakeholders consulted through the consultative engagements is provided in table 2. A total of 265 participants were consulted of which 31 of them were at National level, and 234 of them were at field level (Table 2). The community level consultations were conducted in informal community meeting setting. The Parish chiefs and Local Council leaders helped in mobilization of the local community members to participate in the FGDs.

Table 2. Summary of stakeholders consulted during the field assessment

Institution/District	**Staff**	**S/County Technical Staff**	**Local Community Members**			**Total**
			Adult Males	Adult Females	Youths	
KWMZ	10					10
WAU	1		1			1
UWONE	3					3
Bududa	6	6	7	6	6 (F=2, M=4)	31
Manafwa	5	4	8	6	6 (F=2, M =4)	29
Butaleja	5	8	6	6	9 (F=2, M=7)	34
Tororo	4	Iyolwa sc=4	8	6	6 (F=1, M=5)	28
	0	Ojilai sc	10	7	-	17
Pallisa	4	Gogonyo =5	8	9	6 (F=2, M=4)	32
	0	Obutete	7	6	6 (F=3, M=3)	19
Namutumba	7	5	6	6	6 (F=3, M=3)	30
National level engagement	31		19	12		31
TOTALS	**45**	**32**	**60**	**52**	**45**	**265**

APPENDIX II: PROGRAM FOR NATIONAL LEVEL ENGAGEMENT

THE REPUBLIC OF UGANDA

WaterAid

National Stakeholder Consultative and engagement meeting for the Project

"Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda" - CARFEWW

4th August 2022

Venue: Water Resources Institute- Entebbe

Program

Time	Activity	Responsible party
8.30-9.00	Arrival and registration	Water Resources Institute (WRI)
9.00-9.15	**Opening** • Introductions • Welcome remarks by MWE and Partners	MWE/DWRM/WAU/WRI
9.15-9.20	**Objectives of the meeting/workshop**	DWRM
9.20-9.50	Overview of the CARFEWW Project	NACOPART (U) Ltd
9:50 – 10:00	Comments	All Participants
10:00 -10:10	Emerging information needs	NACOPART (U) Ltd
10.10 -10.30	**Health-Break**	
10.30 – 11.30	Group work	All participants
11.30-12.00	Plenary presentations	Group representatives
12.00-12.30	Discussions	All Participants
12.30-12.50	Next steps/Way forward	DWRM/WAU
12.50-13.00	Closing Remarks	MWE
13.00+	**Lunch and Departure**	All Participants

APPENDI III: LIST OF PARTICIPANTS FOR FIELD LEVEL CONSULTATIVE ENGAGEMENTS

NACOPART UGANDA LIMITED

PARTICIPANTS REGISTRATION FORM

ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT, UGANDA

Activity: Consultative meeting with Kyoga Water Managent team

Date: 12/7/2022 District: Sub County: Village

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
1	Waaga Benjamin	M	S.S	MWE/DWRM/KWMZ	Mbale	07732295[illegible]
2	OJWANG HAGGAI	M	WATER OFFICER	MWE/DWRM	KWMZ	0773030[illegible]
3.	Wonaira Sheila	F	Engineer	DWRM	KWMZ	077479[illegible]
4	ANDIHDA FELEX	M	SOCIOLOGIST	DWRM	KWMZ	0772654569
5	CHEBET BETTY	F	Sociologist	DWRM	KWMZ	077492[illegible]
6	ACHOLA SHARON	F	Sociologist	DWRM	KWMZ	0783791270
7	Okello Kenneth	M	Water Analyst	DWRM	KWMZ	07740[illegible]
8	Eng. Maximo Twinomuhangi	M	TL		KWMZ	0772[illegible]
0702132171	MAKANYA D.	M	SESO	"	LESDEL	0782[illegible]
	Natukunda Justine Nelly	F	Economist	DWRM	KWMZ	07748[illegible]

NACOPART UGANDA LIMITED

PARTICIPANTS PAYMENT FORM

ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT, UGANDA

Activity: Consultative meeting with Sub County level Staff

Date: 14/7/2022 District: Budada Sub County: Bukibokolo Village

No.	NAME	SUB COUNTY	~~VILLAGE~~ TEL: NO	AMOUNT	SIGNATURE
01	Nakhayenze Maliza	Bukibokolo	0777252711		
02	Nanjeshe Nicholas	Bukibokolo	0772682764		
03	MATANDA ANTHONY.	BUKIBOKOLO	0783946212		
04	Watsemba Christine	Bukibokolo	0773902171		
05	KITUNO MOSES CHARLES	BUKIBOKOLO	0774505944		
06	WAKINYA JOHN	BUKIBOKOLO	0771203971		

NACOPART UGANDA LIMITED

PARTICIPANTS REGISTRATION FORM

ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT, UGANDA

Activity: Consultative meeting with district level staff.

Date: 13/7/2022 District: Budada Sub County: Village

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	~~VILLAGE~~ Telephone	SIGNATURE
01	NATALA YUSUF	M	AGRIC. O	District	0789450248	
02	Kutosi Simon	M	DE	District	077805706[illegible]	
03	Nakhayenze Maliza	F	CDO	Bukibokolo	0777252711	
04	NABUTUWA EVELYNE	F	SOC CBS	Bushika	0785831969	
05	SHIBALE TOM	M	SAS	Budada District	0782463690	
06	MUSAMALI MICHAEL	M	DNDO	Budada	0773904582	

WOMEN FGD

NACOPART UGANDA LIMITED

PARTICIPANTS REGISTRATION FORM

ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT, UGANDA

Activity: Community level consultations- Bulumino parish

Date: 14/7/2022 District: BUDUDA Sub County: BUKIBOKOLO Village

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
1.	MUYAMA OLIVER	F	PEASANT	BUKIBOKOLO	NAKHOKHO	M.O
2.	KIBONE SYLIVIA	F	"	"	BULUMINO "B"	K.S
3.	BISIKWA GORRET	F	"	"	BULUMINO "A"	B.G
4.	NAKAME LORAH	F	"	"	MAAYA	
5.	NABWALI ANNET	F	"	"	BUNAKYENDA	N.A
6	MASIBO MAGRET	F	"	"	BUNAKYENDA	

NACOPART UGANDA LIMITED

PARTICIPANTS REGISTRATION FORM

ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT, UGANDA

Activity: Consultations with Tororo District technical Staff on Carfews project

Date: 13th/7/2022 District: Tororo Sub County: .... Village ....

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	~~VILLAGE~~ CONTACT	SIGNATURE
1	Opio Moses	M	AED	Dist Water office	0772-646467	
2.	Moiza Moses	M	for DCDO	TDLG	0772389918	
3	Logoose Khanya	F	PR	TDLG	0775022564	
4	Aol Mary Everline	F	DNRO	TDLG	0783810023	

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ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT, UGANDA

Activity: Consultations with Iyolwa Sub County leadership on CARFEWS proje[ct]

Date: 14th/07/2022 District: Tororo Sub County: Iyolwa Village ....

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	OSINDE GEORGE	M	District Councillor	Iyolwa	Anyo 'B'	
02	OKETCHO BENYA	M	LC III C/P	Iyolwa	BENDO	
03	OTHIENO MOSES	M	LCIII C/P	OJILAI	NAMAYUN B	
04	OKELLO JULIUS	M	Welfare officer Iyolwa	IYOLWA	IYOLWA	

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Activity: FGD with Male adults Youth

Date: 14/7/2022 District: TORORO Sub County: IYOLWA Village AUYO

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
1.	Owere Samuel	Male	Farmer	Iyolwa	Auyo	0740770675
2.	OPOYA NOAH	M	Farmer	Iyolwa	AUYO	0773041377
3.	OKETCHO WILLIAM	M	student	IYOLWA	AUYO	0751519022
4.	OCHIENG DAVID	M	Farmer	IYOLWA	AUYO	0789667512
5.	OBBO LUKA	M	FARMER	IYOLWA	AUYO	0789229258
6.	OKECH STERU	M	FARMER	IYOLWA	AUYO.	
7.	LUWIN RICHARD	M	FARMER.	IYOLWA	AUYO.	0761967552
8	OCHIENG FRED	M	ANDREED	//	AUYO	0781113722

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Activity: FGD with female adults

Date: 14/7/2022 District: TORORO Sub County: IYOLWA Village AUYO B

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	APIO Colline	Female	ateacher	Iyolwa	Auyo B	0773799403
02	Adikini Susan	Female		Iyolwa	Auyo B	070X311557
03	ROSE ACEICHO	Female	Peasant	Iyolwa	Bendo	07803822
04	KETULA ACEICHO	Female	Peasant	Iyolwa	Auyo B	789834
05	ADIKINI GETRUDE	Female	ateacher	Iyolwa	Auyo A	07763261
06	ADIKIN LOY	Female	ateacher	Iyolwa	Auyo A	07
07	NYADOI CATHARINE	Female	peasant	Iyolwa	Auyo A	

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Activity: FGD with Male Adults

Date: 14th/07/22 District: TORORO Sub County: Iyolwa Village ....

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
1	TAABU GODFREY	M	FARMER	Iyolwa	Auyo B	0786644660
2	OKOTH APOLLO	M	"	IYOLWA	Auyo 'B'	0786719855
3	ONYANGO GEORGE	M	"	IYOLWA	Auyo 'B'	0771328829
4	OFAMBA LAWRENCE	M	..	Iyolwa	Auyo	0775439
5	Owori Julius	M	FARMER	Iyolwa	Auyo	0759353171
6	Okoth Wilfrida	M	Farmer	Iyolwa	Auyo	07049005
7	SICA P'OBBO H	M	Farmer	Iyolwa	Auyo	0785213721
8	OTIM NELSON	M	Farmer	Iyolwa	Auyo	0786802542
9	OKECHO ROBERT	M	Farmer	Iyolwa	Auyo	
10	Ochieng Okwongo	M	farmer	Iyolwa	AUYO	0755510351

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Activity: Engagement with women (FGD)

Date: 14th/07/2022 District: Tororo Sub County: Ojilai Village ....

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
1	NYAPENDI GRACE	F	PEASANT	OJILAI	BUMANDA'C'	07
02	NYAMUSIME ESEZA	F	VHT	OJILAI	BUMANDA'C'	07
03	AWORI AIDAH	F	PSW	OJILAI	BUMANDA'C'	07
04	AKECH SYLIVIA	F		OJILAI	BUMANDA'A'	07
05	Apio Margret	F	VPC	Ojilai	Bumanda	07
06	ACHIENG ROSEMARY	F	PEASANT	OJILAI	BUMANDA'C'	07

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Activity: Focus Group Discussion (Men)

Date: 14/07/2022 District: Tororo Sub County: Ojilai Village Bumanda

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	Onyango Stephen B	male	Ordinant	Ojilai	Bumanda'B'	075818
2	OWORA PAUL	male		Ojilai	BUMANDA	0786125190
3	Taboy Micheal	male		Ojilai	Bumanda'B'	0786563368
4	Okwangi Vicent	male		Ojilai	Bumanda'C'	
5	OKIOR ROBERT	male		Ojilai	Bumanda C	0777960085/0752
6	OPOYA JAMES	"		"	BUMANDA'A'	781756049

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Activity: District Level Consultative meeting (KII) for CARFEWS projec[t]

Date: 15/7/2022 District: Manafwa Sub County: .... Village ....

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	~~VILLAGE~~ Telephone	SIGNATURE
1	Bisikwa Sarah	F	Ag SNRO/DEO	Manafwa TC	0779665033	
2	Eng. Alunyu Denis	M	DWO/Ag.DE	Manafwa	0772686196	
3	Wakalanga Julius	M	Env't officer	Manafwa	0761964692	
4.	KATAAI FLORENCE	F	SEC Production	Manafwa	0753016207	
5	KATENYA GEORGE	M	AHO for DPO	Manafwa	0777186561	

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Activity: Sub-County level Consultations – Kato Sub-County

Date: 15/07/2022 District: MANAFWA Sub County: .... Village ....

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	~~VILLAGE~~ Telephone	SIGNATURE
	Wanyegi Emmanuel Gand	MALE	LCIII Chair	Kato	0787359927	
	MASONGOLE PATRICK	"	COUNCILLOR	BUKIMANAYI	0773904771	
	KAMOT WILSON	MALE	COUNCILLOR	BUMUKARI	0775857187	
	WETONDO IVAN	MALE	EXTENSION WORKER	KAATO	0772496536	

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Activity: Community level Consultative meeting - Bumukari/Bunangonza Parishes
Date: 16/7/2022 District: Manafwa Sub County: Kaato Village Bumukari West A.

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
1	NAKHAYENZE MARY	F	Student	Kaato	Namakumeti	0773565140
2	KAMOSI SHELBAM	M	Student	K"	Bumukari CB	0776594645
3	WAIHAKILA FREDRICK	M	Farmer	"	Shibanga	0782243219
4	KUTOSI DASAN	M	FARMER	"	NAMAKUNGI	0778725481
5	BUNYO BONIFACE	M	FARMER	"	Bumukari central	0784947161
6	NABULATI MIRIAM	F	STUDENT	"	Bunangonza central	0783603621
1	Natwala Peninnah	F	Farmer	"	Bunangonza	0775993767
2	KIBONE ADIAH	F	Farmer	"	Bumukari B	0778832010
3	ZEMOYI EDISA	"	Farmer	"	Bumukari C	077939502
4	[illegible]	F	Farmer	"	Bumukari East	0774721230
5	MUTAMBA EDISA	F	Farmer	"	Bumukari West B	0779951564
6.	MUBONGA FILISTA	F	Farmer	"	BUMUKARI S.C	

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Activity: Community level Consultative Meeting.
Date: 16/7/2022 District: Manafwa Sub County: Kaato Village

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	WEKOYE DAN	MALE	PEASANT	KAATO	BUMUKARI EAST	078
02	KULOBA RONALD	MALE	PEASANT	KAATO	BUKAMBALWA EAST	0784
03	WANJINA JAMES	MALE	PEASANT	KAATO	BUKHOBA	0777
04	WEKOYE FRED	MALE	PEASANT	KAATO	BUKAMBALWA EAST	0782
05	KAMUTI ROBERT	MALE	PEASANT	KAATO	BUMUKARI CENTRAL	077
06	WEKOYE ABISOLOMU	MALE	PEASANT	KAATO	BUMUKARI WEST -A-	
07	KAMOTI WILSON	"	PEASANT	KAATO	Bumukari West B	
08	MASONGOLE PATRICK	"	"	KAATO	MATOOYA	

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Activity: Stakeholder consultation with youth of Obutet s/c, Pallisa District.
Date: 16/07/2022 District: PALLISA Sub County: OBUTET Village KAKUTUIRE

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	ODONGO MICHAEL	M	PEASANT	OBUTETE	KAKUTUIRE	0773123877
02	AMODING ETEMUNE	F	PEASANT	OBUTETE	KAKUTUIRE	
03	KAYENDEKE FATINA	F	PEASANT	OBUTETE	KAKUTUIRE	
04	TEKITI MAGRET	F	PEASANT	OBUTETE	KAKUTUIRE	
05	OPOLE JAMES	M	PEASANT	OBUTETE	KAKUTUIRE	
06	OPIO JAMES	M	PEASANT	OBUTETE	KAKUTUIRE	0759016678

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Activity: Stakeholder Consultations with male adults in Obutete s/c
Date: 16-07-2022 District: PALLISA Sub County: OBUTET Village KAKUTUIRE

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	ONGODIA FRANCIS	Male	C/P LCII	OBUTET	OCULAI	0759016400
02	OKIRIA DAVID	Male	C/P LCI	OBUTET	KAKUTUIRE	0781297?1
03	Obwali Wilson	Male	Peasant	OBUTET	KAKUTUIRE	
04	ETULET LAWRENCE	Male	Peasant	Obutet	Kakutuire	0773
05	EMURU JOSEPH	Male	Peasant	Obutet	Kakutuire	0774022287
06	OKODOI IKA	Male	Teacher	Obutet	Kakutuire	078129645
07	Onyege Alex	Male	Peasant	Obutet	Kakutuire	

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Activity: Stakeholder Consultation with women and youth in Obutete S
Date: 16th/07/2022 District: Pallisa Sub County: Obutete Village Kakutuire

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	KAYITIDE MARY	FEMALE	FARMER	OBUTET	KAKUTUIRE	
02	MUGALA PHEBE	FEMALE	FARMER	OBUTET	KAKUTUIRE	
03	AMULEN ESTHER	FEMALE	FARMER	OBUTET	KAKUTUIRE	
04	APELAI PULISIKIRA	FEMALE	FARMER	OBUTET	KAKUTUIRE	
05	ALUPOI ANNE GRACE	FEMALE	FARMER	OBUTET	KAKUTUIRE	
06	ALUPO MOUREEN	FEMALE	FARMER	OBUTET	KAKUTUIRE	

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Activity: FGD with Male Adults
Date: 16/07/2022 District: PALLISA Sub County: GOGONYO Village

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	OKURUT TEKO JONATHAN	MALE	PEASANT	GOGONYO	AGULE	07779656
02	OPAARE LAWRENCE	MALE	PEASANT	GOGONYO	AUJABULE	078652
03	OCHORONI JOHN MICHAEL	MALE	PEASANT	GOGONYO	OLUANGARAU	0771986
04	TUKEI WILSON	MALE	PEASANT	GOGONYO	OBAMIAT	078279
05	PASTOR EMURWON MARTIN	MALE	PEASANT	GOGONYO	AJEPET "A"	07837
06	ARIKOS MARTIN EMODY	MALE	PEASANT	GOGONYO	KATIAKAT	078717
07	AMADE FASTINO	MALE	PEASANT	GOGONYO	AUJABULE	077997
08	OCHEKEDE JULIUS	MALE	PEASANT	GOGONYO	AUJABULE	07850

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Activity: FGD with Youths
Date: 16/7/2022 District: PALLISA Sub County: GOGONYO Village AJEPET A

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
1	TUKEI LUCY	F	FARMER	GOGONYO	OBAMIA CENTRAL	0774 142893
2	OKOBOI ALEX	M	FARMER	GOGONYO	AJEPET-A	0773110930
3	OKELLO RAYMOND	M	PEASANT	GOGONYO	AUJABULE	0781345
4	OKURUT JOHN AISU	M	FARMER	GOGONYO	AJEPET 'A'	07613424
5	ABYELE MARGRET	F	FARMER	GOGONYO	AJEPET A'	0772329940
6	Osuban Moses-O	M	FARMER	GOGONYO	Aitaritor	07731911

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Activity: FGD with female Adults
Date: 16th/07/2022 District: PALLISA Sub County: GOGONYO Village

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
01	AMAGORO ESTHER MONICA	F	P/chief	GOGONYO	ANGODI	0775256
02	AKURUT SICOLA	F	Farmer	GOGONYO	AGULE	0781649
03	IBIMIKA IMMACULATE	F	FARMER	GOGONYO	AJEPET A	0787767
04	AKELLO JANE ROSE	F	FARMER	GOGONYO	GEMO	0771661262
05	AMODING FLORENCE	F	FARMER	GOGONYO	AUJABULE	0781345055
06	AMULEN ESTER	F	FARMER	GOGONYO	AUJABULE	07851537
07	AKOL BENALETA	F	FARMER	GOGONYO	KIETIKAI	0782409
08	NAKIRIA OLIVER	F	FARMER	GOGONYO	ONGIDR	
09	SLIKALI FAITH	F	SEC/Prod	GOGONYO	Cheele	07833610

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Activity: District level Consultative Meeting
Date: 18/7/2022 District: Butaleja Sub County: Butaleja T/C Village

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	~~VILLAGE~~ Telephone	SIGNATURE
1	[illegible]	M	DDO		0782[illegible]	
2.	WEERE STEPHEN	M	DAO	Butaleja DLG	0771823626	
3.	SWAMA CHARLES	M	DAE	BUTALEJA DLG	0782165618	
4	Tom Wandera	M	Env. Off	Butaleja DLG	0781421452	
5	WASIKE AJUBU	M	SEC PRODN	BUTALEJA DLG	0771496794	

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Activity: Parish level Consultations - Bunawale
Date: 19th-7-2022 District: BUTALEJA Sub County: BUDUMBA S/C Village TAIRO

No.	NAME	GENDER	OCCUPATION	SUB COUNTY	VILLAGE	SIGNATURE
	KAALE MUSA	M	PEASANT	BUDUMBA	Buhwanya	
	WEERE ZADOKI	M	PEASANT	BUDUMBA	BUHADANYA	
	MUGOLE SAMUEL	M	PEASANT	BUDUMBA	Buhadanya	0758698201
	NAMONO SYLIVIA	F	PEASANT	BUDUMBA	TAYIRO	0783439838
	HYALO FREDRICK	M	PEASANT	BUDUMBA	BUNAWALE	0760018057
	HAMBA HELLEN	F	PEASANT	BUDUMBA	TAIRO	
	WAMUGUNA CHARLES	M	PEASANT	BUDUMBA	BUNAWALE	0752139653
	GAMUSI MICHAEL	M	PEASANT	BUDUMBA	Gombe	0756650811
	LUSEGA SAMUEL	M	Parish chief	BUDUMBA	Parish chief	0704504456

42 First set of six are youths, and next set of six are Adult females

43 Adult males

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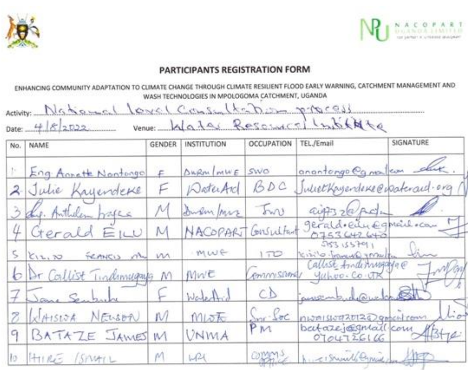
APPENDIX IV: PARTICIPANTS' LIST FOR THE NATIONAL LEVEL CONSULTATIVE ENGAGEMENT



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Activity: National level Consultation process

Date: 4/8/2022 Venue: Water Resources Institute

No.	NAME	GENDER	INSTITUTION	OCCUPATION	TEL./Email	SIGNATURE
1	Eng Annette Nantongo	F	DWRM/MWE	SWO	anantongo@gmail.com	
2	Julie Kayendeke	F	WaterAid	BDC	JulietKayendeke@wateraid.org	
3	[illegible]	M	DWRM/MWE	[illegible]	[illegible]	
4	Gerald Eilu	M	NACOPART	Consultant	gerald.eilu@gmail.com 0753642640	
5	[illegible]	M	MWE	ITO	[illegible]	
6	Dr Callist Tindimugaya	M	MWE	Commissioner	Callist.tindimugaya@yahoo.co.uk	
7	[illegible]	F	WaterAid	CD	[illegible]	
8	Waisiwa Nelson	M	MLSE	Snr. Soc	[illegible]	
9	BATAZE JAMES	M	UNMA	PM	batazej@gmail.com 0704726166	
10	HIIRE ISMAIL	M	WRI	COMMS OFFICE	[illegible]	

APPENDIX V: EMERGINNG INFORMATION NEEDS

Q1a) Review and enrich the list of stakeholders in the project

b) Clarify the potential roles of stakeholders in the project and articulate the implementation arrangements

c) Clarify the roles and responsibilities of the local governments in the project

Q2) Suggest strategies for sustaining project interventions beyond the project lifespan of four years

Q3) What lessons should we draw from related ongoing and previous projects in the Mpologoma Catchment?

Q4) How should FEWS and Climate-smart WASH technologies be integrated in planning, design, implementation and monitoring at various levels planning and development frameworks

Q5) What are the capacity gaps of key stakeholders at national, district and local levels for **FEWS, WASH planning, designing, implementation and monitoring**

Q6) Give the capacity gaps in planning, designing, implementing and monitoring **climate adaptive WASH** among stakeholders

Q7) On institutional linkages/partnerships, how should inter-ministerial and inter-sectoral climate resilient WASH information sharing be implemented (to avoid mixed messages and ensure harmony)

Q8) How should a revolving fund scheme for alternative IGAs be designed and implemented?

Q9) How should gender and disability rights groups be supported to share FEWS and climate resilient WASH information

Q10) How should the project facilitate integration of water security and climate resilience into national and Sectoral Development Plans?

Q11) Within this project, what grievance redress mechanism should be used at the national level?

Annex IV: Socio-economic and environmental Assessment report

Socio-economic and Environmental Assessment for Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda

By

NACOPART UGANDA LIMITED
Your partners in sustainable development

JULY 2022

1. INTRODUCTION

1.1. Background

The purpose of the socioeconomic and environment baseline studies was to generate data on the current situation prevailing in the targeted project area to inform the process of writing the full proposal titled "*Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda*" to be submitted to the Adaptation Fund by the Ministry of Water and Environment (MWE) in August 2022. The findings will form a basis for tracking progress in implementation and measuring performance of CARFEWW project at mid-term and end-term.

The socioeconomic baseline intended to collect data on the following key aspects;

i. *Population distribution in the project area*
ii. *Livelihoods/Income generating activities of the households*
iii. *Poverty estimate per district within the six sub catchments*
iv. *Water, Sanitation and Hygiene (WASH) in terms of access to water, WASH challenges and climate smart WASH technologies*
v. *Energy sources for cooking*
vi. *Implications of socioeconomic and demographic characteristics on the on the resilience and adaptive capacity to climate change.*

The environmental baseline study also intended to collect data on the following key aspects;

i. *Location and administrative units (specify project location)*
ii. *Topography*
iii. *Geology (Soils)*
iv. *Hydrology (Drainage patterns)*
v. *Climate (i.e Rainfall and Temperature patterns)*
vi. *Biodiversity (i.e Flora and Fauna)*
vii. *Landuse*
viii. *State of Natural Resources (i.e Status of forest estate, Land degradation).*
ix. *Implications of environmental variables on the resilience and adaptive capacity of communities to climate change*

The study targeted the 6 selected sub-catchments which cover a total area of 2,994 km^2 (33.3% of Mpologoma catchment) and administratively cover 11 districts (Bududa, Namisindwa, Mbale, Manafwa, Butaleja, Tororo, Kibuku, Budaka, Namutumba, Kaliro and Pallisa) shown in Table 1.

Table 14: Districts within the proposed project area

Drainage	Sub Catchment	Districts
Upstream	Upper Manafwa	Bududa, Namisindwa, Mbale, Manafwa

	Middle Manafwa	Butaleja, Namisindwa, Mbale, Manafwa, Tororo
Midstream	Lower Manafwa	Butaleja, Kibuku, Budaka, Tororo
	Upper Mpologoma	Namutumba, Butaleja, Tororo
Downstream	Middle Mpologoma	Kibuku, Namutumba
	Lower Mpologoma	Kaliro, Palisa

2. METHODS

2.1. Selection of districts, sub-counties, parishes and participants

The final administrative areas selected for the baseline in consultation with Kyoga Water Management Zone (KWMZ) technical team at MWE and the District Local Government (DLG) staff basing on several parameters, for example, proneness to landslides and or floods, high rainfall variability, climate change impacts, severity of degradation, agriculture as main source of livelihood, poverty levels, Inadequate and or limited EWS, deterioration of water (quality and quantity) and water resources. Table 2 shows the districts, Sub-counties and parishes where the baseline study was conducted.

Table 15: Districts, Sub-Counties and Parishes where fieldwork was conducted

Drainage	Sub Catchment	Districts	Study Sub Counties	Parishes
Upstream	Upper Manafwa	Bududa*	Bukibokolo SC*	Bulumino*
		Mbale		
	Middle Manafwa	Manafwa*	Kaato*	Bumukari* & Bunamungoma*
		Tororo		
Midstream	Lower Manafwa	Budaka		
		Tororo*	Kirewa [Iyolwa & Ojilai]. [Ojilai SC was curved from Iyolwa SC]	[Iyolwa parish*, Ojilai parish*
	Upper Mpologoma	Butaleja*	Budumba*	Bunawale*
		Namutumba		
Downstream	Middle Mpologoma	Kibuku		
		Namutumba*	Nangode*	Nangode Town Council*
	Lower Mpologoma	Palisa*	Gogonyo* [1 FGD in Obutete SC* cut from Gogonyo SC].	Gogonyo parish* & Agure parish*
		Kaliro		

*[Key: * District, sub counties and parishes where KIIs and FGDs were conducted]*

2.2. Data collection methods

Data was collected using:

i. Planning/Consultative meeting with the KWMZ team in Mbale City.
ii. Key informant interviews with the DLG technical staff and Political leadership (LC5, LC3 and LC1 representatives). A total of 31 DLG officials and 32 Sub-County officials participated in the KIIs.
iii. Review of documents (*See References*).
iv. GIS to determine land use cover change, and catchment degradation and generation of maps.
v. Site visits to and digital photography of the hotspot areas of landslides and floods, early warning systems (EWS) and WASH infrastructure, IGAs and restoration activities, etc.
vi. Focus Group Discussions (FGDSs) with the local community in parishes considered landslide or flood hotspots. FGDs were conducted separately for men, women and youths mobilised from villages within the hotspot parishes. Each social category also had a mix of PWDs and elderly persons. Mobilisation for FGDs was done by the Local Council Chairpersons based on communication from the Parish Chiefs and Sub County CDOs. A total of 163 (i.e. 120 males and 43 females and Youths) members participated in the FGDs.

2.3. Data analysis

Data were analysed using quantitative and qualitative techniques. Socioeconomic data and IGA data from secondary sources were summarized using mean, proportions and totals generated in MS-Excel 2013. Data from FGDs and KIIs were analyzed using thematic, content and discourse analysis techniques with support of MS-Word 2013.

ArcGIS 10.8.1 GIS software was used to generate the following;

- Location maps of the sub catchments within the Mpologoma catchment,
- Geology map, soil map, hydrology map showing drainage of the sub catchments, climate maps showing rainfall and temperature.
- Biodiversity map showing Land use practices in the targeted project sub catchments
- Hotspots for landslides and floods.

The results were disaggregated by drainage levels (upstream, midstream and downstream), the six sub catchments and also by gender where applicable.

3. RESULTS AND DISCUSION

3.1. Socioeconomic and demographic characteristics

3.1.2. Population distribution in the Mpologoma catchment

Table 1 shows the total population of the catchment only including Sub-Counties which fall within and or adjacent to the Mpologoma catchment within the 11 districts. The projected population of the Mpologoma catchment showed an increase over the period 2015-2030 as shown in Figure 1 and Figure 2. The total population of the catchment was projected to be 1920800 in year 2015, 2393800 in year 2022 and 2955500 in year 2030 (UBOS 2019).

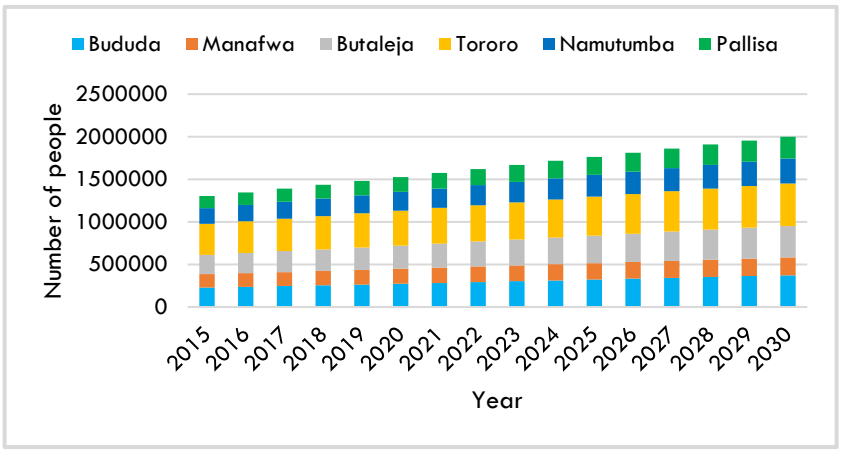


Figure 14: Projected population of project area per district (2015-2030)

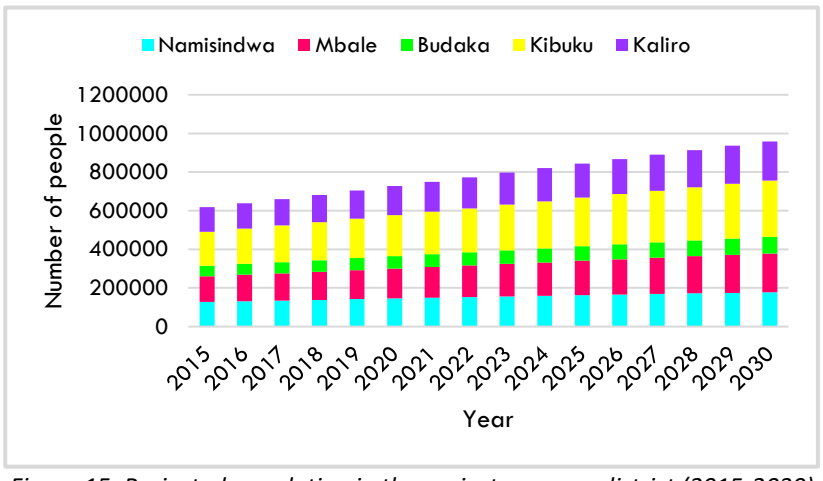


Figure 15: Projected population in the project area per district (2015-2030)

In 2022, the total population was 2,393,800 (49.3%% males and 50.7% females) as shown in Table 3. Overall, the proportion of the female population in the catchment to the total population of the district was high (50.7%) and compared to the males (49.3%) in 10 out of the 11 districts except for Namisindwa district where the males were 50.3% and females were 49.7%. The overall sex ratio (i.e. number of males per 100 females in the population) in the catchment was 97.1% implying that for every 97 men, there are 100 females in the population and is an indicator used to measure the extent of prevailing parity between males and females.

Table 16: Proportion of district catchment population to the district population by sex in 2022

District	Males (%)	Female (%)	Total Number of persons in 2022
Bududa	49.5	50.5	292900
Manafwa	49.3	50.7	182700
Butaleja	49.5	50.5	292900
Tororo	49.0	51.0	428200
Namutumba	49.8	50.2	234700
Palisa	49.2	50.8	189200
Mbale	48.3	51.7	163900
Budaka	49.1	50.9	68400
Kibuku	48.7	51.3	227700
Kaliro	49.4	50.6	160800
Namisindwa	50.3	49.7	152400
Total (%)	49.3	50.7	100
Total (#) in catchment	1179600	1214200	2393800

[Source: UBOS 2019 Population Projections for the period 2015-2030]

a) Implications of population increase on the resilience and adaptive capacity to climate change

The consultative discussions with the district officials and local community revealed that the increase in population exerted more pressure on the resources within the catchment, leading to over utilization and degradation of the catchment. For example, during the KIIs, the district technical staff and political leadership indicated that high population has led to fragmentation of land into small plots which are over cultivated using poor farming methods which did not promote soil and water conservation and catchment protection. High population has also led to encroachment on and degradation of the banks of River Manafwa, River Mpologoma and the stream that flow into the rivers in the upstream, midstream and downstream.

3.1.3. Livelihoods/Income Generating Activities (IGA)

a) Main economic activity of the population in the catchment

The main economic activity was agriculture (crop farming and some livestock keeping) mainly subsistence. The main cultivated food crops were maize, beans, cassava, banana, rice, millet and horticultural crops (Vegetables), Table 4. Other studies, for example, UBOS 2022 found that in Uganda, the majority of households are engaged in agriculture[44]. In Uganda agricultural households represented 80% of the total households in Uganda (UBOS, 2022, p.3). The agriculture sector also accounts for the largest share of employment (47%).[45]

Table 17: Main crops grown per social category per Sub-County where FGDs were conducted.

Drainage	Upstream		Midstream		Downstream	
District	**Bududa**	**Manafwa**	**Butaleja**	**Tororo**	**Namutumba**	**Pallisa**
Sub County	Bukibokolo	Kaato	Budumba	Kirewa/ Iyolwa	Nangode	Gogonyo/Obutete
Coffee	M,F,Y	M				
Bananas	MFY	M,F,Y				
Irish potatoes						
Maize				All	M,F,Y*	All
Cassava	M,F,Y*		M,F,Y*	All	All	All
G-Nuts			All	All	All	All
Horticultural crops e.g Sukuma	F*, Y					
Rice			M,Y*			M,F,Y*
Millet			M,F,Y*	All		M,F,Y*
Sorghum				All		
Fruits						
Sweet potatoes			All			All

[Key: *=Main crop, M=Males, F=Females, Y=Youths, L=Low, Mo=Moderate, H=High]

b) Other economic activities of the households in the targeted project area

i. Bull fattening- mainly by men who buy the hybrid calves at UGX 1000000 each from Kenya and fatten them for 1 year and then sell them back to Kenya at UGX 3000000-UGX 3500000 weighing approximately 300kg each. This practice was common and very lucrative in Bududa and Manafwa districts.

[44] UBOS 2022: Annual Agricultural Survey (AAS) 2019 – Statistical Release.
[45] UBOS 2020: Uganda National Household Survey (UNHS) 2019/20.

ii. Brick making-mainly by male youths in lowland areas of the catchment
iii. Firewood selling–mainly by females and youths who sell it to Mbale City. Firewood mainly comes from Eucalyptus trees because the indigenous gtrees have been cut down in most places in the upstream. In the downstream, firewood was mainly obtained from Albizzia and Ficus species but any trees species including mangos were also cut. In Bukibokolo SC in Bududa district, 1 piece of firewood from Eucalyptus is sold at UGX 2000 with a bundle going for UGX 20000 because of scarcity of firewood yet demand is very high. In Budumba SC in Butaleja district, 1 bundle having 10 pieces of firewood costs UGX 10000.
iv. Charcoal burning- mainly by men and male youths who sell it to Mbale City. The charcoal is mainly from the Albizzia trees species. Howerver, currently, all hardwood indigenous trees are cut down for charcoal burning which is a lucrative business in all the districts. For example, in Bukibokolo SC in Bududa district, a sack of charcoal costs UGX 25000-30000 at source in the dry season. But in Budumba SC in Butaleja district, a sack costs UGX 60000-UGX 70000 without a top locally know as '*Kameza*" but if it has a top, it costs UGX 100000.
v. Sand mining- mainly by men and male youths. A few females mined sand in Butaleja and Bududa district. Sand mining was done in the upstream (Bukibokolo SC in Bududa district, along River Lissi at the boundary of Bukibokolo SC and Bumashet SC and also along River Manafwa in Kaato SC in Manfwa district. Sand was also mined in midstream areas of Tororo and Butaleja and also downstream (in Palisa distrct and Namutumba district). For example, in Bukibokolo SC in Bududa district, 1tipper truck of sand costs UGX 300000 while a Canter (Elf) truck costs UGX 200000 at source.
vi. Boda-boda riding-mainly by male youths. It's a male dominated IGA which generates quick income.
vii. Retail trade- all social categories operating along roadsides and in trading centres and local markets in all subcounties where the FGDs were conducted.

c) Implications of IGAs on the resilience and adaptive capacity to climate change

Key Informant Interviews (KIIs) and FGDs revealed that most of the economic activities engaged in by the people living within and adjacent to the catchment degraded the ecosystem (rivers, soils, wetlands, forests and hills). For example, sand mining degraded the bank of River Manafwa. Tree cutting for charcoal and firewood led to reduction in tree cover whereby most of the tree species are currently targeted (in-discriminate cutting down of trees). Rice growing and sugarcane growing in the midstream and downstream area (Butaleja district) led to degradation of the wetlands and river banks of Rivers Manafwa and Mpologoma. Consequently, the poor land use practices and degradation of the ecosystems have led to increases in the impact of climatic hazards such as floods, landslides, drought and hailstones. The impact is felt in terms of the destruction of crops and household property, low crop yields, scarcity of fodder for livestock and shortage of water for domestic use and production. There are reports of loss of life in extreme cases. As a result, there are low incomes among communities and subsequently reduced resilience towards impacts of climatic hazards.

3.1.4. Poverty estimate per district covering the catchment.

b) Poverty level

Pronounced deprivation in well-being or welfare including economic factors such as low income and lack of assets, access to markets or public services among other factors can lead to poverty (*UBOS 2012*)[46].

Overall, the poverty estimates of the households in the catchment extracted from the UBOS 2019/20 estimates per district (Figure 3) was 39.5%. The poverty rate was highest in Butaleja district (47.8%) and the least in Mbale district (24.7%) excluding Mbale Municipality/City.

a) Implications of Poverty on the resilience and adaptive capacity to climate change

Income permits people to obtain goods and services. Income is also a determining factor when dealing with shocks. Income is the starting point in coping with shocks, considering that a higher income could lead to greater savings, which could be important during the post-shock recovery phase.

[46] UBOS 2012: Compendium of Statistical Concepts and Definitions [4th Edition]

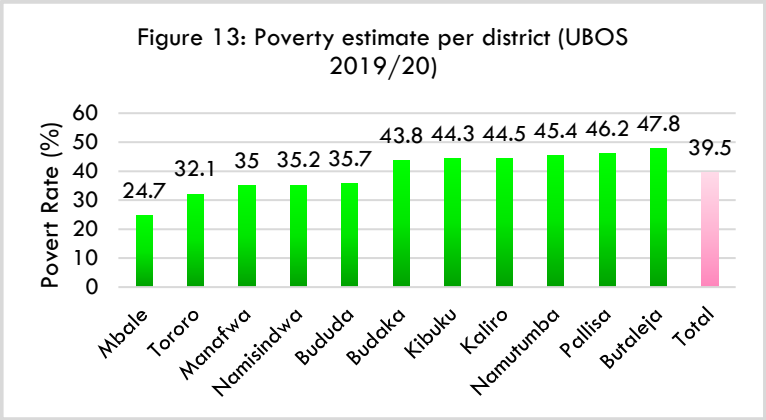


Figure 16: Poverty estimate per district (UBOS 2019/20)

In the Mpologoma catchment, poor households are less resilient and have less adaptive capacity to the impacts of climatic hazards as compared to households in the upper wealth quantile. This is because poor households have no assets or adequate incomes saved or Social Safety Nets (SSN)/remittances/cash transfers to respond to shocks in the short run, for example, by selling assets to get money and buy land elsewhere and or constructing a house in the aftermath of a landslide and or flood. Poor households also have low access to basic services (ABS) and quality services such as schools, hospitals and other health services, markets, stores, paved roads, safe houses and water and waste disposal systems.

Poverty renders the most vulnerable categories of the local community, such as women, children, elderly, PWD and child-headed homes (CHH) less resilient and less adaptive to the impacts of climatic hazards such as low crop yields, loss of houses and WASH challenges (water scarcity, Loss of pit latrines and pollution of water sources, etc). Low crop yields which were as a result of landslides, floods, drought and or hailstones caused food insecurity amongst the most vulnerable local community members.

"…..I am poor PWD having crippled legs so I cannot stand to walk but move by crawling, so when it rains continuously for 2-3 days in this parish, the mudslides block the roads, pollute the only water source (Lwanda stream) and also the lowlands flood so I cannot crawl in the muddy roads and footpaths neither swim across the flood waters. This makes is it very difficult for me to fend for my family and also to recover from impacts of the mudslides and floods especially when my gardens/crops are destroyed…." A male youth PWD participant in FGD in Bulumino Parish located in Bukibokolo SC in Bududa district.

3.2. Water, Sanitation and Hygiene (WASH)

Poor sanitation coupled with unsafe water sources increases the risk of water-borne diseases and illnesses due to poor hygiene (UDHS 2006). This has contributed immensely to the disease burden in Uganda. Households without proper toilet facilities are more exposed to the risk of diseases like dysentery, diarrhea, and typhoid fever than those with improved sanitation facilities. This collected data on the WASH services and infrastructure, WASH challenges and recommendations for climate smart WASH technologies. Results are presented below:

3.2.1. Access to Safe Water

Access to safe water is the ratio of people served by a safe water point and piped water supply to the total population sources (Uganda Water Atlas, 30th July 2022). The calculation is based on an estimated number of people per water point type. Maximum access rate can be 95%.

Overall average access to safe water was 65.5% (i.e. 64% rural and 63% urban access) in the CARFEWW project area (Table 5). In the 7 sub counties where the stakeholder consultations (KIIs and FGDs) were conducted, the average access to safe water was 62.3%. The overall access to safe water in the urban areas was low as compared to the rural areas in the project area because of the recent creation of new Town Councils, Municipalities and Cities which has increased the total population forming the denominator in calculating water access.

Although the statistics in Table 5 above show high access to safe water, the local community during the FGDs reported that most parishes faced water scarcity especially in the dry season. For example, Bulumino parish in Bukibokolo SC in Bududa district had only Lwanda stream (Figure 4) as the main source of water for domestic

use and drinking for households in six villages namely Nakhokho, Bunakunda, Lwanda, Bulumino A, Bulumino B and Namango.

Table 18: Access to Safe Water

District	Rural access	Urban Access	Total access	Access by Sub County where KIIs and FGDs were conducted
Bududa	67%	44%	66% (*i.e 182778 out of 296391 population served*)	Bukibokolo SC =91.4% (*i.e. 12771 out of 13967 rural population served*)
Manafwa	73%	92%	76% (*i.e. 177504 out of 134186 population served*)	Kaato SC=94% (i.e. 4906 out of 5164 rural population served)
Butaleja	60%	58%	60% (*i.e. 191262 out of 318709 population served*)	Budumba SC =60% (*i.e. 18200 out of 30094 population served*)
Tororo	58%	64%	59% (*i.e. 371578 out of 627854 population served*)	Kirewa SC=43% (*i.e. 14650 out of 34193 rural population served*). Iyolwa SC= 73% (*i.e. 18112 out of 24651 rural population served*).
Namutumba	59%	31%	57% (*i.e. 183917 out of 323759 population served*)	Nangode SC=95% (*i.e. 9125 out of 9605 population served*)
Palisa	53%	63%	62% (*i.e. 190548 out of 308985 population served*)	Gogonyo SC =40% (*i.e. 15500 out of 38755 population served*).
Mbale	62%	81%	67% (i.e. *405984 out of 607743 population served*)	-
Budaka	81%	70%	80% (*i.e. 213656 out of 267852 population served*)	-
Kibuku	69%	42%	68% (*i.e. 162,350 out of 238,907 population served*)	-
Kaliro	49%	40%	48% (*i.e. 176,984 out of 368,393 population served*)	-
Namisindwa	68%	49%	67% (*i.e. 168,471out of 253,251 population served*)	-
Overall (Average)	64%	63.4%	65.5%	62.3%

In Kaato SC in Manafwa district, the Gravity Flow Scheme (GFS) whose source is in Bukuku in Namisindwa district, but was extended to supply water to Bukimanayi HCIII in Manafa district, was not functional by July 2022 due to cross border local community conflicts which led to vandalization of the GFS, damage to pipes resulting into heavy leakages and heavy pollution due to open defecation at the water intake point in Namisindwa district. In Bumukari parish in Kaato SC in Manafwa district, 3 out of the 7 springs are not protected but the local community still use this water for domestic use and drinking. Worse still, two unprotected springs were in the villages where a deep crack (reported to be 2-3 metres) indicative of pending landslides were observed in 2018.

Figure 17: Lwanda Stream (Main source of water for domestic use and drinking for 6 villages in Bulumino parish in Bukibokolo SC in Bududa district)

3.2.2. Functionality of point water sources

Functionality is the ratio of functional water sources to all water sources (Uganda Water Atlas, 30th July 2022). Sources not operating for five or more years are assumed to be abandoned, and hence are not included in the calculation. The main causes of non-functionality include technical breakdowns, vandalism, water quality and drying of water sources (MWE 2022).

Table 6 shows that functionality of point water sources was high (92% in rural areas and 91% in urban areas) but the actual number of functional point water sources was low, for example, in most parishes where the FGDs were conducted with the local community members during this baseline study.

Table 19: Functionality of point water sources

District	Rural functionality	Urban functionality	Sub County Access
Bududa	91%	71%	Bukibokolo SC=97% (47 functional sources)
Manafwa	95%	97%	Kaato SC=100% (37 functional sources)
Butaleja	91%	90%	Budumba SC=90% (54 functional sources)
Tororo	88%	100%	• Kirewa SC=98% (NWSC). • Iyolwa SC=76% (NWSC)
Namutumba	88%	90%	Nangode SC/Obutete SC=88% (56 functional sources)
Palisa	97%	88%	Gogonyo SC=86% (43 functional sources)
Mbale	87%	90%	-
Budaka	95%	80%	-
Kibuku	92%	91%	-
Kaliro	95%	100%	-
Namisindwa	98%	100%	-
Overal (Average)	92%	91%	90.7%

*[**Source:** Uganda Water Atlas -30th July 2022]*

3.2.3. People served per technology

Overall, the main type of water source serving the people in the targeted CARFEWW project area was deep boreholes (61%) followed by protected springs (27%) among others (Table 7). During the KIIs and FGDs, it was revealed that GFS and protected spring were most used in the upstream while boreholes and deep wells, and shallow wells were mainly used in the midstream and downstream areas of the catchment. Local community members reported that there was no Rain Water Harvesting (RWH) scheme supported by the KWMZ under MWE. The participants in FGDs in the upstream parishes said that most homes have iron-sheet roofs which trap a lot of rainwater which was not stored but instead diverted using small channels on the roads thus causing a lot of damage to the marram roads and footpaths. A RWH system was highly recommended among other water conservation technologies to conserve water for domestic use, livestock and production especially in the dry season months of December, January and February.

Table 20: People served by type of water source

District	Protected springs (%)	Shallow wells (%)	Deep boreholes (%)	RWH Tanks (%)	Public Tap (%)
Bududa	64	0	3	0	32
Manafwa	44	1	49	0	6
Butaleja	16	4	80	0	0
Tororo	16	4	80	0	0
Namutumba	7	19	74	0	0
Palisa	13	10	77	0	-
Mbale	41	4	30	0	25
Budaka	16	2	81	0	0
Kibuku	6	7	87	0	1
Kaliro	0	7	93	0	-
Namisindwa	69	3	17	0	11
Overall (Average)	26.6	5.6	61	0	9.3

*[**Source:** Uganda Water Atlas -30th July 2022]*

3.2.4. Summary by access, functionality, equity management and gender

Table 8 shows that gender was highly mainstreamed in the provision of water to the local communities. For example, at community level, the golden indicator for gender mainstreaming in rural water interventions is "*the percentage of Water and Sanitation Committees (WSC) with at least one woman holding a key position*"

Equity in access to water was also high (114) overall in the catchment. However, overall access to safe water was still low (65%) despite the fact that overall functionality of the point water sources being high (92%).

Table 21: Summary by access, functionality, equity management and gender

District	Access	Rural functionality	Equity	Management	Gender
Bududa	66%	91%	86	99% (80% is Communical)	100%
Manafwa	76%	95%	99	91% (80% is Communical)	93%
Butaleja	60%	91%	38	94% (80% is Communical)	89%
Tororo	59%	88%	94	83% (80% is Communical)	88%
Namutumba	57%	88%	148	99% (80% is Communical)	85%
Palisa	62%	97%	95	81% (80% is Communical)	88%
Mbale	67%	87%	143	90% (80% is Communical)	88%
Budaka	80%	95%	51	86% (80% is Communical)	85%
Kibuku	68%	92%	93	95% (80% is Communical)	92%
Kaliro	48%	95%	317	97% (80% is Communical)	90%
Namisindwa	67%	98%	90	96% (80% is Communical)	69%
Overall (Average)	65%	92%	114	92% (80% is Communical)	88%

*[**Source:** Uganda Water Atlas -30th July 2022]*

3.2.5. Availability of Toilet facility

Improper disposal of human waste is a burden to public health provision. Proper disposal of human waste involves the use of a toilet facility (UBOS NPHC 2014). The improved toilet facilities include any non-shared toilet of the following types: flush/pour flush toilets to piped sewer systems, septic tanks, and pit latrines; ventilated improved pit (VIP) latrines; pit latrines with slabs; and composting toilets (UDHS 2016).

In Uganda, the most commonly used toilet facility was covered pit latrine without a slab (33%) closely followed by the 21% using covered pit latrine with a slab (UBOS 2014 NPHC). Table 9 shows that the percentage of households by type of toilet facilities used and availability of handwashing facilities from the UNHS 2016/17. Overall, most households (82.6%) in the target area used pit latrines (Table 9). However, most households (93.9%) did not have hand washing facilities at their toilet facilities.

During the FGDs, the local community members said that during the rainy season, water sips through the sides of the pit and collects in the pit. Latrines especially in the upstream were shallow (8ft-15ft) because the soils are loose and the bedrock was near.

Table 22: Latrine coverage and handwashing facilities per district in the project area.

Location			Households by type of toilet facilities used (%)				Households by availability of hand washing facilities (%)			
Sub-Region	District in the CARFEWW project area	No. of Households (UNHS 2016/17 projections)	Pit Latrine	VIP Latrine	Bush/No Toilet	Flush	No	Yes with water only	Yes with water and soap	Yes with no water
Bukedi	Budaka	37,188	95.4	0.5	3.5	0.6	84.3	9.6	5.6	0.5
Bugisu	Bududa	36,848	87.7	1.5	9.6	1.3	97.2	0.9	1.4	0.5
Bukedi	Butaleja	44,362	95.4	0.5	3.5	0.6	84.3	9.6	5.6	0.5
Busoga	Kaliro	42,924	80.4	3.9	14.9	0.7	91.6	4.1	4.0	0.3
Bukedi	Kibuku	35,446	95.4	0.5	3.5	0.6	84.3	9.6	5.6	0.5
Bugisu	Manafwa	30,979	87.7	1.5	9.6	1.3	97.2	0.9	1.4	0.5
Bugisu	Mbale	108,558	87.7	1.5	9.6	1.3	97.2	0.9	1.4	0.5
Bugisu	Namisindwa	41,836	87.7	1.5	9.6	1.3	97.2	0.9	1.4	0.5
Busoga	Namutumba	45,371	80.4	3.9	14.9	0.7	91.6	4.1	4.0	0.3
Bukedi	Pallisa	40,734	95.4	0.5	3.5	0.6	84.3	9.6	5.6	0.5
Bukedi	Tororo	102,492	95.4	0.5	3.5	0.6	84.3	9.6	5.6	0.5
	Total	**7,304,070**	**82.6**	**7.6**	**7.3**	**2.6**	**83.9**	**8.6**	**6.2**	**1.3**

[Source: UNHS 2017/17 by UBOS]

Most pit latrines did not have a slab and vent pipe. Only institutions such as the Local Government Offices, Health facilities, Schools and religious institutions had ventilated improved lined pit latrines. The local community members said that the shallow latrines fill up very fast and the cost of digging is high (i.e. UGX 5000 per foot and this fee increased with depth of the pit i.e. The deeper the pit, the higher you pay per foot and the cost may go UGX 10,000 per foot).

The alternative climate smart WASH technologies recommended by the local community members during the FGDs were the ECOSAN toilet and the Lined pit latrines with slab and vent pipe built with concrete right from down the pit with a possibility of being emptied.

It was also was reported that landslide and floods destroyed the pit latrines especially in the hotspot area. Also if it rains continuously for 2-3 days, water sips from the side of the pit into the pit rendering it more susceptible to collapsing.

Due to the high human population and fragmented nature of land, latrines are built not far from the mandatory 30m from the river banks in the catchment. As such, landslides, mudslides and floods destroy the latrines and mix the waste with the water in rivers and stream, hence putting the water users at a risk of contracting waterborne diseases.

Other sources of pollution of the River Manafwa and other streams in the area

The district and sub county officials and the local community members said that there were also other sources of pollution of water sources, for example;

i. High water run-off of from the gardens where poor farming methods were practiced that carried away top soil into the rivers and streams.
ii. Spraying of agriculture chemicals on crops and application of inorganic fertilizers
iii. Dumping of dead dogs in the upstream
iv. Open defecation in some areas e.g. Busuku in Namisindwa water intake point for the GFS that was meant to supply Bukimanayi HCIII but currently not operational.
v. Animal waste from the zero grazing units whereby cow dung and urine are diverted to flow into the rivers and stream as opposed to using it for farmyard manure or composite manure.
vi. Rainwater collected on iron sheet roofs was diverted to flow onto the road and ends up into river Manafwa and streams especially in the upstream and midstream areas.
vii. Increased agriculture activity in the wetlands, for example Rice growing in Butaleja district has led to the depletion of the sub catchments. Sugarcane growing was also practiced in the midstream and downstream areas, in addition to growing of other horticulture crops.
viii. Sand mining also led to degradation of the river banks. The sand deposited from the upstream caused siltation of the rivers. The sand was mined mainly by male youths because sand was available and a lucrative IGA.

3.3. Energy sources for cooking

Overall, the main source of energy for cooking in the project area (6 sub catchments) was firewood (83.6%) as shown in Table 6. A total of 10 out of the 11 districts in the project area had over 80 in every 100 households using firewood for cooking. Only Mbale district had 58.9% of households using firewood but with more households (32.5%) using charcoal as compared to other districts.

During the FGDs with the local community members, it was revealed the firewood was the main source of energy for cooking. Firewood was obtained from cutting down trees and also the twigs of some trees. In most cases, all tree species are targeted. Firewood from Eucalyptus was sold to Mbale market. One bundle having 10 pieces was sold at UGX 20000 in Bukibokolo SC in Bududa district and UGX 10000 in Budumba SC in Butaleja district. Firewood was scarce to the extent that even crop residues such as maize stocks and cobs were used for cooking by households in the project area because of indiscriminate cutting of trees to open up agriculture land. There was also low use of energy saving technologies for cooking. Most households in rural areas used the traditional three stones which have high energy loss. Most of the household members involved in collection of firewood were the women and children who do most of the household chores e.g. cooking food for the family.

The local community members also said that the increased use of firewood led to increased cutting down of any tree species, thereby degrading the six sub catchments. The price per piece of firewood also increased to UGX 2000. Use of firewood on the traditional three stones for cooking led to high energy losses and exposure to

smoke inhalation from indoor pollution. UDHS 2016 stated that exposure to any type of smoke, for example resulting from cooking or smoking tobacco, can lead to diverse hazardous health effects.

Table 23: Distribution of households by energy for cooking per district

District	Charcoal		Firewood		Total
	No. of HHs	%	No. of HHs	%	Number of Household that responded
Bududa	1387	3.8	34295	93.1	36824
Manafwa	3582	4.9	66740	91.5	72903
Butaleja	2982	6.7	40348	90.9	44376
Tororo	11816	11.5	83963	81.8	102634
Namutumba	3845	8.5	40327	89.0	45323
Pallisa	3528	5.4	60270	91.6	65764
Mbale	35249	32.5	63931	58.9	108538
Budaka	2205	5.9	34145	92.0	37122
Kibuku	1788	5.0	32869	92.7	35468
Kaliro	3870	9.0	37681	87.8	42935
Total	70252	11.9	494569	83.6	591887

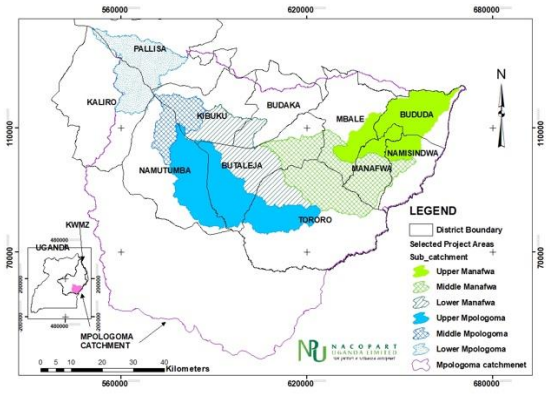
*[**Source:** UBOS 2014 NPHC Final Report]*

Ninety-five percent of the households in Uganda use a solid type of fuel for cooking, with wood being predominant (69%) and only 25% of households using charcoal (UDHS 2016). These national statistics is being used a proxy for Eastern region and East-Central statistical regions of UBOS where most of the 11 districts of the catchment fall.

3.4. Environmental Baselines

3.4.1. Location and administrative units

The project will be implemented within the Mpologoma catchment (Figure 5). The CARFEWW project area covers a total area of 2994 Km^2 and cuts across eleven districts (Figure 6). This project area is 33.3% of the Mpologoma catchment which covers 8989 sq.km (i.e. 7862 sq.km of land area and 1127sq.km of water area) under the KWMZ.



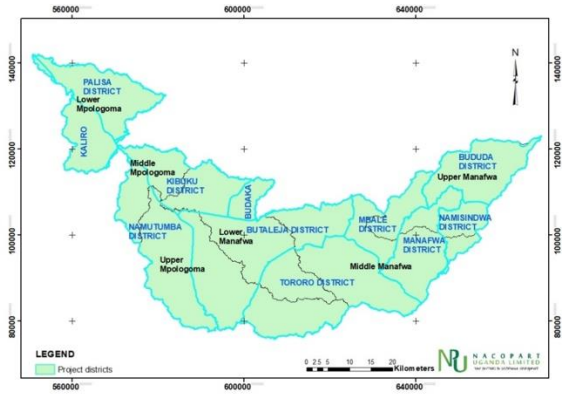


Figure 18: Location of the project areas (Sub catchments); Figure 19: Districts within which the targeted sub catchments fall

3.4.2. Topography

The most striking topographical feature in the Mpologoma catchment is Mount Elgon with its craters, deep valleys and ridges. Mount Elgon on the east rises up 4,321 metres, dominating Mbale, Manafwa, Bududa and Namisidwa districts. In Tororo, the terrain is composed of undulating plains with the occurrence of some river and swamp valleys. There are also out crop of rocks and isolated hills like the Tororo Rock and the Osukulu hills. On average, the plain runs in the north-south direction, from the border of Sironko District to the north, through Bukedea, Pallisa, and Tororo districts to south and southwest, respectively. Areas in Tororo and Butaleja districts consist of very flat plains. Butaleja District is generally composed of continuous flat plains with standing gneisses occur in the form of rocky outcrops in sub-counties such as Kachonga, Butaleja and Budumba (MWE, 2018).

3.4.3. Geology

The Elgon Volcano and Basement Complex granites predominate the upper Manafwa Sub catchment, whilst in the rest of project targeted sub catchments, it is mainly Lake deposits derived from basement complex granites, gneisses, Papyrus residues and river alluvium, Pleistocene beach deposits derived from Basement complex rocks, and River alluvium (Figure 7).

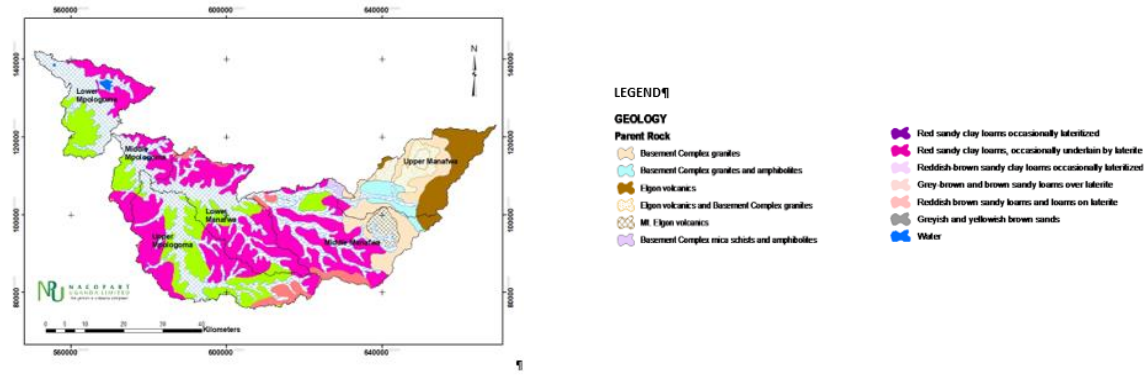


Figure 20: Geology of the project sub catchments

3.4.3.1. Soils

The wetland systems are broadly composed of Gleysols, and Histosols soil classes (MWE, 2018). Gleysols are soils frequently developed under depression areas and low landscape positions with shallow groundwater, which therefore render it appropriate for wetland rice cultivation. Histosols are composed of soils formed in organic material, frequently under papyrus vegetation. It is desirable to protect and conserve such fragile lands because of their intrinsic value (especially their common function as sponges in regulating stream flow and in supporting wetlands containing unique species of animals) and because of prospects for their sustained agricultural use.

There is a great diversity of soil types in the upper Manafwa sub catchment straddling from Humose red sandy clay loams, Yellowish brown sandy clay loams, Red clay loams and sandy clay loams, Black humose sandy clay loam, Dark brown clays to clay loams to Red sandy clay loams occasionally lateritized. The upper catchment soils are generally volcanic soils. The soil types in the remaining sub catchments are to a greater extent different, majorly comprising of Peat or peaty sands and clays, Greyish and yellowish-brown sands, Black and grey clays often calcareous and Grey-brown and brown sandy loams over laterite (Figure 8).

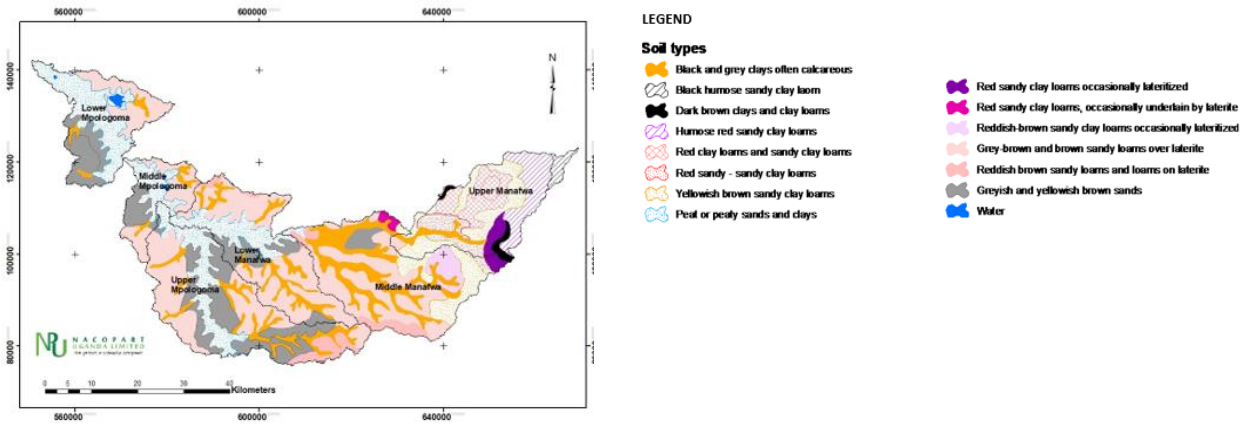


Figure 21: Soil types in the project targeted sub catchments

3.4.4. Hydrology

The main rivers in the Mpologoma Catchment are:

- Rivers Manafwa and Namatala, flowing from the North-Eastern side of the catchment, from the slopes of Mount Elgon, and joining Mpologoma Mbale-Tirinyi Road, close to Butaleja town. This part of the catchment includes the large Doho-Namatala wetland system

- River Malaba and its tributaries (including River Malakisi), flowing from the Southern slopes of Mount Elgon, including a transboundary section in Kenya, and going through Busia and Tororo districts
- Rivers Kibimba and Naeombwa, flowing from the south, and joining the lower part of the Mpologoma Catchment.

Within the project targeted sub catchments however, drainage consists of two main rivers namely River Mabafwa and River Mpologoma, tributaries and associated wetlands (Figure 9)

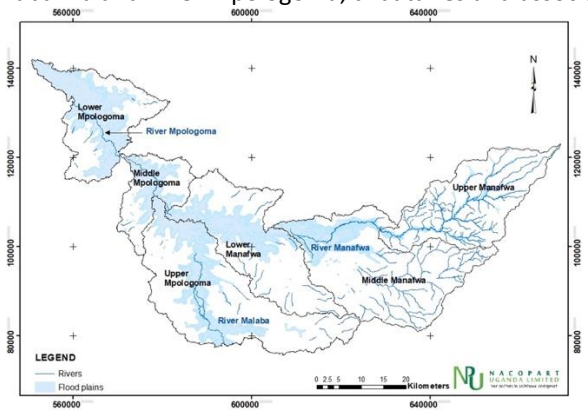


Figure 22: Drainage in the project targeted sub catchments

3.4.5. Climate

The Mpologoma catchment in general has a tropical climate with comparatively small seasonal variations in temperature, humidity and wind throughout the year. The winds are generally light and variable. The mean annual rainfall is around 1,375mm. The catchment generally experiences two rainy seasons, with heavy rains from March to May and lighter rains from October to December.

3.4.5.1. Temperature

The mean temperature across the sub catchments since 2000 are graphically presented in Figure 10 with upper Manafwa sub catchment exhibiting the lowest mean annual temperatures, and lower Mpologoma the highest. The mean temperature is derived from processing European Centre for Medium-Range Weather Forecasts (ECMWF) ERA5 atmospheric reanalysis of the global climate product. Across board, 2016 exhibited the highest mean temperatures over the period (25.3°C for lower Mpologoma), though variations between years within respective sub catchments were minimally gradual.

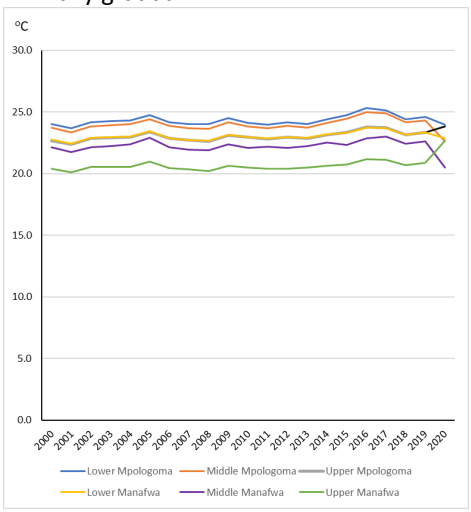


Figure 23: Mean annual temperature for the different sub catchments in the project area

3.4.5.2. Rainfall

Rainfall is spatially distributed, with a more pronounced gradient in the eastern Mpologoma Catchment, between the foothills of Mount Elgon (Upper Manafwa Sub Catchment) and the area around Tororo. Upper Manafwa sub catchment receives the highest amount of rainfall while Lower Mpologoma and Lower Manafwa

receive the least. The rainfall patterns over the years for the six sub catchments is irregular, with 2005 having the lowest mean rainfall and 2020 having the highest (Figure 11). The ' CHIRPS' Precipitation product is derived from processing Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS v2) grids at 5-day temporal resolution to generate total annual precipitations analysis for the period 2000 to present.

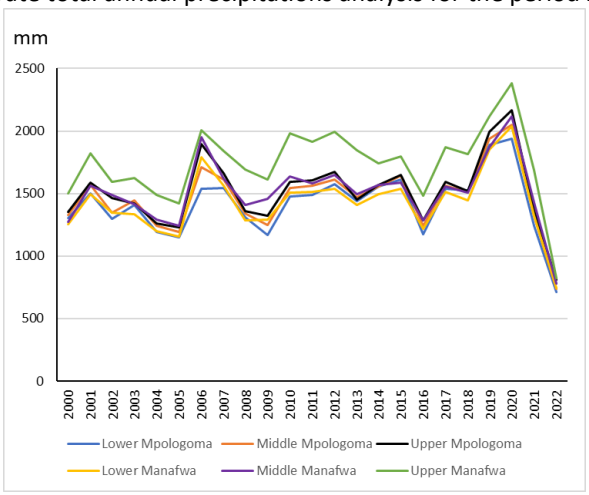


Figure 24: Mean annual rainfall for the different sub catchments in the project area

3.4.6. Biodiversity

3.4.6.1. Flora

The vegetation of the lower Mpologoma catchment is predominantly savannah grassland, mainly comprising of isolated savanna woodlands interspersed with shrubs such as *Lantana Camara*. The woodland and grassland types are scattered in such low areas of the catchment. The upper parts of Mount Elgon consist of four broad classes of vegetation namely, mixed montane forest below 2500m asl, a broad belt of bamboo and low canopy montane forest occurring between 2,400 and 3000m asl, a zone of high montane forest between 3000 and 3,500m asl, and the high moorland community above 3,500m (Byaruhanga *et al.,* 2001).

The project sub catchments are a host to a number of globally IUCN categorized threatened plant species. *Milicia excelsa* (Iroko or African Teak)*,* popularly known as the Mvule tree in Uganda, is widely distributed within the lower project sub catchments. In the upper Manafwa catchment in the park, are found species of conservation concern that include *Olea welwitschii* (Elgon olive, Elgon teak), *Bothriocline auriculata* (Aster sp.) *Afrocarpus gracilior* (East African Yellow wood) among many others (MTWA, 2018).

3.4.6.2. Fauna

The targeted project area is a host to two globally recognized Key Biodiversity Areas namely the Doho Rice Scheme, and Mt Elgon National Park. The Doho Rice Scheme and associated wetlands ecosystems in the targted project area are habitats for the Globally, near threatened Papyrus Gonolek, common in remaining papyrus swamps, though the numbers are not assessed. The rice scheme is also known to be a habitat of globally recognized congregations of Glossy Ibis, Marsh Sandpipers, and Wood Sandpipers. The sub catchments are host to few known nesting habitats for the African Spoonbill in Uganda, classified as a bird species of least concern by the IUCN. Another species of global conservation concern is the *Sitatunga Tragelaphus spekii* found in swamps, but highly threatened within these areas because of the encroachment on its habitats, and hunting by the surrounding communities (Byaruhanga, et al. 2001).

The Mount Egon Forest is diverse in birds with a total of 300 species (Davenport et al 1996; Rossouw and Sacchi, 1998). The park has 56 of the 87 Afrotropical Highland biome species, of which worth mentioning are the Moorland Francolin, Moustached Green Tinkerbird, and Alpine Chat only known from this site amongst the Key Biodiversity Areas in Uganda (Byaruhanda, et al). Mt Elgon is richest in small mammal fauna in Uganda, with *Rhabdomys pumilio* only known from here in East Africa, and appears to represent a relict distribution (Davenport, *et al* 1996). Mount Elgon National park fauna is particularly notable for its rarity and diversity.

3.4.7. Land use

The project areas traverse a range of land use types including protected areas such as Mt Elgon National Park, a number of Central and Local Forest Reserves (Table 11), and Arable land (Figure 12). The National Park section

within the project area covers about 541 KM^2 (54089 hectares). About 2,052KM^2 (90%) of arable land in the targeted project area is under rainfed agriculture, and only 225KM^2 (10%) is under irrigation.

Table 24: Forest Reserves in the designated project area

	Central Forest Reserve	Area (Ha)	Local Forest Reserve	Area (Ha)
1	Budunda CFR	105	Bubolo LFR	21
2	Bugaali CFR	116	Bukigai LFR	19
3	Buyenvu CFR	632	Bulyabwita LFR	5
4	Nagongera (East) CFR	158	Busumbu LFR	8
5	Nakwiga CFR	117	Buwola LFR	27
6	Pokoli CFR	18	Kanginima LFR	16
7	Sala CFR	320	Oduarata LFR	90
8	Tebakoli CFR	20		
	TOTAL	**1486**		**186**

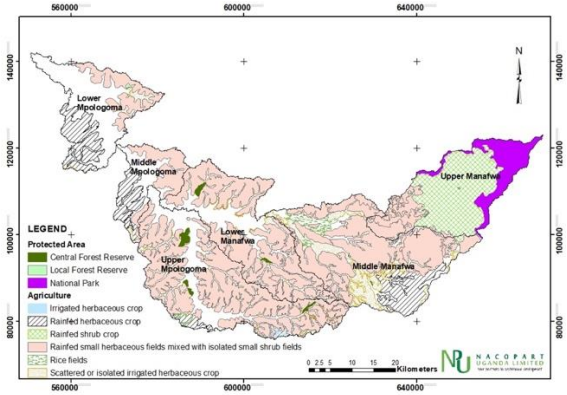


Figure 25: Land use practices in the targeted project sub catchments

3.4.8. State of Natural Resources

3.4.8.1. Status of forest estate

The permanent forest estate comprising of the Mt. Elgon National Park, Central and Local forest reserves have been degraded to a great extent (Figure 13). All the central and local forest reserves estimated at 1672 ha have been encroached on and are completely degraded. Forest patches and Parts of Mt Elgon National park have either been deforested or degraded. The Agrarian nature of the population, coupled with its increasing density over time and limited alternative sources of livelihoods have been the main drivers of deforestation and forest degradation.

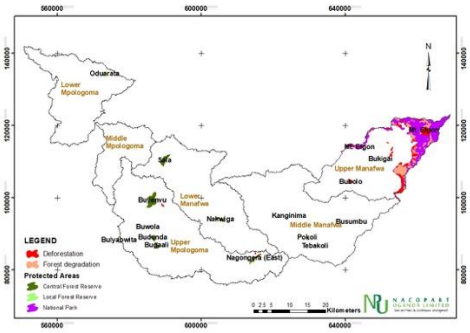


Figure 26: Status of forest estates in the Mpologoma catchment

3.4.8.2. Land degradation

Save for a few places that are moderately degraded, the targeted six sub catchments have been degraded over time (Figure 14). The degradation has majolry been due to agricultural expansion, increased population hence the corresponding pressure on the limited natural resources for community livelihoods, poverty, and increased demand for fuel wood. The map showing the different levels of degradation was generated using the metadata used in production of Forest Landscape Restoration Opportunity Assessment Report for Uganda (MWE & IUCN,

2016). The area coverage for the different levels of degradation are provided in Table 12. At least 80% of the sub catchments are areas with high levels of degradation, and 19% is severely degraded. It thus implies that the different ecosystems within the sub catchments to a greater extent are accordingly degraded. Most of the areas are cultivated, and use of inroganic fertilizers is high.

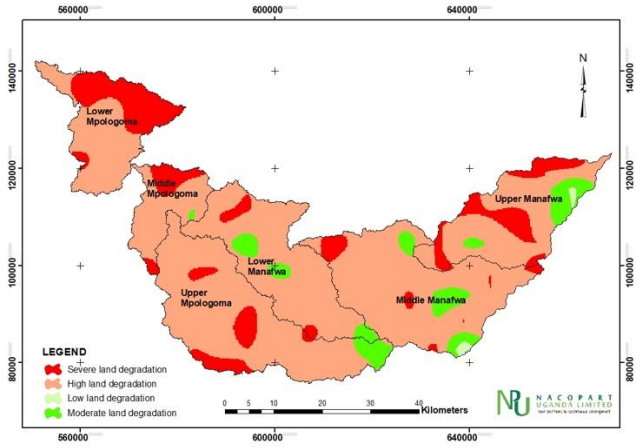


Figure 27: Land degradation in the catchment.

Table 25: Coverage of levels of degradation in the sub catchments

Land degradation levels	Area coverage (Sq.Km)	% coverage
High degradation	2408	80.43
Severe degradation	569.2	19.01
Moderate degradation	16.2	0.54
Low degradation	0.6	0.02
Total project area coverage	2994	

3.4.9. Implications of environmental variables on the resilience and adaptive capacity of communities to climate change

The high levels of degradation of the different ecosystems within the sub catchment exposes them to the impacts of climate change. Under extreme climatic changes like prolonged dry spells, there will be water stress and most water sources will dry up. Crops dry up leading to low crop yields, hence food insecurity. This results in communities, most especially the women and children to move long distances in search of water. With heavy rains, there will be floods, which will affect community health since ecosystems such as the wetlands are degraded and therefore cannot effectively perform their regulatory functions. Water borne diseases will be common affecting the productivity of the communities. Floods will destroy both crops and property in addition to loss of lives in extreme cases. Both water scarcity and excess water have negative implications on the health of the communities. Land degradation will directly affect crop yields resulting into food insecurity. The food insecurity will result into malnutrition, and hence poor healthy amongst the communities.

3.5. Stakeholders' suggestions for ensuring successful implementation of CARFEWW

During the KIIs and FGDS as part of the stakeholders' consultations, one of the issues discussed was about what the stakeholders felt could ensure successful implementation of CARFEWW project. Table 13 presents the key suggestions based on stakeholders' responses.

Table 26: Key suggestions by stakeholders during KIIs and FGDs on ensuring project success

#	Suggestion	Description
1	Full involvement of the key stakeholders profiled in the stakeholder analysis report.	i. Involve all the key stakeholders at the district, sub county and local community and household level by addressing the interest of each and strengthen each stakeholder to play their role. For example, the political leaders are willing to mobilize the local communities and speak the same message with the technical staff during sensitisation of the local community members.

		ii. Government institutions can also support in the provision of inputs e.g tree seedlings, RWH systems, and other IGAs, etc. iii. A lot of work should be done to change attitudes of stakeholders towards catchment protection.
2	Need for Alternative Income Generating Activities (IGAs)	To increase adoption and uptake of catchment protection measures, the CARFEWW project should provide alternative IGAs suited to the local conditions. For example; i. Bull fattening mainly preferred by men in the upstream areas of Bududa and Manafwa district. ii. Dairy Cattle under Zero grazing for women to get milk for children and also for sale to get incomes. iii. Rearing hybrid goats iv. Bee keeping for honey and other bee products is lucrative but also bees pollinate the plants, hence a double win to the households and the ecosystems.
3	Restoration of degraded ecosystems/areas of the catchment	i. Tree seedlings for planting along the degraded areas of the catchment should be availed. Fruit trees are more preferred besides the agroforestry trees such as Grevillea, Cordia, etc. ii. Elephant grass and Napier grass for planting on the contours to reduce the run-off and also act as fodder for the livestock (cattle and goats) should also be availed. iii. Incentive mechanisms such as carbon trade arrangements should be promoted to discourage poor households from cutting down young trees including Eucalyptus for poles and firewood.
	Climate smart WASH technologies	i. Train and Support households to set up ECOSAN toilets, lined pit latrines with a possibility to empty them. Households require subsidies on the main construction materials such as cement, sand, stone aggregates/gravel and iron bars. ii. Extend water such as GFS and also protect the springs in the upstream water-stressed areas of the catchment in addition to repairing the faulty and vandalised water facilities in the catchment. iii. Construct more boreholes and deep wells in the midstream and downstream areas of the catchment facing water shortages especially in the dry season.
5	Rainwater Harvesting (RWH) technologies	i. Promote RWH to collect and preserve water from the iron sheet roofs for domestic use and production (small-scale irrigation) especially during the dry season
6	Early Warning Systems (EWS)	i. Establish EWS for floods and landslides that are fully integrated to collect, manage and alert the people of the climatic hazards. ii. Technical capacity should be built at the district and community levels on how to use the EWS technology for sustainability of the intervention through training staff

4. CONCLUSION AND RECOMMENDATIONS

This socioeconomic and environmental baseline study was carried out to generate data on the current situation prevailing in the targeted project area to inform the process of writing the full proposal titled "*Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda*" shorted as CARFEWW Project for submission to the Adaptation Fund by the Ministry of Water and Environment (MWE). Additionally, the baseline findings are hoped to act as a basis for tracking progress in implementation and measuring performance of CARFEWW project at mid-term and end-term.

Through this baseline, a substantial amount of data and information has been gathered and analysed to inform the socioeconomic aspects of CARFEWW Project including data on Population distribution in the project area, livelihoods, WASH, Energy sources and the impact of these socioeconomic aspects on the resilience and adaptive capacity of communities to climate change within the project area. Additionally, environmental aspects including topography, geology, hydrology, climate, biodiversity, landuse and the status of natural resources including forests and land have been explored with a view of also understanding their implications on the resilience and adaptive capacity of communities to climate change within the CARFEWW Project area. It is recommended that the data and information generated in this study be utilized in developing the CARFEWW Project Proposal and also be used as a basis for measuring progress implementation as these variables are good indicators.

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ANNEX 1: Projected Population of the Project area (2015-2030)

	Projected Population of the project (2015-2030) per district										
Year	Bududa district	Manafwa district	Namisindwa district	Mbale	Tororo district	Butaleja district	Namutumba district	Budaka district	Kibuku district	Pallisa district	Kaliro district
2015	229000	156200	128500	132300	361100	229000	186700	54100	176300	140600	127000
2016	237500	160000	131900	136500	370400	237500	193000	56000	183100	147000	131500
2017	246200	163800	135200	140800	379600	246200	199500	58100	190100	153700	136100
2018	255200	167600	138600	145400	389400	255200	206400	59900	197200	160300	140900
2019	264400	171300	142100	150100	399200	264400	213400	62000	204700	167200	145800
2020	273800	175200	145400	154800	409000	273800	220500	64200	212200	174400	150600
2021	283200	179000	149000	159400	418400	283200	227500	66200	219800	181800	155700
2022	292900	182700	152400	163900	428200	292900	234700	68400	227700	189200	160800
2023	302600	186300	156100	168800	437900	302600	241900	70600	235500	197100	166100
2024	312600	190000	159100	173400	447000	312600	249200	72900	243600	205100	171000
2025	322500	193500	162500	178400	456300	322500	256500	75100	251700	213000	176300
2026	332400	197000	165900	182900	465400	332400	263800	77400	259800	221300	181500
2027	342500	200300	168800	187300	474000	342500	271200	79400	268000	229600	186800
2028	352400	203500	171900	192300	482800	352400	278300	81600	276100	238400	192100
2029	362400	206500	175000	196600	490900	362400	285500	83700	284200	246700	197300
2030	371700	209100	177700	200600	498600	371700	292000	85600	291900	254700	201900

Annex V: Vulnerability Assessment Report

Enhancing Community Adaptation to Climate Change Through Climate Resilient Flood Early Warning, Catchment Management and Wash Technologies in Mpologoma Catchment, Uganda

Climate Vulnerability and Adaptive Capacity Assessment

By NACOPART Uganda Limited

NACOPART UGANDA LIMITED
Your partners in sustainable development

July 2022

1.0. INTRODUCTION

1.1. Context of the assessment

Uganda with an area of approximately 241,038 Km^2 (comprised of water bodies and wetlands covering about a third of the area) has a rich natural resource base on which the current population of 45.7 million is largely dependent. The population is expected to grow to 93.4 million people by the 2040s with the livelihoods dependent largely on subsistence rain-fed agriculture. This is, however, threatened by climate change. The Intergovernmental Panel on Climate Change (IPCC) defines climate change as: “any change in the statistical properties of the climate system over time, whether due to natural variability or as a result of human activity”. These changes are often recorded over long periods of time. Furthermore, climate change may also refer to ‘’the observed and projected increases in average global temperature as well as associated impacts (e.g. changes in the timing or amount of precipitation. ’’ Some of these changes are already noticeable in Uganda, and specifically, the Mount Elgon Region.

Uganda lies astride the equator with a tropical climate where the average temperature ranges from 18°C to 28°C. Uganda faces a major challenge of climate change characterized by changing weather patterns, drop in water levels, and increased frequency of extreme weather events, including landslides and floods. Thus, the vulnerability to climate change is on the increase.

The Mount Elgon Region, specifically, the Mpologoma Catchment, Exposure is highly exposed to significant climatic variations in various ways. Hence, the Mpologoma vulnerable people, whose livelihoods, environmental services and resources, infrastructure, or economic, social, or cultural assets in places that are often adversely affected by climatic/physical events and which, thereby, are subject to potential future harm, loss, or damage.In terms of sensitivity, the Mpologoma Catchment is affected, adversely by climate-related stimuli, mainly heavy rains and sometimes erratic rains. The effects are direct or sometimes indirect.

Thus, the climate related hazards in the Mpologoma Catchment of cause loss of life, injury or other health impacts (related to WASH), property damage, loss of livelihoods and services, social and economic disruption,

or environmental damage. The consequences of hazards on natural and human systems within the Mpologoma Catchment, include crop damage, income losses and reduced soil fertility.

This proposed project is focused on landslides, floods and drought. Landslides refer to the mass movement of soil mainly on steep slopes caused by its saturation from excessive rain. The flood refers to over flow of an expanse of water that submerges land. A flood may as well mean high amounts of water owing in streams, rivers and other water bodies to burst their banks thereby submerging the surrounding areas. Floods are due to excessive rainfall. The other hazard is Drought, which refers unusual dryness of soil, resulting in crop failure and shortage of water for other uses, caused by significantly lower rainfall than average over a prolonged period.

The present study aimed at assessing the vulnerability to climate change within the Mpologoma Catchment. Vulnerability to climate change has been defined as ''the degree to which a system is susceptible to, or unable to cope with adverse effects of climate change, including climate variability and extremes. Vulnerability is thus a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity". In the context of this study, the systems being referred to are primarily vulnerable communities and natural ecosystems.

In terms of Adaptive capacity, ''the ability of Mpologoma Catchment system [human or natural] to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences'', was generally low, and needed to be enhanced. One of the most important factors that shaped the adaptive capacity was access to and control over resources including human, physical, natural, social and financial resources. The project is designed to deal with this situation.

Consequently, the study examined measures to enhance Adaptation to Climate Change. In other words, the study examined potential ''adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Adaptation was viewed as a process focused on reducing vulnerability, by building adaptive capacity, particularly of the most vulnerable people (mainly women, youth, elderly, among others). In some cases, it also involved strategies aimed at reducing exposure or sensitivity to climate change impacts. Adaptation was viewed as making sure that project interventions did not inadvertently increase vulnerability.

It is envisaged that the project will enhance resilience ''the ability of the system [human or natural] to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization and the capacity to adapt to stress and change. We considered resilience as resistance to change and the ability to recover from disturbances as in long-term perspective both mechanisms contribute to retention of the structure and ways of functioning of the system.

Projections show that under a high-emission scenario, monthly temperature change is expected to increase by 1.8°C for the 2050s. Moreover, temperature rise is, projected to increase across all emission scenarios through the end of the Century, Increased temperatures will lead to:

With the increasing human population and rapid urbanization that leads to high concentration of people in urban centres such as small towns and rural growth centres within the Mpologoma Catchment, climate change impacts pose an enormous challenge especially floods (and landslides) that have reportedly led to pollution of wells, inundation of wells, inaccessibility of water sources, flooding of latrines, damage to infrastructure, landslides around water sources, sedimentation and turbidity, challenges to

Natural ecosystems in the Mpologoma Catchment provide crucial ecosystem services that support livelihoods and the socio-economic development. Due to insufficient protection and management, their role in mitigating Climate Change, supporting climate resilience and safeguarding ecosystem services (e.g. provision of water, food and energy) is currently threatened. The past and current population and economic growth across communities in the Mpologoma Catchment is exerting increasing pressure on the natural resources. Moreover, there is a concern that climate shocks may increase the pressure on governments to degazette parts of PAs such as the Mount Elgon National Park in order to avoid food insecurity and displacement of people.

The proposed project titled ***"Enhancing Community Adaptation to Climate Change Through Climate Resilient Flood Early Warning, Catchment Management and Wash Technologies in Mpologoma Catchment, Uganda (CARFFEW)"*** is designed to reverse this trend.

The overall goal of the project is to increase the resilience of communities to climate change risks of floods and landslides through timely response to climate hazards, sustainable community access to water, sanitation and hygiene services and integrated catchment management measures in Mpologoma catchment.

The project focuses on supporting local communities to adapt to the effects of floods and landslides by developing and implementing integrated floods early warning systems, climate resilient WASH and catchment management measures in selected sub- catchments of Mpologoma catchment in Uganda.
The specific objectives of the project are to:
a) Strengthen the institutional capacity for planning, designing, implementation and monitoring of integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies
b) Develop and promote adoption of Floods Early Warning systems (FEWS), climate-smart WASH and Catchment Management technologies
c) Facilitate communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides
d) Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies

In terms of out project will:

1) Strengthen the capacity of key grass root stakeholders in implementing climate resilient development initiatives; 2. Strengthen the governance of natural resources; 3. Increase water and food security; 4. Increase income for improved stakeholder livelihoods; 5. Enhance ecosystem health; and 4. Promote sharing and adoption of lessons and good practices

The project will contribute towards the attainment of the Sustainable Development Goals (SDGs) especially SDG15 that seeks to protect, restore and promote the sustainable use of terrestrial eco- systems, sustainably manage forests, combat desertification, and halt/reverse land degradation so as to end biodiversity loss. Others SDGs that the project will contribute to, include SD1 (ending poverty), SDG6 (providing clean water and sanitation) and SDG13 (climate action).

1.2. Focus of the vulnerability Assessment

Justification for the project requires a baseline of the current effects of climate change on the communities and their vulnerabilities. This is required to clarify how the human communities Ecosystem will be affected by future changes in climate. The high spatial variability of climate across the Mpologoma Catchment necessitates that each of the major ecosystems is assessed individually for its climate change sensitivity and response. It is in this context that this study was undertaken. The vulnerability (exposure, sensitivity and adaptive capacity) of households that are increasingly dependent on agricultural related activities to climate change is unclear. There is rapid development accompanied by widespread environmental change within the Mpologoma Catchment. As agriculture is the economic mainstay, increase in land use for agricultural practices is impacting heavily on the ecosystems. The major issues related to environmental change in the catchment therefore include among others: landslides, floods. These have resulted in stress and food insecurity with adverse effects on livelihoods making the communities vulnerable.

1.3. Objectives of the current assessment

The purpose of this study was to collect field data for elaboration of preparatory studies as a basis for the detailed proposal to be developed. As mentioned earlier, the project is titled: ***"Enhancing Community Adaptation to Climate Change Through Climate Resilient Flood Early Warning, Catchment Management and Wash Technologies in Mpologoma Catchment, Uganda (CARFFEW)".*** The study focused on vulnerability of the communities to Climate Change risks (and associated impacts) and the adaptation strategies of communities. The specific objectives were to:

1. Describe how human communities, ecosystems, and ecological processes within the Mpologoma Catchment are affected by climate change and related hazards of climate (landslides, floods, and drought) so as to determine how they will be affected by the changes;
2. To relate current and future climatic conditions to exposure, adaptive capacity and sensitivity;

3. Describe how current threatening processes (landslides, floods, and drought) such as will change under changing climate and what these changes mean for local livelihoods and the future of the Mpologoma Catchment;
4. Propose appropriate adaptation actions for enhancing the resilience of communities in the Mpologoma Catchment.

The findings should provide the status report on Vulnerability Assessment to enable a better justification and or baselines for the proposed project.

2.0. PROJECT AREA AND METHODS

2.1. Project Area

The project area is the Mpologoma Catchment, which derives its name from River Mpologoma in eastern Uganda (Figure 1). The most striking topographical feature in the catchment is, Mount Elgon, with the Wagagai peak at 4,321 metres above sea level. This dominates Mbale, Manafwa, Bududa and Namisidwa districts. Within Tororo District, the terrain is composed of the undulating plains that have rivers and wetlands. There are also out crop of rocks and isolated hills like the Tororo Rock and the Osukuru hills. On average, the plain runs in the north-south direction, from the border of Sironko District to the north, through Bukedea, Pallisa, and Tororo districts to south and southwest, respectively. Areas in Tororo and Butaleja districts consist of very flat plains. Butaleja District is generally composed of continuous flat plains although standing gneisses occur in the form of rocky outcrops in sub-counties such as Kachonga, Butaleja and Budumba (MWE, 2018).

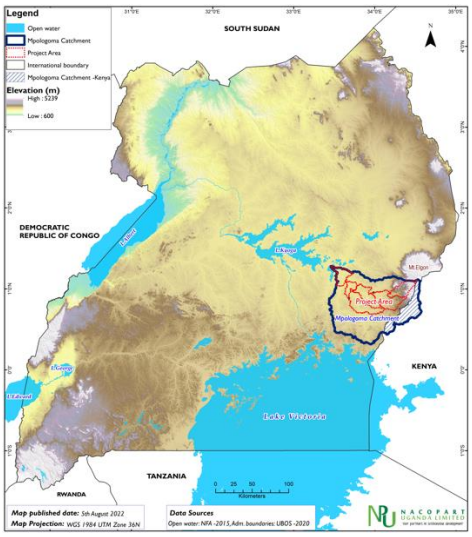


Figure 1. Location of the Mpologoma Catchment in Eastern Uganda

2.2. Project Area and Methods

2.2.1. Study area

The proposed project targets the six sub-catchments covering 2,994 km^2 (33% of the Mpologoma catchment) and administratively 11 districts (Bududa, Namisindwa, Mbale, Manafwa, Butaleja, Tororo, Kibuku, Budaka, Namutumba, Kaliro and Pallisa), Table 1 and Figure 2.

Table 27: Districts within the proposed project area

Drainage	Sub Catchment	Districts
Upstream	Upper Manafwa	Bududa, Namisindwa, Mbale, Manafwa
	Middle Manafwa	Butaleja, Namisindwa, Mbale, Manafwa, Tororo
Midstream	Lower Manafwa	Butaleja, Kibuku, Budaka, Tororo
	Upper Mpologoma	Namutumba, Butaleja, Tororo
Downstream	Middle Mpologoma	Kibuku, Namutumba
	Lower Mpologoma	Kaliro, Palisa

The final administrative areas for the baseline were selected in consultation with Kyoga Water Management Zone (KWMZ) technical team at MWE and the District Local Government (DLG) staff based on parameters, such as, how prone to landslides and or floods, high rainfall variability, climate change impacts, severity of degradation, agriculture as main source of livelihood, poverty levels, Inadequate and or limited EWS, deterioration of water (quality and quantity) and water resources. The Districts, Sub counties and Parishes where the baseline study was conducted are marked with an asterisk (*) in Table 2, Figure 3.

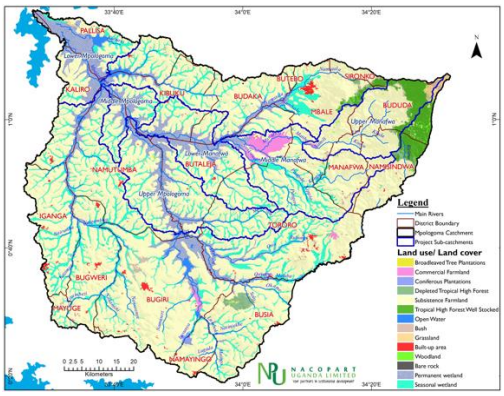


Figure 2. Coverage of some of the Land uses within the Mpologoma Catchment

2.2.2. Data Collection

Data were collected using the following methods:

vii. Planning/Consultative meeting with the KWMZ team in Mbale City.
viii. Key informant interviews with the DLG technical staff and Political leadership (LC5 and LC3 and LC1 representatives). A total of 31 DLG officials and 32 Sub-County officials participated in the KIIs.
ix. Review of documents (*See References*): Information on communities and ecosystems, as well as the climate risks and actions undertaken to address the effects climate related risks were obtained by reviewing of literature in form of project documents, general management plans, and journal articles.
x. GIS was used to determine land use cover change, degradation of the catchment within the Sub-Counties, and to generate maps.
xi. Site visits and digital photography to the hotpot areas of landslides and floods, early warning systems (EWS) and WASH infrastructure, IGAs and restoration activities, etc.


Figure 3. NACOPART and KWMZ team on field visits Manafwa bridge in the Mpologoma Catchment to see the FEWS

Consultations/meetings

xii. Focus Group Discussions were conducted with the local community members in the parishes considered as hotspots for landslides and or floods. FGDs were conducted separately for men, women and youths who were mobilized from several villages within the hotspot parishes. Each social category also had a mix of PWDs and elderly persons. The mobilization for FGDs was done by the Local Council Chairpersons based on communication from the Parish Chiefs and Sub County CDOs.

Figure 4. Consultation community meeting with Women in Namutumba District

Figure 5. Consultation community meeting with Men in Namutumba District

Vulnerability Assessment (VA)

Key informant interview and FGD guides were used to guide consultation on the following:

- Three aspects of VA i.e. Exposure, Sensitivity and adaptive capacity
- Vulnerability of the ecosystems and local communities/households
- Gaps in knowledge on climate change and impacts on communities and landscapes;
- Current threatening processes related to landslides and floods; and how they may change under different climate change forecasts
- What the changes meant for the catchment and community livelihood
- Current mitigations/adaptation measures/interventions and best practices
- Key recommendations for managing and mitigating the negative impacts

Vulnerability was assessed to determine the factors that make the human communities and biodiversity vulnerable to climate change related hazards of landslides and floods. The assessment considered how biodiversity and communities within the Mpologoma Catchment are affected by landslides and floods in order to understand how ecosystem services are affected. Data were collected on impacts of climate change, interventions, adaptive capacities and management measures. The team needed to understand how communities and ecosystems respond to threatening processes and what these changes meant for the future of the catchment. This information would be used to support project proposals on appropriate actions for managing and mitigating negative impacts on biodiversity, ecosystem services and livelihoods. Strategies would consider the identified knowledge on vulnerabilities (to impacts of landslides and floods) obtained through consultations with key stakeholders.

2.2.3. Data Analysis

Data were analysed using mainly qualitative techniques. Data from FGDs and KIIs were analysed using thematic, content and discourse analysis techniques with support of MS-Word 2013. ArcGIS 10.8.1 software GIS was also used to generate hotspots for landslides and floods. The results were also disaggregated by drainage levels (upstream, midstream and downstream), the six sub catchments and also by gender where applicable.

3.0. FINDINGS FROM COMMUNITY CONSULTATIONS

3.1 Project sites

Based on various selection criteria, the most vulnerable districts and sub counties were selected (Table 2, Fig 6).

Table 28: The most vulnerable districts, sub-counties and parishes where fieldwork was done

Drainage	Sub Catchment	Districts	Study Sub Counties	Parishes
Upstream	Upper Manafwa	Bududa*	Bukibokolo SC*	Bulumino*
		Mbale		
	Middle Manafwa	Manafwa*	Kaato*	Bumukari* & Bunamungoma*
		Tororo		
Midstream	Lower Manafwa	Budaka		
		Tororo*	Kirewa [Iyolwa & Ojilai]. [Ojilai SC was curved from Iyolwa SC]	[Iyolwa parish*, Ojilai parish*
	Upper Mpologoma	Butaleja*	Budumba*	Bunawale*
		Namutumba		
Downstream	Middle Mpologoma	Kibuku		
		Namutumba*	Nangode*	Nangode Town Council*
	Lower Mpologoma	Palisa*	Gogonyo* [1 FGD in Obutete SC* demarcated from Gogonyo SC].	Gogonyo parish* and Agure parish*
		Kaliro		

*[Key: * District and Sub counties and parishes where KIIs and FGDs were conducted]*

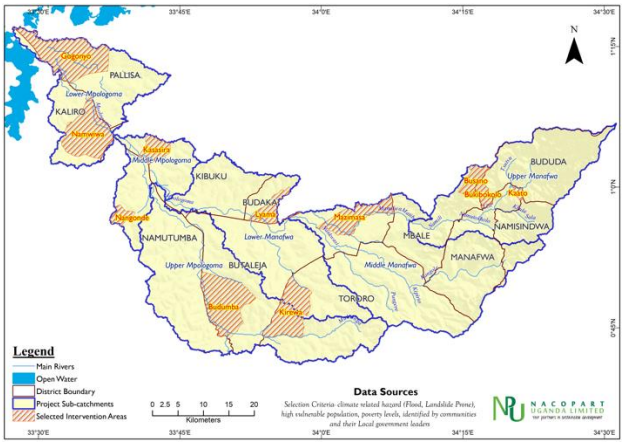


Figure 6. Selected sites for project interventions

The Mount Elgon Catchment provides a variety of ecosystem services or benefits on which local communities depend. These are grouped as provisioning (e.g. food, fibre, water, medicine), regulating (e.g. erosion regulation, flood regulation, landslide regulation), supporting (e.g. pollination and soil fertility) and recreation (e.g. cultural heritage). The ecosystems are those specific places or areas where the ecosystem benefits come from. The major ecosystems identified by local communities in the Mt. Elgon Catchment are farmlands, rivers and streams, forests/trees, pasturelands, wetlands and mountains/hills (Figure 7).

In order to ensure sustainable supply of these ecosystem benefits, it is important to identify their sources and maintain the habitats in good condition. The project, will promote a good understanding of the links between the ecosystems, the ecosystem services that come from them, and the activities of different people who benefit from them.

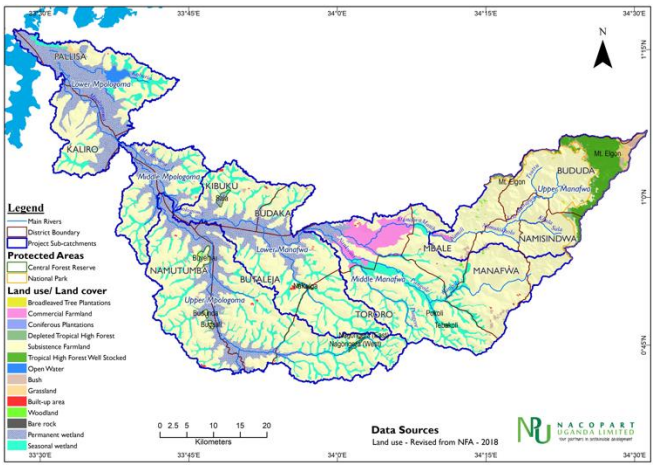


Figure 7: Coverage of Land Uses in the selected sub catchment of Mpologoma Catchment

3.2 Farmlands

Farmlands are a very important ecosystem in the Mpologoma Catchment because they are the dominant land use type and basis for agriculture, which is the source of livelihood for most people. Farmlands have kept expanding as people convert forests, wetlands and other places into croplands. Farming systems vary along the slope. Agriculture on the upper slopes is more intensive characterized by lush gardens of coffee, bananas, Irish potatoes and beans; while lowlands farming systems are more extensive, dominated by growing of rice, maize, groundnuts, sorghum, millet, cotton, soya beans, and sweet potatoes. The main ecosystem service from farmlands is provision of food, although its production is both subsistence and commercial.

3.3 Forests

Much of the original vegetation on the slopes of the Mt. Elgon region has been replaced by farmlands. The only existing natural forests remain in the upslope areas where they fall within the Mt. Elgon National Park (MENP). Even these are under a lot of pressure due to increasing human population and declining land productivity. The capacity to regulate landslides, soil erosion and flooding, are curtailed. Expansion of farmlands into previously forested areas has made it increasingly difficult for communities to adapt to the effects of landlides and floods.

3.4 Rivers, streams and swamps

Many rivers ow from the top of Mt. Elgon to the lowlands, making it an important water tower for the region. Several wetlands systems (rivers and swamps) are also found within the region. In Kapchorwa and Kween districts, three quarters of the wetlands are found in the plains of Ngenge and the others in MENP. These wetlands provide local people with a variety of ecosystem bene ts, such as herbal medicines, food (yams, maize, sugarcane, bananas, vegetables and sh, especially cat sh and lung sh), fresh water, building poles, bre and firewood. Human activities carried out along river and swamp systems are reducing their capacity to serve environmental purposes like purifcation of water and regulation of floods.

Except for areas that are inaccessible due to terrain, most river catchments are used for agriculture (i.e. growing of vegetables, paddy rice, yams and sugarcanes) especially during the dry season. Rivers such as Atari, Sironko, Namatale, Ngenge, Kaptakwoi and Muyembe have been particularly affected leading to soil erosion, siltation and ooding. Competition for the limited water from the wetlands during drought is a major source of wrangles between grazers and farmers. Other human activities done in wetlands and along riverbanks include sand mining, re-channeling of river water to gardens, livestock rearing, unsustainable shing, and removal of craft materials and herbal medicines.

4.0 VULNERABILITY OF LOCAL COMMUNITIES AND ECOSYSTEMS SERVICES

4.1 Changing land use patterns

What we see in any landscape is the result of a combination of natural and man-made processes. Land use changes in the Mt. Elgon region were analysed using satellite images and participatory methods. Generally, forest cover in the region has clearly reduced over the last decade. Mid-slope and down slope areas are more degraded compared to upslope, where human activities are to some extent limited by the steep terrain and climatic conditions.

4.2 Changing climatic patterns

Temperatures in the Elgon region are influenced by altitude (height above sea level). Low-lying places like Bunambutye, Bwikhonge, Ngenge etc. experience higher temperatures compared to areas at higher elevation such as Benet, Bulaago and Bumasifwa. The amount of rain received also varies with altitude, with the upper slopes receiving relatively more rain than low-lying areas. The rains occur in two main seasons (March – May and August – October). Historically, both rainfall and temperatures have increased over the years. Between 1961 and 2000, temperatures in the region increased by 0.2°C. The change is not as clear for rainfall as it is for temperature, although overall, mean annual rainfall has increased. Amidst these changes, the Mt. Elgon region is experiencing several climate-related hazards e.g. strong winds, lightning, soil erosion, crop pests and diseases, flooding, landslides, drought, famine, human diseases etc. The importance attached to each of these hazards varies from place to place, but for the Mt. Elgon region, most people agree that landslides, flooding, soil erosion and drought or intense dry seasons pose the biggest threats to people and natural resources.

4.3 Vulnerability to hazards related to climate change

4.3.1 Drought

Drought is a temporary reduction in water or moisture below the normal or expected amount for a specified period. Drought is understood differently by people in different places. The period of reduced rainfall that is referred to as drought may vary from a few weeks to several years depending on the situation in a particular area. In the Mt. Elgon region, rainfall shortages last about four months although even during the so-called dry months some rains may be experienced.

The Mpologoma Catchment experiences prolonged dry periods (drought severity indices 0.50 to 0.99). Indeed, prolonged dry periods characterized by dry winds from the semi-arid areas were recurrently reported by communities in low-lying parts of Namutumba and Pallisa districts. These dry spells result in poor crop yields, water shortage, scarcity of pastures and in worst case scenarios even famine.

4.3.2 Landslides

A landslide refers to mass movement of soil mainly on steep slopes caused by soaking up too much water from excessive rain. Mt. Elgon experiences frequent landslides due to the steep slopes, too much rain coupled with human activities such as deforestation. Mid slope and upslope areas especially steep inward-curving slopes facing the northeast, where deforestation and cultivation have taken place are more exposed to landslides. The sub counties of Kaato (Manafwa District) and Bukibokolo Sub county (Bududa District) are particularly vulnerable. Landslides destroy sources of livelihood, and disorganize lives in many ways, including death. Where landslides have taken place, people respond by planting trees to prevent a similar occurrence.

4.3.3 Flooding

A flood is an over flow of water that covers land which is usually dry. In the Mpologoma Catchment, floods usually occur in low-lying places (districts of Tororo, Pallisa and Butaleja) due to heavy rains above the normal in the upper catchmentor as a result of rivers bursting their banks. This problem is, in many instances, made more likely by silting of rivers, reclaiming of swamps and blocking of drainage channels. Flooding occurs fairly regularly in particular flood-prone locations and is closely associated with the drainage system (rivers and streams) in mid and upslope areas. Apart from destruction of homes and other household property, flooding seriously affects people's health and agricultural activities.

4.3.4 Soil erosion

Soil erosion is the breaking up and moving of soil particles by forces of water and/or wind. The Mpologoma Catchment experiences different types of soil erosion e.g. sheet (surface ow across a wide section of land), rill (shallow and narrow tunnels), gulley (deep and wide tunnels) and landslide/mudslide. The extent of this problem is closely associated with slope category. While soil erosion is a widespread problem in the Mpologoma catchment, the most prone districts include: Bududa, Manafwa, Namutumba, Pallisa, Tororo and Butaleja. Because most people in the Mpologoma catchment depend on agriculture for food and income, soil erosion is one of the main factors contributing to vulnerability to climate change impact of landslides and floods.

4.4. Exposure to Climate Change

4.4.1. Average Climate

The Mpologoma Catchment is located within a relatively humid, equatorial climate zone of Uganda, but geographic features including topography (mainly the mountain and valleys), prevailing winds, and rivers cause local variations in annual rainfall and temperature. Within the Mpologoma catchment, rain falls during two

seasons. The seasonality (of rainfall) is linked to the seasonal migration of primary humid air masses and convergence zones over Africa that shift toward a northerly location in August and to the south in January.

4.4.2. Climate Variability

Climate variability was determined on the basis of the regional scale because of the greater availability of data for the east African region. Within the Mpologoma Catchment, therefore, there is generally more rain during the latter part of the September to November (season, with less rain over March to May and June to August seasons. The communities in the Mpologoma Catchment did not report a strong long-term variability, although some of them reported a decline in rainfall (in March to May). However, the respondents made long- term projections pointing to increased rainfall.

4.4.3. Degradation Levels

The degradation levels within the Mpologoma Catchment are already considered to be quite high (Figure 6). The catchment may, therefore, be considered as one of the most climate-vulnerable regions of Uganda.

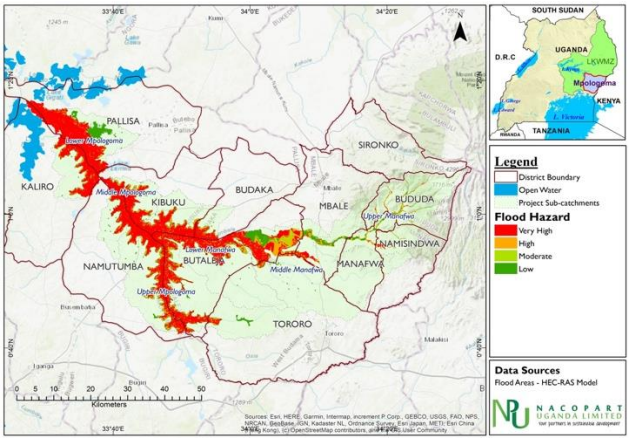


Figure 8: Flood Areas in Mpologoma Catchment

The communities experienced a range of climate change risks including drought, flooding and soil erosion (Table 6). The severity of climate related risks varied across the catchment.

a) Implications of population increase on the resilience and adaptive capacity to climate change

The consultative Discussions with the district officials and local community revealed that the increase in population exerted more pressure on the resources within the catchment, leading to over utilization and degradation of the catchment. For example, during the KIIs, the district technical staff and political leadership indicated that high population has led to fragmentation of land into small plots which are over cultivated using poor farming methods which did not promote soil and water conservation and catchment protection. High population has also led to encroachment on and degradation of the banks of river Manafwa, river Mpologoma and the stream that flow into the rivers in the upstream, midstream and downstream.

b) Implications of IGAs on the resilience and adaptive capacity to climate change

Discussions from the KIIs and FGDs revealed that most of the economic activities engaged in by the people living within and adjacent to the catchment degraded the ecosystem (rivers, soils, wetlands, forests and hills). For example, sand mining degraded the bank of river Manafwa. Tree cutting for charcoal and firewood let to reduction in tree cover whereby most of the tree species are currently targeted (indiscrimate cutting down of trees). Rice growing and sugarcane growing in the midstream and downstream area (Butaleja district) led to degradation of the wetlands and river banks of river Manafwa, river Namatala and river Mpologoma. Consequently, the poor landuse practices and degradation of the ecosystems has led to increases in the impact of climatic hazards such as floods, landslides, drought and hailstones. The impact is felt in terms of the destruction of crops and household property, low crop yields, scarcity of fodder for livestock and shortage of water for domestic use and production. Hence low incomes and reduced resilience towards impacts of climatic hazards.

c) Implications of Poverty on the resilience and adaptive capacity to climate change

Income permits people to obtain goods and services. Income is also a determining factor when dealing with shocks. Income is the starting point in coping with shocks, considering that a higher income could lead to greater savings, which could be important during the post-shock recovering phase.

In the targeted CARFEWW project area, poor households are less resilient and have less adaptive capacity to the impacts of climatic hazards as compared to households in the upper wealth quintile. This is because poor households have no assets or adequate incomes saved or Social Safety Nets (SSN)/remittances/cash transfers to respond to shocks in the immediate, for example, by selling assets to get and buying land elsewhere and or constructing a house in the aftermath of a landslide and or flood. Poor households also have low access to basic services (ABS) and quality services such as schools, hospitals and other health services, markets, stores, paved roads, safe houses and water and waste disposal systems.

Poverty rendered the most vulnerable categories of the local community, such as women, children, elderly, PWDs and child-headed homes (CHH) lesser resilient and lesser adaptive to the impacts of climatic hazards such as low crop yields, loss of houses and WASH challenges (water scarcity, Loss of pit latrines and pollution of water sources, etc). Low crop yields which was as a result of landslides, floods, drought and or hailstones caused food insecurity amongst the most vulnerable local community members.

d) Soils

The wetland systems are broadly composed of Gleysols, and Histosols soil classes (MWE, 2018). Gleysols are soils frequently developed under depression areas and low landscape positions with shallow groundwater, which therefore render it appropriate for wetland rice cultivation. Histosols are composed of soils formed in organic material, frequently under papyrus vegetation. It is desirable to protect and conserve such fragile lands because of their intrinsic value (especially their common function as sponges in regulating stream flow and in supporting wetlands containing unique species of animals) and because prospects for their sustained agricultural use.

Looking at it in more detail, there is a diversity of soil types in the upper Manafwa sub catchment straddling from Humose red sandy clay loams, Yellowish brown sandy clay loams, Red clay loams and sandy clay loams, Black humose sandy clay laom, Dark brown clays to clay loams to Red sandy clay loams occasionally lateritized. The upper catchment soils are generally volcanic soils. Whilst the soil types in the remaining sub catchments are to a greater extent different, majorly comprising of Peat or peaty sands and clays, Greyish and yellowish brown sands, Black and grey clays often calcareous and Grey-brown and brown sandy loams over laterite (Figure 8.

e) Hydrology

(i) The main rivers in the Mpologoma Catchment are:

- Rivers Manafwa and Namatala, flowing from the North-Eastern side of the catchment, from the slopes of Mount Elgon, and joining Mpologoma Mbale-Tirinyi road, close to Butaleja town. This part of the catchment includes the large Doho-Namatala wetland system
- River Malaba, and its tributaries (including River Malakisi), flowing from the Southern slopes of Mount Elgon, including a transboundary section in Kenya, and going through Busia and Tororo districts
- Rivers Kimbimba and Naeombwa, flowing from the south, and joining the lower part of the Mpologoma Catchment.

Within the project targeted sub catchments however, drainage consists of two main rivers namely river Mabafwa and River Mpologoma, tributaries and associated wetlands.

f) Climate

The Mpologoma catchment in general has a tropical climate with comparatively small seasonal variations in temperature, humidity and wind throughout the year. The winds are generally light and variable. The mean annual rainfall is around 1,375mm. The catchment generally experiences two rainy seasons, with heavy rains from March to May and lighter rains from October to December.

g) Rainfall

Rainfall is spatially distributed, with a more pronounced gradient in the eastern Mpologoma Catchment, between the foothills of Mount Elgon (Upper Manafwa Sub Catchment) and the area around Tororo. Upper Manafwa sub catchment receives the highest amount of rainfall while Lower Mpologoma and Lower Manafwa

receive the least. The rainfall patterns over the years for the six sub catchments is irregular, with 2005 having the lowest mean rainfall and 2020 having the highest (Figure 11). The 'Precipitation CHIRPS' product is derived from processing Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS v2) grids at 5-day temporal resolution to generate total annual precipitations analysis for the period 2000 to present.

Table 6. Vulnerability assessment of communities to climate change impacts in the Mpologoma Catchment (A: Bududa District, B: Manafwa District, C: Pallisa District), D: Namutumba District and Butaleja District)
In summary, the communities in each of the sample districts were exposed to the following climate change related risks (Table 7). These risks are explained in the text following Table 7.

Table 7: Climate change risks communities are exposed to in Mpologoma Catchment

District	Perceptions if communities experienced Climatic Change Related hazards and perturbations	Climatic hazards and perturbations experienced			
		Drought	Landslides	Flooding	Soil erosion
Bududa	Yes	√	X	√	√
Manafwa	Yes	√	X	√	√
Pallissa				√	
Tororo				√	
Namutumba	Yes	√	X	√	√
Butaleja	Yes	√	X	√	√

a) Drought
Most of the communities experienced drought as the main climate risk they were exposed to. The drought was however, more severely experienced in the upper catchment. During periods of drought, the amount of water flowing through the River Mpologoma downstream decreased leading to reduced water volumes for the sources, affecting the agricultural and domestic activities adversely.

b) Floods
During the heavy rains, there is flooding which is severest in the lower catchment, with soil erosion mainly occurring in the upper and middle catchments. The floods were destructive, sometimes cutting off travel between localities (Figure 7). The communities are affected when floods sweep away access routes to development activities in the region.

4.1.2.2 Hazards
1. Landslides


A


D

B

C

A. Landslides, Kaato Sub county, Manafwa District (Photo credit: Daniel Waiswa); B. Coping with landslide effects by planting crops on landslide site due to land scarcity (Kaato, Manafwa); C. Cultivation up to the edge of the landslide (Kaato, Manafwa District)

2. Landslips/erosion: D. Landslips and erosion exposing tree roots in Kaato, Manafwa District
3. Floods

A. Floods
B. Turbid water of R. Manafwa (Not fit for human consumption – Kaato SC)

4.1.2.3 Impacts of the climatic hazards
Impacts of landslides

A.

B

A. Abandonment of homes due to landslides; B. Destruction of WASH Facilities

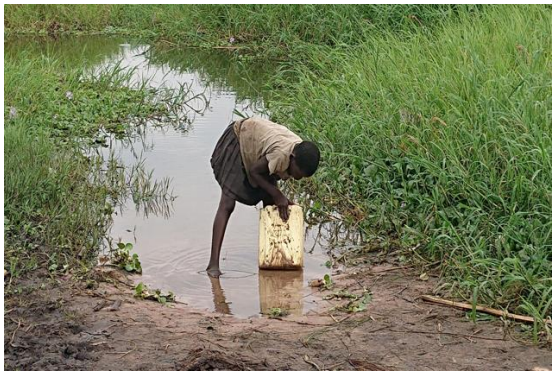
Impacts of floods

A

D

B

C



A. Dwindling of grazing areas
B. Encroachment on habitat for water-birds
C. Destruction of roads
D. Destruction of road infrastructure – Budusu – Budumba Road, Budumba SC
E. Impassable roads during the rainy season (File photo)
F. Polluted water sources

Figure 7: Poor crop yields

a) Population increase and the resilience and adaptive capacity to climate change

The consultative Discussions with the district officials and local community revealed that the increase in population exerted more pressure on the resources within the catchment, leading to over utilization and degradation of the catchment. For example, during the KIIs, the district technical staff and political leadership indicated that high population has led to fragmentation of land into small plots which are over cultivated using poor farming methods which did not promote soil and water conservation and catchment protection. High population has also led to encroachment on and degradation of the banks of river Manafwa, river Mpologoma and the stream that flow into the rivers in the upstream, midstream and downstream.

3.1.4. General Observations

In terms of exposure to changes in climate, the communities noted the following:

- Rainfall and temperature levels are suitable for agriculture throughout the catchment although seasonality and topography may increase the vulnerability of some crops.
- Inter-annual rainfall variability is high, relative to the perceived long-term change. Thus, no clear, climate change-related trend in rainfall was reported.
- No significant change in average annual rainfall is projected with respect to current conditions. There is a projected potential increase in precipitation during the December -January- February season (dry season). This increase could have a significant impact on agriculture—especially perennial crops and post-harvest activities.
- The communities reported having experience significant warming over the years. This warming is projected to continue.
- There is a potential for increase in the frequency of extreme events as hydrological cycles intensify in a warming atmosphere. Strong winds were, for example, reported by the communities.
- The main exposure to climate change is likely to come from changes in temperature. Rainfall levels are projected to change very little, and are likely to be within current levels of variability and observed long-term changes. The impact of climate change on agriculture relates to the impact of higher temperatures within current rainfall levels will affect the agricultural sector, and as well as the impacts of changes in seasonality of rainfall. There is also the likelihood of more frequent intense rainfall events and heat waves. The farmers reported variations in the timing of the rainy season, pointing to the current rainfall variability or changes in rainfall patterns.

3.2. Sensitivity to Climate Change related effects of landslides and floods

Sensitivity to Climate Change was manifested in two aspects: i) the sensitivity of the selected crops to climate change; and ii) Household sensitivity to climate change. The crop analysis assumed that temperatures would gradually increase over the next 30 years, and the current December-January -February dry season would experience increased light precipitation.

Regarding the cultivation of maize, bananas, and coffee, the most vulnerable households engaged in the production the three crops, although they grew much less than their least vulnerable counterparts., The most vulnerable producers tend to consume of maize and bananas utilized a greater share of their total production, selling less compared to the least vulnerable group.

The importance of market sales of these crops to the most vulnerable groups is more important to the household economy because of relatively fewer sources of off-farm income. Beans and cassava are staple food crops, but among the most vulnerable households, sales of both crops contributed significantly to household income.

Considering the reliance on specific crops, sensitivity of the most vulnerable groups was attributed to the fact that the groups were cash poor with restricted access to climate- neutral sources of income; they did not to have savings or household wealth. Change in availability of food or sales disrupts their financial viability. Climate-related changes in crop sensitivity will, therefore, have negative impacts on the vulnerable communities.

In the short run, households coped to the climate change related impacts through livelihood assets such as human capital, natural and physical capital, financial capital, social capital, food security, and gender.

Conclusions

Specific characteristics make some households more sensitive to climate variability and change. For example, members of more vulnerable households are generally less well educated and participate less frequently in community groups such as production associations, cultural or labor savings groups and religious organizations. Further, these households:

- Are relatively less likely to sell some of their crops and livestock for income;
- Are more likely to be headed by females;
- Have a lower proportion of able-bodied members;
- Have less access to credit or loans; and
- Less frequently gain income from off-farm sources

Where different capital stocks are available to household decision makers, the level of sensitivity is reduced, and households are better prepared to cope with the immediate impact of climate change. Members of less vulnerable households are better able to absorb climate change related shocks because, on average, they have:

- Larger sizes of land holdings;
- A lower ration of dependents in the household;
- More educated household members and children who are in school;
- More livestock especially cattle, which can be sold when resources are needed;
- The tendency to engage in off-farm income generation; and
- Participated in community activities

3.2.1 Effect of changes in climate on households

Within the last 20 years the communities have noticed changes in climatic factors including rainfall, drought, temperature and winds. The severity of changes in climate was generally perceived as high. The most highly ranked change noticed was in rainfall patterns, followed by drought occurrence, high prevalence of strong winds and general increase in temperatures among others. The observed changes had negatively affected communities. The most commonly reported effects were low crop yields, inadequate food/food insecurity, and loss of farmlands.

3.2.2. Economic activities prone to climate-related hazards

Several economic activities undertaken by the households are prone to climate-related hazards. The most affected was crop farming, followed by livestock keeping, transport service e.g. Boda-Boda, Business/trade, Charcoal burning, and Extraction of resources from the wild. The communities believed that with eminent prevalence of climate related risks affecting their sources of livelihoods, they were most likely prone (likely to be affected) by climate change related hazards. In terms of specific crops, the following aspects are noted:

The perennial crops (e.g. coffee and bananas) pose a bigger challenge compared to annual crops, with respect to climate change than do annual crops. The perennial crops require a longer time to adapt to a changing climate; because they are important cash crops. For coffee, a number of years must pass before changes made by farmers yield results. The climate will have changed during that time, adding a considerable uncertainty. The long-term impact of climate change on coffee and banana production depends on production practices such as the use shade trees to mitigate the impact of rising temperatures and reduce moisture loss.

Maize and beans can be grown under a wide range of climatic conditions and are not likely to be significantly affected by predicted temperature changes. The major impact of climate change on these crops is due to high inter-annual variability and amount of rainfall. Maize is affected by short-term water stress or hail, while beans develop fungal and viral diseases where rainfall is excessive during critical periods. Declining soil fertility and structure also reduces the capacity of soil to retain water, thus making soil nutrients less available.

Cassava and sweet potatoes tolerate climate change relatively well, but the two crops are also highly vulnerable to disease and pests. Because they are propagated vegetatively, access to clean planting materials is always a challenge. Climate change effects may aggravate the occurrence and severity of these problems.

3.2.3. Drivers of high sensitivity to climate related risks

There are a number of factors that render the Mpologoma Catchment sensitive to changing climate conditions as perceived by the communities. These include:

(i) Topography

The landscape is generally rocky with various rocky outcrops (Figure 8) and steep slopes. Such a landscape is inherently sensitive to any changes in climate. It is susceptible to water erosion, especially after the vegetation cover has been disturbed, usually in the up-slopes and mid-slopes. On the other hand, the topography makes the down-slope more sensitive to flooding and silt deposition.

(ii) Soils

The soils are generally fragile and may be considered relatively rich in nutrients. They are relatively fertile and thus support agricultural activities. They support the growth of crops including Maize, and Coffee. However, the soils are loose, and unstable. Such soils are thus vulnerable to erosion, especially where land management measures are not appropriate for soil and water conservation.

(iii) Increasing population density

The Mpologoma Catchment is characterised by a rapidly increasing population. The high population density, for example following the settlement of refugees, presents a challenging and extremely high demand for ecosystem services especially from the natural resources as alternative sources of livelihoods. Due to the increased demand for resources, communities encroach on forests uphill, wetlands down slope as they convert these lands to agricultural crop farmlands and for settlement. Land shortage is increasingly making these areas sensitive to climate change. The high population densities are also increasing the sensitivity by exacerbating soil/land degradation through over-cultivation.

(iv) Deforestation

Within the Mpologoma Catchment, deforestation has been rampant with a matrix of cropland and settlements. These are testimony to the habitat degradation in the region. One example is the Buyaga Central Forest Reserve in Mpumudde Sub County, Lyantonde District, that the communities have encroached on causing severe deforestation. Additionally, the high populations are increasing the demand for fuel thus leading to rampant deforestation for fuelwood and charcoal derived from within and outside the Protected Areas.

(v) Conflicts with natural resources management agencies

The value attached to natural resources and or ecosystems and the relations between communities and natural resources management agencies in general, may influence how sensitive the communities are, to climate change. People who care less about the natural resources like forests and wetlands are more likely to Conflicts with natural resources management agencies may be more nsensitive to climate change hazards. In some parts of the Mpologoma Catchment, the relations of communities with Environment Protection staff (e.g. NEMA) remain poor in some cases. What the staff may define as genuine law enforcement is perceived as harassment, as people are sometimes arrested and punished for indulging in illegal activities. As much as the dependence of the communities on natural resources is high, the local communities sometimes feel they are not part of the resource system and as such cannot care for it.

vi) Wildfires

Wild fires are a common phenomenon and are particularly caused by prolonged drought and increased human activities such as cattle grazing. More fires will lead to changes in vegetation composition as certain plants become more competitive with decreasing moisture and increasing fire frequency which will affect plants and animal

distributions. The arrival of invasive alien species may be associated with increased fires and the associated degradation.

3.3. Adaptation Strategies and Adaptive Capacity

3.3.1. Adaptive Capacity

Based on the information presented in the earlier sections of this report, it is clear that climate change is occurring in the Mpologoma Catchment leading to impacts such as soil erosion, disease outbreaks, flooding and drought. In adapting to the change, there are a number of capacities and resources aimed at enhancing resilience to climate change through adaptation. The key actions taken to deal with climate change occur at the individual, household and community levels. However, institutions (government and non-governmental) also play a vital role in providing policy, technical and financial resources to adapt to climate change.

3.3.2. Management of changes in climate among the communities

The communities adapted to the climate related risks by implementing different measures including planting trees, terracing, mulching, fallowing, small-scale irrigation, and crop rotation among others (Table 8). Numerous measures are undertaken but they were reportedly effective up to only about 60%. Most of the community perceived generally that measures against soil erosion were the most effective compared to actions against drought and flooding.

Adaptation to landslides

Planting of trees to stabilise soils in Kaato, Manafwa District

Adaptation to floods

Growing rice that thrives in water logged areas

Planting on raised ground in Namutumba and Palissa Districts

Table 8: Measures undertaken by communities to cope with climatic related hazards

Proposed Interventions (Ojilai Sub county, Bumanda Parish, Bumanda Zones A (89 men), B (180 men), C (77 men), D (62 men) and Central (45 men)

1. Provision of safe and clean drinking water
2. Strengthening enforcement of the wetlands acts and regulations on protection of water catchments
3. Planting native trees to restore and protect the environment
4. Construction of proper roads and water canals
5. Community sensitization on planned land use
6. Practicing sustainable modern agriculture and farming

Climate hazards and current/proposed adaptation options

Table 9. Summary of measures undertaken by the communities to adapt to landslides and floods

District	Hazards	Specific location	Vulnerable groups	Impacts	Responses/Proposed actions
Bududa	Landslides	Bukibokolo S/c, Buluminho	Women, Children & PWDs	• Displacement • Loss of fertile land • Deaths • Loss of property • Famine • Poverty	• Relocation of people • Soil stabilization measures (e.g. tree planting, grass bunds, avoided deforestation) • Farmland use planning • Awareness raising and capacity building • Establishment of early warning systems
	WASH Technologies			• Drying up of springs & streams • Unprotected springs are subjected to pollution of the water from the run-off during heavy rains • Water scarcity • Bulumino parish has many households with no latrines • Bulumino parish has only 1 P/S so the local community has bias towards formal education given that most children are not in school. Yet at school, the children would get an opportunity to	• RWH system with water tanks to collect water for domestic use and production • Provide ECOSAN toilets because they are drainable and can be emptied • Protecting the springs • Extend the GFS to Bulumino parish • RWH systems at household level • SC needs protected spring wells and GFS in water stressed parishes such as Bulumino parish. • GFS can work well in Bukibokolo SC • Support communities to build lined pit latrine with slab but with a possibility to empty • Subsidize cost of construction materials especially cement and Iron bars • River bank restoration activities e.g buffer zones planted with grass (Elephant grass and Nappier grass) and allowed to regenerate • By-laws on establishment and respect of buffer zones

				learn about WASH • Most homes have latrines with no slab. If you dig 15-20 ft you hit the bedrock • Consequently, the most children are at home and have no opportunity to learn about WASH in schools e.g. "Talking compounds • Poor farming methods • The gardens are up to the river banks in most areas where the river Manafwa and other streams pass • Mining sand along river Manafwa has caused degradation of the river banks • Most of the Pollution from Bududa district on river Manafwa comes from Bukibokolo SC because it is highly degraded including its two major tributaries of river Manafwa	• landowners be given alternative IGAs e.g. Livestock
	Drought			• Main dry months are January and February and December & fodder is rare for livestock in those months • Streams dry up or with very low water volumes • Soils are bare • Scarcity of water for domestic use	• Promote proper farming methods to include soil and water conservation to reduce the high-water run-off in areas experiencing high soil erosion in Bukibokolo SC

				resulting into WASH issues like water borne diseases, delays to collect water by women and children • Death of animals	
	Strong winds			• In 2021, Bulumino P/S in Bukibokolo SC lost iron sheets to a strong wind • Strong winds in rainy season destroy crops	• Encouraging tree playing to act as shades to strong winds
Manafwa	**Flooding**	Kaato S/c, Bumukali parish	• Women & children	• Damage of crops • Water borne diseases • Destruction of transport infrastructure • Siltation of rivers • Damage to property (e.g. homes, livestock, schools)	• De-silting of rivers • Riverbank protection (e.g. planting grass, trees) • Enhancing enforcement and governance systems through use of bylaws • Early warning systems • Demarcation, mapping and gazettement of wetlands. • Sensitization and public awareness • Farm and land use planning
	WASH Technologies	Manafwa District Manafwa Town Council has no safe water and has no alternative source to River Manafwa.	•	• The river is often silted and flooded making the pumping of water impossible. Due to the silting, the water levels become too low for pumping • Toilets washed away into streams • health issues of diseases due to contamination • Water scarcity • Destruction of water systems by communities	•
Tororo	Flooding Strong winds Hailstones	**Iyolwa Sub county (Most vulnerable sites: Nyamulinde Village, Poyemi, Awio Pii, Nyemera);**	• Farmers	• Destruction crops in the gardens • Poor crop harvests • Most parts of the sub county are not reachable	• Tree planting, reforestation/afforestation especially in flood prone areas to reduce the speed of running water • Construct dam for the water to create a reservoir for use during the dry spell

		Also closest to the river; Arowa wetland) **-Roads all over the subcounty** Ojilai Sub county: Fungwe Parish, Bumanda A, B, C and D (floods occur during the heavy rains of June -July and October - November	-Children are most affected in that they do not go to school -	because the roads are cut off • Reduced crop yields • WASH facilities such as wells are affected by the high speeds of flowing water (Iyolwa SC has 23 zones with only 9 boreholes) • Loss of life • Destruction of crops • In 2020 the floods led to displacement of people who settled camped at Ojilai P School for two months • Wild animals such as the Hippopotamuses came out of the wetlands to the residential areas (and also destroyed crops) • Increase in cases of Malaria due to increase in mosquitoes • Silting of rivers • Food insecurity • Income poverty • Formation gullies • Destruction of roads • Contamination of water sources • Increased costs of agricultural production	• Avoid planting crops some areas to avoid floods • Grade or fix the roads prior to the onset of floods • Need guidelines for climate smart roads • Agroforestry (hedgerows, alley cropping) • Conservation tillage • Organic manuring • Terracing • Contour banding • Mulching • Plant trees to protect the wetlands • Construct dams to hold the water and prevent floods • Advise farmers to plant crops that can stand the floods e.g. Rice. Potatoes (second season), Sorghum, and Sugarcane • Grow short rotation crops such as beans that grow in one month • Plant early in the season • Construct embarkments/terraces • Dig canals to drain the flood water or direct it to the wetlands • Coping with hippos: advised the community to avoid moving in the dark (night) but stay indoors • Provide nets • Use of cover crops • Soil and water conservation structures • Sensitization and awareness creation • Farm planning
	WASH **Technologies**		•	• WASH facilities such as wells are affected by the high speeds of flowing water (Iyolwa SC has 23 zones with	• Dig latrines on raised ground or hilly areas • Construct permanent latrines (with deep concrete foundations) – communities feel that these are expensive e.g. At Ojilai Primary School

				only 9 boreholes) (e.g. Ojilai SC has 22 villages with only 12 wells) • Water in the boreholes turns yellow	• Construct clean water sources for example iFungwe P. School Poyemi parish has only 1 borehole and 1 protected well, so the women and childrev have to trek long distances to collect water • Establish access roads • Communities collect water from the wetland
Pallisa	Hailstones		•	• Reduced crop yield • Famine • Income poverty • Water scarcity • Shortage of pasture • Increase in crop pests	• Irrigation • Water conservation (water harvesting) • Sinking of boreholes • Gravity flow schemes • Protected springs • Drought resistant crop varieties • Post-harvest management (e.g. food storage)
Namutumba	Strong winds Hailstones				
Butaleja	Floods	-Bunaware parish, Tayiro village	Women, elderlies, children, PWDs & youth	• Crops of cassava, maize and groundnuts destroyed in 2019 • Roads & bridges blocked in Bunaware 2022 • Displacement • Loss of fertile land • Deaths • Loss of property & houses • Famine • Poverty • Wetland degradation	• Construction of the dam to store all the flooding waters for future use • Sensitization of the communities on the good farming practices • Planting grass bands of elephant grass and bamboo along the river banks • Restoration of degraded areas and evicting people from wetland because in Nawanjofu most people have settled in the wetland and do farming there • Provide solar pumps and use of simple irrigation schemes hence providing means of growing other crops thus leading to resilience • Build resilience of communities to survive on their own
	WASH Technologies			• toilets washed away into streams • health issues of diseases due to contamination	•

Table 11. Indigenous/traditional FEWS options

District	Specific location	Indigenous/traditional FEWS
Bududa	**Bukibokolo sc, Bulumino Parish**	• The presence of cracks on walls or on ground, indicates to them that landslides are due • Sometimes they see the movements of soils underneath & this indicates that landslides are about to occur

		• Regular rainfall that takes 3-4 days & sinks deep in the soils indicates to them that landslides will soon occur
Manafwa	Kaato S/c, Bumukali West A & Butuwo parishes	• When the waters in streams & rivers change color to brownish, they know that floods are on the way • The presence of sediments in the water indicates to them that floods are about to occur • Heavy rainfall also makes them to know that it will soon flood • The increase of water volume in either streams or rivers also helps them to know that floods are about to occur
Tororo	**Iyolwa Sub county**	• Heavy rainfall foods occur during the two rainy seasons End of March – May)
	Ojilai Sub county	• Increased water volumes • Soggy ground • Constant heavy rainfall
Palissa		• None specific
Namutumba		The local community members also said that the increased use of firewood led to increased cutting down of any tree species, thereby degrading the six sub catchments. The price per piece of firewood also increased to UGX 2000. Use of firewood on the traditional three stones for cooking led to high energy losses and exposure to smoke inhalation from indoor pollution. UDHS 2016 stated that exposure to any type of smoke, for example resulting from cooking or smoking tobacco, can lead to diverse hazardous health effects. The local community members also said that the increased use of firewood led to increased cutting down of any tree species, thereby degrading the six sub catchments. The price per piece of firewood also increased to UGX 2000. Use of firewood on the traditional three stones for cooking led to high energy losses and exposure to smoke inhalation from indoor pollution. UDHS 2016 stated that exposure to any type of smoke, for example resulting from cooking or smoking tobacco, can lead to diverse hazardous health effects.
Butaleja	Budumba S/c, Bunaware Parish	• Heavy rainfall especially in Bugisu land indicates to them that floods will occur in their area • The increase of water volume in either streams or rivers also helps them to know that floods are about to occur

Automatic Weather Stations Automatic and Water Level Stations

The GCF funded project '***Building Resilient Communities, Wetland Ecosystems and Associated Catchments in Uganda'*** of the Ministry of Water and Environment (MWE), is focused on the restoration and management of wetland hydrology and associated catchments. One of the project components is undertaking efforts to strengthen access to climate and early warning information to farmers and other target communities

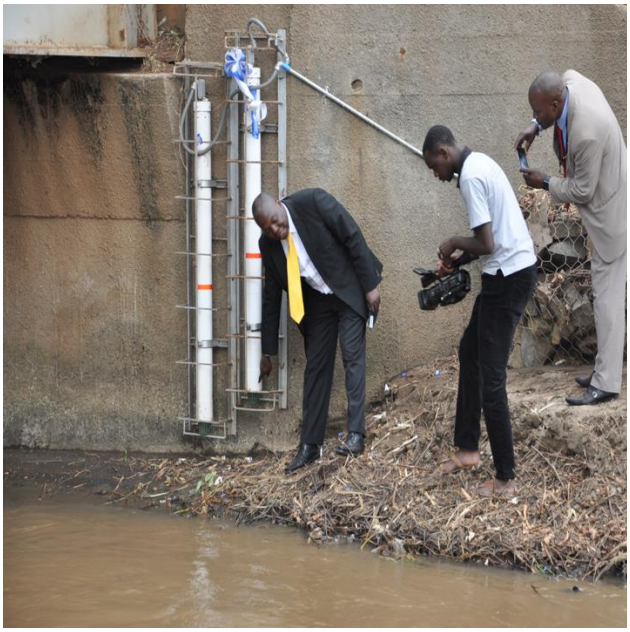
Automatic Weather Stations

EASTERN STATIONS	
District	***Site***
Pallisa	Kasodo Sub County Headquarters
Butaleja	Butaleja District Headquarters
Tororo	Molo Sub County Headquarters
Bududa	Bududa District Headquarters
Mbale	Mbale District Headquarters
Bukedea	Bukedea District Headquarters

	Kumi	Mukongoro Sub county Headquarters
	Kaliro	Kaliro District Hqrs- Production Office
	Namutumba	Namutumba District Headquarters
	Kibuku	Kadama Sub County Headquarters
	Budaka	Budaka District Headquarters
	Ngora	Kobwin Sub County Headquarters

Automatic Water Level Stations Installed in Eastern and South-Western Project Areas

	EASTERN STATIONS	
	District	***Site***
	Budaka	Namatala Downstream
	Kibuuku	Mpologoma at Tirinyi
	Pallisa	Aleles
	Pallisa	Oladot Swamp
	Ngora	R. Agu
	Pallisa	Limoto
	Kaliro	Mpologoma at Saaka



Flood early warning system in Butaleja

General observations

A. Flood Response Committees

-Exist in Tororo District at various levels (District. SC, Parish and Village) comprised of about 10 volunteers
-Are not facilitated and are therefore inactive
-Recommendation: The CURFFEW Project should enhance the capacity of the committee so that it is able to report effectively
-Train local masons in constructing rain water harvesting technologies
-Current efforts by MWE: Currently the Catchment Management Committees (CMCs) are not active.
-Enhance the capacity of Catchment Management Committees (CMCs) to originate solutions for enhancing adaptation to climate change. They should be trained in Proposal Writing.
-Equally, Catchment Management Organizations need capacity enhancement

Impacts of landslides and floods

Washed away the roads
-Washed away the inlet
-Caused silting
Impact: The lack of safe water means that the women have to walk long distances to fetch water. This leads to increased cases of defilement.

- The most vulnerable ecosystems to the effects of landslides (and mudslides) are the hilly/mountainous areas and the river banks
- The ecosystems that are most vulnerable to the effect of floods are the encroached wetlands that are subject to siltation
- The most vulnerable community groups to landslides and floods are the farmers whose crops (and homes) are usually washed away. The farmers are Rice growers who are affected economically, socially and emotionally when the crops are lost.

RECOMMENDATIONS ON WASH

- The project should support the Eastern umbrella of water and sanitation
- Include the National Water and Sewerage Corporation in the project design to support implementation

Emergency Response

- Local Council (LC) officials register the affected people and report to the district authorities
- Rely on relief aid from UNICEF and OPM as was the case in Ojilai in 2020

4.0. CONCLUSION AND RECOMMENDATIONS

4.1. Conclusions

i. The assessment shows that the human communities and natural ecosystems within the Mpologoma Catchment are not homogeneous. Some particular households, individuals, plant species within the Mpologoma Catchment had differing degrees of vulnerability.

ii. The study, as expected, shows that climate change is occurring in the Mpologoma Catchment and is mainly driven by anthropogenic factors, especially increased land use intensity. This is driven by increased population growth and its associated demand for land for agriculture and settlement. In addition, there is unsustainable utilisation of natural resources.

iii. Climate change will negatively affect species, ecosystems and ecological processes in the Mpologoma Catchment if appropriate mitigation and adaptation actions are not implemented. The projected climatic conditions will thus affect several ecosystem services and processes in the Mpologoma Catchment, but the proposed project will help in dealing with some of the challenges.

iv. However, the Mpologoma Catchment still has the potential to provide a wide range of ecosystem services that vary spatially, but these have to be protected from degradation. In cases where they are already degraded, restoration measures should be put in place.

v. Mpologoma Catchment is gifted with many ecosystems, from which people obtain bene ts of many kinds. Farmland, forests, streams, rivers and swamps among the most important of these ecosystems. Although maintaining such ecosystems is essential for ensuring future supply of vital ecosystem services (e.g. food, fresh water, medicines etc.) they are under growing threat due population increase and climate change. Climatic hazards, especially flooding, extended dry spells, landslides and soil erosion are increasing in many parts of the region. Vulnerability to these hazards largely depends on elevation and population density. These hazards not only make life more difficult, but actually threaten people's very existence.

vi. Future climate scenarios

Whereas there are several ways of predicting how future climate conditions are likely to be, for this VIA, the method used (Coupled Global Climate Model) predicts temperatures in Mt. Elgon region to rise by 0.5-0.6°C for the next 20 to 50 years, while rainfall will increase by 18.7 mm over the next 20 years. In terms of seasons, the present drier months of June, July and August are expected to receive even less rain (reductions of up to 6 mm in the 2020-2039 period, and 10.9 mm in the 2040-2059 period). These changes are likely to affect the supply of ecosystem benefits from the Mpologoma Catchment in more than one way.

vi Future supply of ecosystem services

Food provision

Considering that food production in the Mpologoma Catchment is sustained by smallholder farmers through rain-fed agriculture, crop yields are quite sensitive to climatic change and extreme events. As such, the ecosystem's capacity to provide food is equally vulnerable. Continuous cultivation of land and temperature rises in future will reduce crop yield per unit area. The rising temperatures and unreliable rains as well as increasing climate hazards such as landslides, floods and droughts could also subject soils to higher risk of climate-induced degradation.

Fresh water supply

The presence of several water sources makes the Mpologoma Catchment a vital water tower. Rain provides the main recharging means of the many rivers, streams and wetlands in the region. Fresh water supply relies on both surface and ground water sources. Although surface water sources are the most common and supply most of the fresh water used by communities, they tend to be at risk to extended dry spells. Future supply of fresh water is expected to be affected by climate-related events such as erosion, floods and landslides. Therefore, future provision of clean water is projected to get worse amidst increasing demand. In the same way, the amount of clean fresh water will reduce as a result of contamination from unprotected water catchments and poor sanitation, in a situation of increased rainfall intensity. In low-lying parts of the catchment, fresh water availability is feared to be compromised by increased temperatures and higher rates of evaporation during the long dry spells, causing drying up of water sources (wells and springs) and general scarcity of water. The WASH interventions are therefore strongly supported by the stakeholders.

Soil erosion regulation

Soil erosion is a serious problem affecting agricultural production. Controlling it depends a lot on the vegetation cover in the catchment. Given the mountainous landscape, land cover types, heavy rainfall and nature of soils, soil erosion in most parts of the Mpologoma Catchment is likely to rise as the remaining vegetation cover is converted to cropland or deforested land. Soil erosion will be increased by the likely increase in water runoff due to the increased rainfall amounts expected in future. Although the projected increase in temperature may not have direct effects on soil loss, it is expected to enhance soil erodibility thereby speeding up the impact of increased rainfall on soil erosion.

Flood regulation

Flooding is currently prevalent along major drainage systems and in low-lying plains. Flooding in one place, however, is closely linked to land use and climatic processes taking place elsewhere, especially in upstream places. The

catchment capacity to regulate flooding in future will be of more importance considering that more and more people are settling and cultivating in flood-prone areas like riverbanks and wetlands. With both peak rainy seasons registering higher rainfall in March – April and October – November, susceptibility to flooding is expected to increase during such months. A significant increase in stream flow has been predicted for the region in the coming decades as a result of increased rainfall. Human activities especially converting of forests into agricultural land are feared to reduce the natural capacities of upstream areas to prevent flooding. The extent of flooding is likely to increase further as a result of changes in the catchment's areas through human settlement, agriculture and other forms of interference with natural drainage. Hence, the interventions proposed for this project are timely.

Access to information, if not well addressed, hinders adoption of interventions to climate change hazards and risks. Drought affects the communities that have not planted any trees on their land or around their homes. The floods may affect many people who have terraced or dug trenches on their land respectively.

4.2. Recommendations and Adaptation Options

1. Basic catchment practices such as terracing, planting trees and others must be promoted. The development and adoption of climate-smart intercropping systems, which incorporate agroforestry, improved soil fertility management, moisture retention, and disease management, will be critical to the future production of both crops in the face of continued climate stress.

2. The adaptive capacity of communities that are increasingly dependent on agricultural related activities in the Mpologoma Catchment is weak. The droughts and other associated effects could have adverse effects on agriculture making the communities vulnerable. Hence, efforts need to be made to diversify the livelihood options beyond the current level.

3. The Mpologoma Catchment is faced with increasing population pressure and the demand for resources, hence there is a need to manage the human population increase. Restoration of degraded ecosystems must be treated as a matter of priority. Current measures are inadequate in many cases.

4. Some interventions to address the climate related hazards and expected impacts have been suggested. These include soil stabilization (through tree planting, grass bunds, avoided deforestation), farm/land use planning, awareness raising and capacity building, establishment of early warning systems, relocating people from hotspot areas, irrigation, water conservation (water harvesting), sinking of boreholes, gravity ow schemes, protected springs, drought resistant crop varieties, post-harvest management (e.g. food storage), de-silting of rivers, riverbank protection (e.g. planting grass, trees), enhancing enforcement and governance systems through use of bylaws, agroforestry, and tree planting, reforestation/afforestation.

Annex VI: Gender analysis and action plan

For the project "Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda"

By

NACOPART UGANDA LIMITED
Your partners in sustainable development

JULY 2022

1. Rationale for the Gender assessment

The six districts where the project is to be implemented with the help of different stakeholders are ready to work due to the current challenges in their areas and have expressed support to undertake the proposed interventions. Understanding the different needs and capacities of women and men is critical to effective project implementation. It is against this background that a gender analysis was conducted to analyze the gender group differences in terms of their vulnerability, roles and responsibilities as well as challenges and opportunities; mitigate or gender mainstream into project activities and draw a gender-based action plan for project implementation. Without a commitment to gender equality, the Fund's vision, Gender norms and related cultural rules are part of what structures the interactions and reactions to climate threats and opportunities in human systems by influencing roles, expectations, attitudes and behaviors of human beings.

Climate change impacts women and girls, men and boys differently because of existing gender inequalities, gender discrimination and social exclusion that could be perpetuated by systemic power imbalances and structural barriers. These often restrict women's and girls' access to and control over resources, legal rights or political participation and decision-making, threaten their peace and security, and thereby undermine their adaptive capabilities. This is why women and girls are often disproportionally affected by climate change as its negative impacts are aggravated by existing gender inequality and systemic and structural patterns of discrimination and social exclusion, which also reduce the effectiveness of sustainable development and poverty alleviation measures.

By striving for gender equality and supporting gender equitable processes (e.g. empowering women and girls and working towards changing gender norms), the Fund increases the adaptive capacity of human systems in line with its mission to support effective adaptation. It does so by acknowledging that men and boys, women and girls have differing adaptation needs, priorities and capabilities and by responding to those in a gender-differentiated way.

Without a commitment to gender equality, the Fund's vision, Gender norms and related cultural rules are part of what structures the interactions and reactions to climate threats and opportunities in human systems by influencing roles, expectations, attitudes and behaviors of human beings. Climate change impacts women and girls, men and boys differently because of existing gender inequalities, gender discrimination and social exclusion that could be perpetuated by systemic power imbalances and structural barriers. These often restrict women's and girls' access to and control over resources, legal rights or political participation and decision-making, threaten their peace and security, and thereby undermine their adaptive capabilities. This is why women and girls are often disproportionally affected by climate change as its negative impacts are aggravated by existing gender inequality and systemic and structural patterns of discrimination and social exclusion, which also reduce the effectiveness of sustainable development and poverty alleviation measures.

The Fund's gender policy builds on the existing gender policies and gender action plans of other climate funds.22 It systematically integrates key principles elaborated in the Fund's own environmental and social Policy (ESP), especially the principles on **access and equity**, on consideration of **marginalized and vulnerable groups** and of **human rights.** It highlights the principle of **gender equality and women's empowerment** as the goal that the Fund strives to attain through its processes. It acknowledges and integrates the need to apply an **intersectional analysis** in addressing gender-related differences in vulnerability and ability to decrease vulnerability and adapt to climate

change impacts as a lens to understand the complexity and particularity of inequalities in the lives of women and girls, men and boys, including their systemic barriers and root causes. Those are dependent on a multitude of factors such as the economic profile and societal structure of the country or subnational region, specific climate impacts, variety of livelihoods, a host of sociocultural factors such a class, age or race as well as other change processes in societies, such as those brought on by globalization, migration, urbanization and economic development. It is expected for those changes to lead to new adaptation challenges for women and girls, and men and boys.

2. Overview of CERFEWWS project

The proposed "Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda" is to be implemented in six districts including; Butaleja, Pallisa, Bududa, Tororo, Namutumba and Manafwa. The overall objective of the project is to increase the resilience of communities to climate change risks mainly those related to floods and landslides, through the establishment of appropriate flood early warning systems and implementation of FEWS and smart-WASH adaptation actions in the Mpologoma catchment areas.

2.1 Project background/context

The purpose of the Gender Assessment baseline study was to generate data on the current prevailing gender situation in the Mpologoma catchment to inform the process of writing the full proposal titled "*Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and WASH Technologies in Mpologoma Catchment, Uganda*" to be submitted to the Adaptation Fund by the Ministry of Water and Environment (MWE) in August 2022. The study targeted the 6 selected sub-catchments which cover a total area of 2,994 km2 (33.3% of Mpologoma catchment) and administratively cover 11 districts (Bududa, Namisindwa, Mbale, Manafwa, Butaleja, Tororo, Kibuku, Budaka, Namutumba, Kaliro and Pallisa) shown in Table 29: Districts within the proposed project area

Table 1: Districts within the proposed project area.

Drainage	Sub Catchment	Districts
Upstream	Upper Manafwa	Bududa, Namisindwa, Mbale, Manafwa
	Middle Manafwa	Butaleja, Namisindwa, Mbale, Manafwa, Tororo
Midstream	Lower Manafwa	Butaleja, Kibuku, Budaka, Tororo
	Upper Mpologoma	Namutumba, Butaleja, Tororo
Downstream	Middle Mpologoma	Kibuku, Namutumba
	Lower Mpologoma	Kaliro, Palisa

2.2 Project objectives

The overall goal of the project is to increase the resilience of communities to climate change risks of floods and landslides through timely response to climate hazards, sustainable community access to water, sanitation and hygiene services and integrated catchment management measures in Mpologoma catchment. The proposed project focuses on supporting local communities to adapt to the effects of floods and landslides through developing and implementing integrated floods early warning systems, climate resilient WASH and catchment management measures in selected sub catchments of Mpologoma catchment in Uganda.

The specific objectives of the project are to:

a) Strengthen the institutional capacity for planning, designing, implementation and monitoring of integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies

b) Develop and promote adoption of Floods Early Warning systems (FEWS), climate-smart WASH and Catchment Management technologies

c) Facilitate communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides

d) Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies

2.3 Project Components

i. Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies
ii. Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides
iii. Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies

2.4 Description of the project areas

The proposed project will be implemented in different areas, that is to say, upstream, midstream and downstream areas within Mpologoma catchment (Figure 1). These sites are considered to be most vulnerable and prone to floods and landslides and to climate change impacts. The areas were selected for the proposed project based on the following criteria:

- The areas experience high rainfall variability with increasing frequency and intensity of floods and landslides
- There is high environmental degradation (vegetation and soil degradation), loss of biodiversity resources (flora and fauna) as well as the deterioration of water (quality and quantity) and water resources on which communities depend for alternative livelihoods
- Most communities practice and depend on rain-fed subsistence agriculture and have low-incomes and limited livelihood options to cope with floods and landslides and associated climate change impacts
- Socially, there are many vulnerable members among the communities especially women, children, PWDs and the elderly
- Have experienced continuous challenges of timely responding to climate change disasters due to inadequate and limited Early Warning Systems.

3. Methodology

Selection of districts, Sub Counties, Parishes and Participants.

The final administrative areas for the baseline were selected in consultation with Kyoga Water Management Zone (KWMZ) technical team at MWE and the District Local Government (DLG) staff basing on several parameters, for example, prone to landslides and or floods, high rainfall variability, climate change impacts, severity of degradation, agriculture as main source of livelihood, poverty levels, Inadequate and or limited EWS, deterioration of water (quality and quantity) and water resources.

4. Findings of the Gender Assessment

Farmland is majorly affected during landslides and floods where food crops are destroyed and land is rendered useless since no agricultural activities can be undertaken. This normally leads to low yields of food crops and subsequently scarcity of food which results famine. Women and children are particularly affected because they cannot access enough food to feed their families. For example, Bushigai County, the area is prone to soil erosion which is caused by poor farming methods mainly practiced by women and children.

Landslides displace people from their homes and are forced to seek shelter in internally displaced camps, relatives homes and emergency places like; churches and school. The IDP camps are normally congested and with few amenities. The inadequate shelter exposes women, children, elderly, PDWs to extreme weather conditions like coldness and heavy rains which lead to death, but also later experience increase in GBV, teenage pregnancy and trauma especially on children.

Butaleja is particularly prone to floods because it is situated in the lower midstream of the catchment where River Manafwa and Malaba drain their waters. Farmland is majorly affected during floods where food crops are destroyed and land is rendered useless since no agricultural activities can be undertaken. This normally leads to scarcity of food due to low yields which affect adequate food production.

The Infrastructures such as roads, schools, health facilities are in most cases destroyed when landslides and floods occur mainly during rainy seasons. It becomes very difficult for communities to access services in times of need. This

means learners cannot access schools, movement of goods and services to access markets for a living and access to health services is adversely constrained, normally the children, women, PWDs and the elderly are particularly affected because their survival depends on a functional infrastructure system. For example, areas of Nabungoma, Butui, Bumukali experienced cracks and communities were evacuated to a new area for safety before landslides would occur.

WASH facilities flooded away and contaminate the rivers and streams leading to water borne diseases like cholera, dysentery, which affects the society and when it comes to children being sick, it is the women who always move to hospitals for treatment of their sick children whereby they have to trek long distances to the health centers and sometimes fail to cross the bridges that have been destroyed by the floods.

4.1.1 Demographic and Social-economic characteristics

Refer to the socioeconomic and environmental baseline report (Annex 4)

4.1.2 Education

Education in the districts where the project is to be implemented as a whole, comprises the formal education that involves training in pre-primary, primary, secondary and tertiary levels. While informal education is non-curriculum education based on people's experiences and may take place both within and/or outside educational institutions. According to a comprehensive report on the universal post primary education & training (UPPET/USE) & universal post O' Level education & training (UPOLER) National Headcount Exercise 2014, under ministry of education and sports, the government registered success in narrowing the gender enrollment gap in BTVET institutions with an increase in female enrolment share from 23.7% in 2002 to 30% in 2014 due to introduction of UPPET/USE in 2007.

In addition, the gender enrollment gap in terms of secondary schools' enrollment has narrowed tremendously with the proportion of girls rising to 45% in 2011 from 42% in 2007. However, with these successes, areas like Bukibokolo sub county in Bududa, the girl child enrollment is very low and even female teachers are not in some schools who would encourage them where by since 1989, they had never had a female teacher until last term 2022 and this partly contributes to the low enrollment for the girl child together with long distances one has to walk to schools as well as poor WASH facilities or even no toilets for girls to dump their used pads which was emphasized in Namutumba districts, Butaleja and Bududa. This makes the girls to drop out of schools or be away from schools during their menstruation periods because of lack of where to dispose off their used sanitary pads. If construction of WASH facilities in schools is done, the girl child education will improve and enrollments will as well rise.

Women are generally less educated compared to the men and truly most women among smallholder farmers are illiterate and of poorer socio-economic status. This implies that their access to basic services especially water and health-care is greatly limited thereby further rendering them more vulnerable to the impulses of climate change including floods and landslides. Due to limited education or literacy levels, their involvement in community leadership and governance thereby living and working under the mainly male-dominated local leadership and governance structures that are ideally meant to guide communities in managing and coping with climate risks. These findings further reveal that women's access to information is also very limited as a result of limited literacy levels.

4.1.3 Health

Refer to the socioeconomic and environmental baseline report (Annex 4)

4.1.4 Income

The main economic activity is agriculture involving crop farming and some livestock keeping but mainly at subsistence level and the cultivated food crops are maize, beans, cassava, banana, rice, millet and horticultural crops (vegetables). Women, youth and children spend more time gardening during cultivations seasons but after harvesting the crops and are sold to the markets, some men chose to take it away from their women for either alcohol or sports bating in centers yet it could have bought some necessities at home, this creates quarrels, fights and domestic violence thus leading to income disparities between men and women.

However, men are also involved in other economic activities within the CARFEWW project area which contributes to their enhanced incomes as opposed to women, youth and other vulnerable members of the family. For example, men in Bududa are actively involved in Bull fattening whereby they buy the hybrid calves at UGX 1,000,000 from

Kenya and fatten it by feeding it so much for 1 year then sell it to Kenya at UGX 3,000,000-UGX 3,500,000 weighing approximately 300kg. This practice is common and very lucrative in Bududa District and Manafwa district.

Other economic activities which generate additional income to the local community members include; (i) brick making-mainly by male youths in lowland areas, (ii) firewood selling–mainly by females and youths who sell it to city centers, (iii) charcoal burning- mainly by men and male youths, (iv) sand mining- mainly by men and male youths, (v) boda-boda riding-mainly by male youths and is a male dominated IGA which generates quick income, retail trade-all social categories operating along roadsides and in trading Centers and local markets in all Sub-Counties where the FGDs were conducted.

Therefore, women, youth and elderly have limited sources of incomes; hence access to finance remains a big challenge which continues to entrench women, youth and PWDs in abject poverty. Similarly, they barely participate in decision making processes regarding the management, control, use and access of the sub catchment resources such as firewood, land for agriculture, water for domestic use and production, Sand mining, Building materials (poles), Herbal medicines, Food (fish and fruits), handcrafts and grass for animals. There is high population increase which has led to land fragmentation and degradation of the resources in the sub catchments. This has created scarcity and competition for resource access whereby the most vulnerable members of the local community have less or no access as compared to the men whose are mostly the main decision makers in the households.

Pronounced deprivation in well-being or welfare in terms of economic factors such as low income and lack of assets, access to markets or public services among other factors leads to poverty. Poverty rendered the most vulnerable categories of the local community, such as women, youth, children, elderly, PWD and child-headed homes lesser resilient and lesser adaptive to the impacts of climatic hazards such as low crop yields, loss of houses and WASH challenges (water scarcity, Loss of pit latrines and pollution of water sources). Low crop yields which is as a result of landslides, floods, drought and or hailstones cause food insecurity among the most vulnerable local community members hence famine and malnutrition among the children and that is why the women opt for dairy farming to get milk for sale and for children as well as use the cow dung as manure to enrich their soils which have lost fertility.

Quote: A female respondent from Ojilai Sub County said we only depend on one meal a day even sometimes we do not get what to eat, my children are starving and sickly Even other women among the PWDs from Butaleja, Budumba s/c in Bunaware parish said with pain that the land which we have as a family, I cannot do any farming on it because my husband hires it out to other people who pay him 250,000shillings per acre per season instead I go elsewhere to hire then grow some food crops for my children and for sell.

4.1.5 Access to resources and decision making

The land tenure system within the Mpologoma catchment is customary and ownership is patriarchal in nature and control and power over land is vested in men. The male children are more privileged in ownership and control of land because in instances where the head of family dies, they inherit land.

Access to land is restricted where women and children are relegated to user rights. The nature of activities undertaken on land are agricultural and in particular subsistence for home use and consumption. Women and youth reported that they barely own property on land because it is deemed to be a preserve of men and elders. However, it was observed that land is highly fragmented and degraded due to increase in population in that it cannot support agricultural activities on a commercial scale. The soils have become infertile which has leads to low crop yields and subsequently famine, the situation is further exacerbated by prolonged spells of drought especially in the mid-stream and low stream of the Mpologoma catchment project area.

In view of inheritance and access to resources, women are exposed to housing, land and property violations, especially land-grabbing and denials of inheritance. The fact that, after marriage, women will likely enter a different family limits woman´s inheritance. Investing in women is perceived as a misuse of scarce resources in times of poverty and conflict. Therefore, women rarely inherit valuable assets such as land and income-producing animals.

Overall the poverty estimate of the households in the catchment was 39.5% which was extracted from the UBOS 2019/20 estimates per district (Figure 3). Poverty rate was highest in Butaleja district (47.8%) and the least was in Mbale district (24.7%) excluding Mbale Municipality/City.

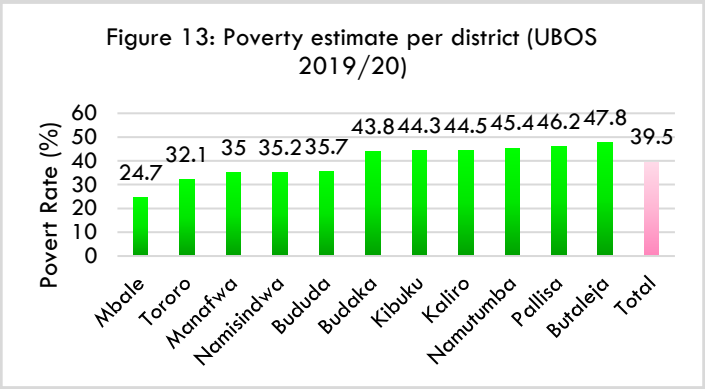


Figure 1: Poverty estimate per district (UBOS 2019/20)

4.1.6 Roles and responsibilities

In view of child labor in the area, culturally, girls are expected to take part in household chores from around the age of 7 years, especially in rural areas. The distribution of such tasks is highly gendered and the burden twisted towards girls. Boys are usually responsible for maintaining income-earning activities like bull fattening, brick making or sand mining, while girls attend more to cooking, cleaning and resource gathering responsibilities. In situations of extreme poverty, some girls are taken to work in towns as housemaids.

Male household members may migrate to urban centers seeking economic opportunities. Alternatively, women or big girls sometimes travel to trading centers/towns to engage in petty trade and engage in the informal economy. Available economic opportunities, however, are still quite limited for both men and women and female-headed households remain among the most vulnerable populations. Unemployment rates remain particularly high for women. Women who are engaged in income generating activities are often engaged in the informal sector and further bear the double domestic burden of earning an income and taking care of the home. The consequences of this burden often fall to girls in the family, who are expected to contribute to the maintenance of the home often at the expense of girls' education and skills development.

Differentiated social roles and responsibilities between men and women across livelihood systems have implications on the available mechanisms to cope and respond to external shocks such as landslides and floods. In the face of crisis, such as insecurity, famine or drought, men and women adopt different coping strategies to increase household resilience. Family splitting, for example, constitutes an important survival mechanism as families break up to spread economic risks and increase access to livelihood opportunities. Men and older boys may go for charcoal burning in other regions of the country in search of forests, or possible alternative livelihoods, while women remain with small children, the elderly and PWDs, or travel to camps in search of access to resources and security.

4.1.7 Gender Balance

In the proposed project sites, gender balance in leadership, governance and decision making over floods and landslides management and control of resources remains very low in the proposed project sites. They are characterized by poor access to land and related resources and access and decision-making powers over agricultural production. Therefore, gender mainstreaming is vital for successful design and implementation of the proposed project activities. It is vital that the women and youth are empowered to contribute to the design and implementation of the livelihood options especially in agriculture and natural resources management interventions

4.1.8 Access to finance

Access to finance is unequal because of the stringent, discriminative eligibility criteria that requires security in form of yields/harvests, productivity and contributions. These criteria often accompany financial requests that women and youth can barely meet. In general, the credits allocated to women are small amounts from informal networks

and most often invested in areas than production. Men on the other hand, often benefit from more substantial loans for the acquisition of production equipment and marketing

5. Conclusions

The results show that the demographic composition of most communities in the proposed project area makes them vulnerable to the impacts of climate change intensified floods and landslides. The most vulnerable members of communities are women, youth and PWDs. Farmland is majorly affected during landslides and floods where food crops are destroyed and land is rendered useless since no agricultural activities can be undertaken. This normally leads to low yields of food crops and subsequently scarcity of food which results to famine. Women and children are particularly affected because they cannot access enough food to feed their families. For example, Bushigai County, the area is prone to soil erosion which is caused by poor farming methods mainly practiced by women and youth and this leads to low yields hence poverty and low incomes thus leading to limited/inadequate livelihood options and men abandoning their family responsibilities and heaping most activities to the women and youth especially in times when climate change and FEWS events are at the peak.

Landslides displace people from their homes and are forced to seek shelter in internally displaced camps, relatives' homes and emergency places like; churches and school. The IDP camps are normally congested and with few amenities. The inadequate shelter exposes women, children, elderly, PDWs to extreme weather conditions like coldness and heavy rains which lead to death, but also later experience increase in GBV, teenage pregnancy and trauma especially on children.

Butaleja is particularly prone to floods because it is situated in the lower midstream of the catchment where River Manafwa and Malaba drain their waters. Farmland is majorly affected during floods where food crops are destroyed and land is rendered useless since no agricultural activities can be undertaken. This normally leads to scarcity of food due to low yields which affect adequate food production.

The Infrastructures such as roads, schools, health facilities are in most cases destroyed when landslides and floods occur mainly during rainy seasons. It becomes very difficult for communities to access services in times of need. This means learners cannot access schools, movement of goods and services to access markets for a living and access to health services is adversely constrained, normally the children, women, PWDs and the elderly are particularly affected because their survival depends on a functional infrastructure system. For example areas of Nabungoma, Butui, Bumukari parishes experienced cracks and communities were evacuated to a new area for safety before landslides would occur.

In terms of populations, women and youth outnumber men and they are the ones providing the bulk of the labor force in agriculture. This gender analysis revealed that whereas women and men face various challenges including livelihood challenges and vulnerability to FEW, WASH and climate change risks, women, children, the elderly, and youth remain the most physically, economically and socially vulnerable to climate related disasters.
The vulnerabilities stem from traditional norms and beliefs, and labels that have yet limited women's ownership and control of livelihood resources, restricted their movement, and increased their burden with many domestic gender roles as highlighted in the roles and responsibilities.

The coping strategies are also gendered, with men reportedly migrating to purportedly find opportunities to widen their income bases for their families leaving the women, children, youth and elderly behind. Women have adequate access to information on FEWS risk and management as well as finance. Actually, most trainings/capacity building initiatives undertaken by other stakeholders on drought and other climate change disasters management have previously targeted more men than women. Women are generally more knowledgeable than men in drought management measures due to their resilience in facing and dealing with such challenges in absence of the men. Although men, women and youth are vulnerable to FEWS due to climate change, women are more vulnerable.

6. Recommendations

The study has identified key gender issues related to livelihoods, smart-WASH, FEWS and impact of Climatic hazards and catchment protection who should be addressed during the CARFEWW project implementation.
Key recommendations made by the key stakeholders during KIIs and FGDs

#	Category	Recommendation
1	Full involvement of the key stakeholders profiled in the stakeholder analysis report.	Involve all the key stakeholders at the district, sub county and local community and household level by addressing the interest of each and strengthen each stakeholder to play their role. For example, the political leaders were willing to mobilize the local communities and speak the same message with the technical staff during sensitisation of the land community members. Government institutions can also support in the provision of inputs e.g tree seedlings, RWH harvesting systems, and other IGAs, etc. A lot of work should be done to change attitudes of stakeholders towards catchment protection,
2	Alternative income generating activities (IGAs)	To increase adoption and uptake of catchment protection measures, the CARFEWW project should provide alternative IGAs suited to the local conditions. For example; v. Bull fattening mainly preferred by men in the upstream areas of Bududa and Manafwa district. vi. Dairy Cattle under Zero grazing for women to get milk for children and also sell milk to get incomes. vii. Rearing Hybrid goats mainly preferred by women and female youths. viii. Bee keeping for honey and other bee products. Bee keeping is lucrative but also bees pollinate the plants, hence a double win to the households and the ecosystems.
3	Restoration of degraded ecosystems/areas of the catchment	i. Tree seedlings and Elephant grass and Napier grass for planting along the degraded areas of the catchment. The grasses will be planted on the contours to reduce the run-off and also act as fodder for the livestock (Cattle and goats). Fruit trees were also preferred besides the agroforestry trees such as Gravelea, Cordia, etc. This can be through carbon trade arrangement to discourage poor households from cutting down young trees such as Eucalyptus for poles and firewood.
4	Climate smart WASH technologies	iv. Train and Support households to set up ECOSAN toilets, lined pit latrines with a possibility to empty them. The households would like subsidies on the main construction materials such as cement, sand, stone aggregates/gravel and iron bars. v. Extend water such as GFS and also protect the springs in the upstream water stressed areas of the catchment. Repair the faulty and vandalised water facilities in the catchment. Construct more boreholes and deep wells in the midstream and downstream areas of the catchment facing water shortages especially in the dry season.
5	Rainwater Harvesting (RWH) technologies	ii. Promote RWH to collect and perverse the water from the iron sheet roofs for domestic use and production (small-scale irrigation) especially during the dry season. This will also help reduce on the distance moved and time taken by women and children to collect water especially in the dry season.
6	Floods Early Warning Systems (FEWS)	Establish FEWS for landslides and floods... The EWS should be fully integrated to collect, manage and alert the people of the climatic hazards. The local technical staff should be trained at the district and community level on how to use the EWS technology for sustainability of the interventions.
7	Community Development Department, Para Social Workers	30 per SC, comprising 10 per parish and do sensitizations as well as resolve community wrangles. In Ojilai SC, the committee has 16 women 10 men. The communities stated that: Women like volunteering; Women are the best councillors; Women are the best councillors

7. Gender vis-à-vis project activities

This section provides information on the relationship between Gender and Climate Change as well as the impacts that floods and landslides have on the proposed areas of the CARFEWWS project. In addition, a description is of project-linked gender issues according to project components including Flood Early Warning issues, capacity strengthening issues, issues with climate change adaptation actions and knowledge management issues.

7.1 Gender and Climate Change

Gender inequalities intersect with climate change-linked risks and vulnerabilities. Gender inequalities´ historical disadvantages, added to limited access to resources, limited rights and limited participation in decision-making processes make women highly vulnerable to climate change. Climate change is likely to aggravate the existing gender disadvantage patterns. Climate change-related initiatives are being deployed today at different levels from the international to nations, going across regions and local level settings. As indicated in the preceding sections of this document, there is an ever-increasing awareness that climate change is a multi-sectoral development-linked problem. Until recently, climate change was being primarily thought of as an environmental problem, thus the Ministries of the Environment have full responsibility to address it. Whatever the sector and the (international, national, regional, or local) scope of planning, it is imperative that strategies are designed to ensure that measures taken in relation to climate change adaptations ensure full consideration of gender relations in order to foster equity and equality in whatever adaptation actions are to be implemented.

Public policy is an opportunity to ensure that the reallocation of resources across the entire society shall equitably benefit women, youth and men. The inclusion of gender equality criteria into the design and implementation of gender policies shall allow for an in-depth impact of these resources on redressing social inequalities that worsen floods and landslides due to climate change impacts. The gender equality policies that are currently being

implemented world over should ensure that climate change issues are integrated and strategic guidelines therein are designed and linked to respective national development policies and plans. For instance, the Fund's gender policy is human rights-based and congruent with international instruments in acknowledging the centrality of women's rights as universal human rights, in particular with the Universal Declaration of Human Rights (UDHR), the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the International Labor Organization's (ILO) core conventions24, the Millennium Development Goals (MDGs)25, follow up Sustainable Development Goals (SDGs) and the 2030 Agenda for Sustainable Development. It supports the equal rights of women and girls, men and boys to access and benefit from the Fund's resources in order to increase their adaptive capacity and reduce their vulnerability to climate change impacts, facilitating a transition towards a gender transformative approach.

The reaction of households and the communities to recurrent floods and landslides in the 6 districts indicates their vulnerability, their ability to cope with recurrent floods and landslides as well as the severity of climatic hazards. A Vulnerability Analysis has been undertaken within the framework of the preparation of the project. Some of the issues are again addressed in the document to complement the gender mainstreaming approach in those cases in which data is available.

7.2 Floods Early Warning and Gender Systems

Owing to their social roles and different vulnerabilities in current productive and relational settings, men and women have different capacities and vulnerabilities in information dissemination. Therefore, disasters such as floods and landslides affect them differently. In many contexts, men are better connected to early warning mechanisms because they move in public spaces and have access to diverse communication channels, informal community networks and regularly interact with government officials.

Women on the other hand to a higher proportion have limited access to disaster risk-related information and knowledge in their communities, because their activities are more confined to homes and therefore, have less mobility in the community while their understanding of danger is focused on their homes and family networks. Women's voices are barely heard in risk reduction and decision-making processes often because they do not have the capacity to attend awareness and prevention meetings because of their family-related obligations.

The Inter-Governmental Panel on Climate Change (IPCC) is aware that while women and girls have strengths and potentials as agents of change in actions to deal with climate change and in management of natural resources, these strengths are little recognized by society. In this particular case of Early Warning Systems, women should be recognized as key agents for information and response management. They are usually more informed of the needs and circumstances of family members and can be vital in communication. The EWS planning activity should undertake affirmative actions to foster women´s involvement in the design and implementation of this system.

7.3 Planning and capacity-building activities

The planning and capacity building aspects of the proposed project entail a wide range. They aim at rethinking regional, national and local strategies, fostering policy, providing capacity-building, and sensitizing and even bringing forward specific options for retaining, retooling and general training. The incorporation of gender mainstreaming in this type of activities is on one hand related to the participatory processes in which women´s opinions must be collected and generation of information, data, databases, results, and decisions, bearing the gender approach in mind on the other hand. The Gender Action Plan provides guidelines to be ensured by all partners in participatory and capacity building activities, such as cross-cutting actions to all components and in the case of particularities in the Components 1, 2 and 3 Outputs, it provides specific guidelines to be implemented.

7.4 Climate change adaptation actions

In undertaking climate change adaptation interventions, the goals being pursued include, "*achieving gender equality and the empowerment of all women and girls in order to take full advantage of their vital contribution to sustainable development, ensuring the full and effective participation of women, and equal rights in all spheres and positions of leadership at all decision-making levels.* These are principles that are applied throughout the entire project. The

gender action plan provides guidelines for gender considerations to be ensured by project partners to ably undertake the adaptation actions as proposed throughout the project document.

7.4.1 Perception of security

The perception of insecurity exerts a restricting bearing on the access, use and appropriation of resources to undertake climate change adaptation actions. There is empirical evidence that women are limited in terms of decision-making power to resource access and use depending on women´s perception of insecurity. Therefore, this factor entails a constraint to women's autonomy since they avoid participation in undertaking climate change adaptation actions. For this matter the gender action will also emphasize and incorporate gender considerations and mainstreaming actions to ensure full participation representation and access of women and youth to undertake climate change adaptation interventions.

7.4.2 Accessibility and representativeness

This Gender Action Plan will place special emphasis on incorporating some of these good practices

- Promoting non-discriminatory activities
- Eradicating the use of stereotyped images in any adaptation action implementation
- Disseminating gender specific information for project implementation
- Controlling advertising elements, posters, and advertisements exposed to restrict, or condition those the visual or written language of which is discriminatory.

7.5 Competitive small grant scheme

This activity involves setting up a competitive small grant scheme (CSGS) for undertaking innovative climate change adaptation interventions. The CSGS funds are aimed at supporting the populations facing drought medium risk in the project areas. Therefore, this activity is not focused on those areas most vulnerable population (people living in Informal settlements), but, rather, on population in dwellings of which they are owners and for which a relocation process is not foreseen. However, gender inequality could be exacerbated if the Fund does not provide for facilities for women's access to the scheme. A series of measures should be incorporated to ensure that both, men and women, have access to this scheme, considering that, traditionally, women have less access to control of economic resources.

Regarding possibilities for women accessing the CSGS, their access to the scheme and generally credit facilities is constrained by the:

- High interest rates: This constraint is not present in the proposed project, since no interests are charged by the Fund.
- Credit evaluation methodology: Based mainly on guarantee requirements needed, usually shown as a gender-specific restriction. such restriction is a reflection of lack of knowledge about the activities women perform, and the conditions in which women work, because many women do not own assets
- Small amounts of the funds that respond to short-term objectives, to solve specific problems. Due to this regulation, women are unable to make long-term strategic decisions.
- Factors outside the scope of credit institutions, a fact that hinders the relationship between women and credit. This is related to the greater effort that women must make with respect to the time they need to get to, for example, a branch of the credit institution, and then comply with all the procedures required. As stated in the survey quoted, women would use more informal credit sources. Therefore, a conclusion can be reached that there is a demand for loans from women, but few access opportunities. What women need is for funding systems to be adapted to women needs.

This report points out to a double negativity in terms of women and credit: Barriers to access to it and the conditions under women are granted a credit. The variables that limit access would be multiple, but they highlight four main hindrances: Social barriers, requirements for guarantees, size of the loan, and scarcity of credit outputs aimed at women. It is evident that the proposal design involving an interest-free revolving fund to invest in adaptation actions will not have all the edges that can show those cases involving access to funding, which have been looked into in related literature. However, the barriers that even at this small scale can be raised to women's access to the tool should not be underestimated. The Gender Action Plan puts forward guidelines to abide to mitigate these risks.

7.6 Alternative income generating activities (AIGAs)

From the analysis made in the proceeding section, it is evident that the main constraints faced by women in undertaking alternative income generating activities are;

-Regulatory Standards: Women tend to feel less skilled to perform complex moves

-Women have problems accessing networks and markets for the outputs that women manufacture

-Women seem to have a great risk aversion, or fear of applying for a loan. Likewise, they are less familiar and comfortable with larger credit instruments

-Women's assets are systematically of lower value and size than men's. However, women should normally provide many more guarantees than men to access credit

-Traditional gender roles continue to disproportionately assign family and domestic responsibilities to women

The report raises the need for a stronger focus on fostering growth of women-headed enterprises than on establishing new businesses. Hence justifies the need for gender mainstreaming to be incorporated into project design. This document therefore, besides making a characterization of women enterprises under this outlook, brings forwards affirmative actions towards women participation in the design to AIG activities and ensuring that women and youth access them as beneficiaries.

8. Gender issues surveyed over stakeholder consultations

The main Gender-focused issues for project design that were considered during stakeholder consultations held at respective districts, sub county and parish levels are summarized below.

- Bwahata road was blocked due to landslides in 2021 and movement was impossible and all gender categories are equally affected
- Making pit latrines, one has to dig 8-15 feet deep because the soils are not firm to go further and this leads to filling up of the pit quickly necessitating to dig another one which is done by boys and men
- Have only one primary school and since 1989 until 2022, they have never had a female teacher but in second term of 2022, is when they got one female teacher and this does not encourage the parents in the area to take the girl child to school thinking that girls are there for only marriages and using them as laborers in farming and home chores (Girl child affected)
- Bukari experiences heavy floods which affected crops like yams and vegetables leading to famine and poverty, houses destroyed and making people homeless thus taking them to camps which are overcrowded yet have no enough sanitation facilities and water thus exposing women and girls to health problems of infections as well as water borne diseases which affect all gender categories
- In Tororo, Ojilai sub county faced floods in 2020 which led to displacement of all categories of gender and took refuge at the primary school for about 3 months where women stayed in one room different from the men but issues came up concerning denial of conjugal rites caused by separating men from women which resulted in conflicts and fights; the men left the camp to look for other women outside the camp.

Districts

Impacts of floods & landslides	▪ Women are more affected by floods and landslides because a larger number of women of childbearing age are responsible for day to day domestic activities including cooking, fetching, collecting firewood and cleaning/laundry ▪ Women are more affected by the floods and landslides because they are in charge of their children and the elderly because they can never run away and leave the children or the elderlies behind ▪ Flush floods whenever it rains
Support needs	▪ Gender-focused capacity-building meetings and workshops, to empower women ▪ Capacity-building in environmental issues ▪ Train communities in landscape flood control and landslide management ▪ Facilitate construction of landscape flood control structures
Suggestions for project design	▪ Incorporate activities that consider the varying needs of the gender groups in the project area ▪ Undertaking specific actions to support women victims of floods and landslides enabling safety and food for their children.
Impacts of climate-smart WASH facilities	Women and girl child are more affected by the absence of climate-smart WASH facilities and contaminated water sources and suffer most of the following:

	- Water contamination & scarcity: alleged to be the biggest issue in the areas of Bukibokolo, Butaleja and Kaato s/c - Heavy rain fall during rainy season wash away the latrines leading to poor disposal of fical matter hence being washed away to strems of water - Water born diseases increase - UTI infections increase among the women and girl child - Absence of toilets especially in schools makes the girl child to drop out of school because during their monthly periods, they have no where to dump their used pads
Support needs	The project support tangible actions that are community oriented addressing the actual needs of the people e.g. - Construct landslides resilient WASH technologies -Support women groups to construct and operate public sanitation facilities in small towns and rural growth centres such as the low-cost sanitation set-ups that are associated with low-income; mud brick lined / elevated chambers, The Elevated Pit Latrine (including Earth Stabilized or Mound Latrine), Sand Enveloped Raised Pit Latrine, and Step Latrine will be considered -Rain water harvest to reuse during scarcity & reduce on the runoffs which causes flash floods - Support construction of climate proof faecal sludge management facilities -Support construction of climate proof wastewater re-use and waste management facilities -Train community operators on life cycle costing and maintenance of WASH facilities in towns and rural growth centres -Hold hygiene behaviour change awareness meetings in communities. -Support women groups to undertake sanitation value chain (e.g. faecal sludge emptying)

All assessments indicated in the tables above, have been duly addressed by during the full project proposal´s design phase. Stakeholders consulted have supported the design of guidelines in the project's Gender Action Plan presented in the proceeding section of this report.

9. Gender action plan in compliance with the AF gender principles

Other than a gender analysis based on secondary sources, gender issues have been addressed during consultations with stakeholders during the design of the CARFEWWS full project proposal. This is reflected in the stakeholders' consultation report**.** It was possible to confirm that all project-related actions aim at lessening floods and landslides risk through enhancing social resilience. For this matter it is expected that women conditions shall improve in all cases. This report further confirms that none of the proposed project activities could be harmful to any social group on account of gender issues in a discriminatory manner that is based on legal, regulatory or customary reasons.
However, the point should be stressed regarding the need to press on the incorporation of the gender approach in all activities to ensure equal participation and equal access to the project benefits and to take all precautions so that project does not exert any type of negative social or environmental impact based on gender issues. The actions suggested towards implementation of this project are described below. In Section 9.1, recommendations are made that apply across all components; in Section 9.2, recommendations tend to slow down in activity, as the case may be. Finally, in Section 9.3, a description is made on how the monitoring of Gender actions will be implemented.

9.1 Transversal actions throughout the project

Those actions crossing all activities can be described under two main typologies: participation and capacity-building vis-à-vis Gender approach and representation.

9.1.1 Participation

Participatory processes and capacity-building instances should take place with an active involvement of women, youth and men. For this goal to be achieved, guidelines applicable to the entire Project should be ensured as follows:

- Establish meeting schedules (or any participation instance), bearing in mind possibilities for men and women participation
- Willingness to give women a voice and ability to impact participatory processes, so women can make their needs visible. For example, splitting particular discussion groups so that women feel free and confident to express their own views

- Include in the participative instances women's associations, technical personnel expert in gender issues, councils, units, areas or specific equality departments
- Use of an inclusive language in all instances of calls and dissemination activities, to explicitly address men and women
- Always draw sex-disaggregated data and results

9.1.2 Gender approach-addressed capacity-building and provision of inputs throughout the project

In order for project-linked decision-makers, officials and technical teams to effectively incorporate the gender approach into the former´s implementation, capacity-building instances should be incorporated that can be specific-exclusive capacity-building on the gender approach- or modules that are incorporated into some other capacity-building programs scheduled within the framework of the project.

Gender mainstreaming should be present at all times in any case, in a transversal manner- in all capacity-building instances through the supervision and assistance of technical field -based experts attached to Executing Entities.

Component	Gender Objective	AF GP Principle	Action	Responsible parties (Who)	When (Time)
COMPONENT 1: Strengthening institutional capacity for planning, designing, implementation and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies	To support catchment management institutions and communities to adequately plan for climate resilient WASH measures by ensuring that's such systems and technologies are duly incorporated in the already developed CMP, Sub-Catchment Management Plans (SCMP), district and sub-county development plans.	Gender equality and Gender equity (adherence to these two principles helps to ensure that there are no imbalances in assessing FEWS devices first of all between the gender groups as well as within the groups)	Supporting gender groups of farmers with access to FEWS information (e.g. devices including, brochure, SMS, Radio etc.)	-MWE -WRI -Focal persons in MWE and WAU	Project design and implementation stage
		Gender equality	Involves buying FEWS information devices for targeted farmer groups and extension agents	-MWE -WRI -Focal persons in MWE and WAU -Consultants	Project design and implementation stage
		Gender equality and gender equity (i.e. to ensure there are no gender balances between ministerial and sectoral meetings as well as within ministries and sectors)	Holding inter-ministerial and sectoral meetings for data sharing	-MWE -WRI -Focal persons in MWE and WAU	Project design and implementation stage
COMPONENT 2: Facilitating communities to undertake adaptation actions for reinforcing resilience of	-To tackle gender imbalances at local, national and regional levels from project design to implementation -To improve women	Gender equality	Popularization and Dissemination and use by the farmers	-MWE -WRI -Focal persons in MWE and WAU	Project design and implementation stage

populations and ecosystems against floods and landslides	empowerment during designing and implementation of the project activities at local & national and levels	Gender equality	Facilitating community training workshops for women & youth group farmers in FEWS risk management and adaptation measures	-Executing Entity and Consultants -MWE -WRI -Focal persons in MWE and WAU	Project design and implementation stage
COMPONENT 3: Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies	To tackle gender imbalances at local, national & regional levels from project design to implementation	Gender equality	-Raising awareness and mainstream lessons and best practices in FEWS on climate change issues and climate resilient WASH technologies -Further, they will include facilitating stakeholders to generate and exchange knowledge on the management of floods and landslides, conducting awareness raising meetings and campaigns to facilitate active communication and gain public support for climate change policies and inspire action on how people can take action to be a part of the solution	-MWE -WRI -Focal persons in MWE and WAU	Project design and implementation stage
	To improve women empowerment in the involvement of awareness creation on FEWS & smart WASH facilities	Women empowerment and Gender equity	-Raising awareness and mainstream lessons and best practices in FEWS on climate change issues and climate resilient WASH technologies	-MWE -MoH -OPM -MoLG, MGLSD, MWT, MoFPED, NEMA, NFA, DLG, UWA, MLHUD; Development Partners Working groups concerned with water, sanitation, environment, gender and securing livelihoods	Project design and implementation stage

2.4 Gender Actions by Outputs and Activities

Output	Activity	AF Gender principle	Gender Action Plan (GAP) actions
COMPONENT 1 Strengthening institutional capacity for planning, designing, implementation and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies			
Output 1.1.1: Efficient and effective FEWS and climate resilient WASH technologies developed/in place	Activity 1.1.1.1 Assess the status of FEWS at different levels and incorporate indigenous/traditional FEWS options with modern FEW technologies	Participation and Representation	▪ The project team will ensure equal representation of men and women participate in the FEWS status study and capture opinions from both ▪ Provide sex disaggregated data for the study
	Activity 1.1.1.2 Assess application status of Climate resilient/climate proof WASH technologies at different levels	Representation	▪ Project team to ensure that the WASH technologies can be accessed by different gender groups
	Activity 1.1.1.3 Support integration of FEWS and Climate-smart WASH technologies in planning, design, implementation and monitoring in national, regional, district and community level planning and development frameworks	Participation and representation	▪ Project team to ensure that women & youth access the weather equipment and RS derived products as they suffer floods and landslides impacts most in the 6 districts
	Activity 1.1.1.4 Equip/upgrade selected weather stations in the catchment for timely and effective weather information	Participation	▪ Ensure women participation in awareness raising sessions for selected national, regional and community level stakeholders on FEW information centers and database
	Activity 1.1.1.5 Popularize and disseminate the developed guidelines Assess the status of FEWS at different levels and incorporate indigenous/traditional FEWS options with modern FEW technologies	Participation	▪ Ensure at least 40% women access weather information since most affected by floods & landslides in all the project areas as revealed by the consultations
Output 1.1.2: Capacity to plan, design, implement and monitor Climate adaptive WASH among stakeholders at different levels improved	Activity 1.2.1.1 Undertake a FEWS and WASH capacity needs assessment for national, district and local levels	Participation, representation and equity and access	▪ Project team to ensure equitable participation and representation of women and men in capacity-building workshops and information sharing forums ▪ Ensure that timetables, places and resources take care of women interests

	Activity 1.2.1.2 Develop a capacity building plan and materials for different levels at national. Regional, district and community levels	Participation and representation	▪ The project team will ensure equal representation of men and women participate in the planning process and capture opinions from both ▪ Ensure that timetables, places and resources take care of women interests ▪ Sex disaggregated data will be used whenever they are available
	Activity 1.2.1.3 Train stakeholders at different levels in FEWS and climate resilient WASH technologies	Participation	▪ Ensure that 40% of women are trained for this ▪ Provide sex disaggregated data
	Activity 1.2.1.4 Facilitate learning exchange visits for WASH	Participation and representation	▪ The project team will ensure equal representation of men and women participate in the exchange visits for WASH ▪ Ensure that means and place to be visited is available and with WASH facilities in that place
Output 1.2.2: Institutional linkages/partnerships for WASH information utilization and review established/improved	Activity 1.2.2.1 Establish and incorporate climate resilient WASH into governance committees in Catchment and Sub-catchment organizations	Participation, representation	▪ Project team to ensure equal participation and representation of women and men at all levels ▪ Provide sex disaggregated data
	Activity 1.2.2.2 Facilitate WASH and CM and SCM committees to hold awareness creation meetings	Participation, representation, equity and access	▪ Project team to ensure equitable participation and representation of women and men in capacity-building workshops and information sharing forums ▪ Ensure that timetables, places and resources take care of women interests ▪ Ensure that women freely access those WASH information ▪ Provide sex disaggregated data
	Activity 1.2.2.3 Develop/review WASH information sharing forums for Catchment Management Organizations	Participation and Representation	▪ The project team will ensure equal representation of men and women participate in the information sharing
	Activity 1.2.2.4 Develop MOUs and implementation action plan for climate resilient WASH information Forums at regional, district and Sub-County levels (CM stakeholders e.g. CBOs, LG Authorities, MWE structures)	Participation, representation and equity and access	▪ Project team to ensure equitable participation and representation of women and men in information sharing forums ▪ Ensure that timetables, places and resources take care of women interests ▪ Provide sex disaggregated data
	Activity 1.2.2.5 Support inter-ministerial and inter-sectoral climate resilient WASH information sharing (Water, Health, Education)	Participation, representation and equity and access	▪ Ensure that both women and men access the information concerning water, health & education

COMPONENT 2 Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides			
Output 2.1.1: Efficient and sustainable WASH technologies demonstrated	Activity 2.1.1.1 Conduct a KAP survey on WASH in the catchment	Participation and representation	▪ The project team will ensure equal representation of men and women that participate in the survey and get each one's opinion
	Activity 2.1.1.2 Establish demonstration sites for climate resilient WASH models	Participation, equity, access and representation	▪ The project team will ensure equal representation of men and women that participate in the trainings ▪ Ensure that women groups engage in sanitation value chains as an alternative source of income from WASH facilities in towns and rural growth centers
	Activity 2.1.1.3 Conduct quarterly training sessions on climate resilient WASH	Participation and representation	▪ Equitable participation of men and women in training sessions on climate resilient WASH ▪ The team to ensure that necessary resources and materials are available to use in the sessions
Output 2.1.2: Adaptive catchment protection measures promoted	Activity 2.1.2.1 Assess status of water points and protection measures in the catchment	Participation, Representation	▪ The team to ensure that community members are trained in constructing landscape flood control and landslide management structures as well as how to operate and cost life cycle and maintenance of WASH facilities in towns and rural growth centers ▪ Ensure that the women are in position to take care of the WASH facilities and maintain them
	Activity 2.1.2.2 Train communities in source protection measures against floods and landslides	Participation, Representation	▪ The team to ensure that community members are trained in constructing landscape flood control and landslide management structures as well as how to operate and cost life cycle and maintenance of WASH facilities in towns and rural growth centers ▪ Ensure that the women are in position to take care of the WASH facilities and maintain them
	Activity 2.1.2.3 Support establishment of source protection and management measures	Participation, representation, equity and access	▪ Ensure that the women are in position to take care of the WASH facilities and maintain them
	Activity 2.1.2.4 Facilitate indigenous community source monitoring	Participation, representation, equity and access	▪ Ensure Equitable participation of men and women in trainings on indigenous community
	Activity 2.1.2.5 Provide inputs to communities for source protection	Participation, representation, equity and access	▪
	Activity 2.1.2.6 Assess, demarcate and map degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests)	Participation, representation, equity and access	▪ Team to ensure the demarcations are well-done and both women and men be involved in the activity

	Activity 2.1.2.7 Support rehabilitation of degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)	Participation, representation, equity and access	▪ The team to ensure that both men and women get involved in the rehabilitation and restoration of the river banks and wetlands
	Activity 2.1.2.8 Raise awareness on ecosystem restoration/rehabilitation among communities upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.)	Participation, representation, equity and access	▪ The team to ensure that both men and women get involved in the rehabilitation and restoration of the river banks and wetlands
	Activity 2.1.4.9: Support and promote a revolving fund scheme for alternative income generating activities	Participation, representation and access	▪ Ensure that women and men access the funds at very low interest rate or at no interest
	Activity 2.1.2.2 Train communities in source protection measures against floods and landslides	Participation, representation	▪ The team to ensure that both men and women get involved in the trainings of source protection measures
Output 2.1.3: Adaptive flood control and landslide management measures (including soil conservation, erosion control etc.) promoted	Activity 2.1.3.1 Train communities in landscape flood control and landslide management	Participation, representation and access	▪ The team to ensure that both men and women get involved in the trainings in landscape flood control and management
	Activity 2.1.3.2 Facilitate construction of landscape flood control structures	Participation, representation	▪ The women and men be involved in the activities ▪ The team to ensure the right structures of flood control are in place ▪ Train the specific persons to construct the structures
	Activity 2.1.3.3 Construct landslides resilient WASH technologies	Participation, representation and access	▪ The women and men be involved in the activities ▪ The team to ensure the right structures of flood control are in place ▪ Train the specific persons to construct the structures
Output 2.2.1: Sanitation services in small towns and rural growth centers improved	Activity 2.2.1.1 Support women groups to construct and operate public sanitation facilities in small towns and rural growth centers such as the low-cost sanitation set-ups that are associated with low-income; mud brick lined / elevated chambers, The Elevated Pit Latrine (including Earth Stabilized or Mound Latrine), Sand Enveloped Raised Pit Latrine, and Step Latrine will be considered	Participation	▪ Ensure gender inclusiveness and deliberately 40% participation of women and girls as the main beneficiaries of the intervention in each district

	Activity 2.2.1.2 Support construction of climate proof fecal sludge management facilities	Participation, representation	▪ The project team to ensure participation and representation of men and women in the activities and capture opinions from both ▪ Provide sex disaggregated data for the study
	Activity 2.2.1.3. Support construction of climate proof wastewater re-use and waste management facilities	Participation, representation, equity and access	▪ The project team ensure equal representation of men and women participate in the waste water re-use and capture opinions from both ▪ Provide sex disaggregated data for the study
	Activity 2.2.1.4 Train community operators on life cycle costing and maintenance of WASH facilities in towns and rural growth centers	Participation, representation, equity and access	▪ The team to ensure that both men and women are responsible for the maintenance of the WASH facilities
	Activity 2.2.1.5 Hold hygiene behavior change awareness meetings in communities	Participation, representation, equity and access	▪ Women and girls be fully involved in the meetings ▪ Materials and other resources be available
	Activity 2.2.1.6 Support women groups to undertake sanitation value chain (e.g. fecal sludge emptying)	Participation, representation, equity and access	▪ Women be trained in fecal sludge emptying ▪ Ensure that the women groups under take the activities
Output 2.2.2: Domestic Water supply infrastructure among vulnerable communities improved	Activity 2.2.2.1 Undertake assessment of low cost climate proof water supply infrastructure	Participation, representation, equity and access	▪ Ensure that the women groups under take the activities
	Activity 2.2.2.2 Reinforce water abstraction, storage and transmission infrastructure/facilities	Participation, representation, equity and access	▪ Both men and women be involved in the activities
	Activity 2.2.2.3 Undertake awareness raising meetings on piped water supply, wasteful water supply and other water losses	Participation, representation, equity and access	▪ Ensure that women are involved in these awareness meetings
	Activity 2.1.3.4 Construct domestic rain water harvesting facilities for communities	Participation, representation, equity and access	▪ Ensure that women, youth and men access the water which safe for consumption ▪ Both men and women participate in the construction by bringing some stones to the sites and involve in other activities
COMPONENT 3 Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies			
Output 3.1.1: Good practices and lessons learned on FEWS, WASH documented and disseminated	Activity 3.1.1.1 Document good practices and lessons learned on FEWS, climate resilient WASH technologies and practices	Participation and representation	▪ The project team will ensure that at least 80% of the targeted actors including community members, gender and disability rights groups and policy makers are knowledgeable, access information, participate, share and disseminate information on FEWS and climate resilient WASH
	Activity 3.1.2.2 Generate, package and develop information and communication	Participation	▪ The team will ensure that 4 brochures, 2 publications (documents) on lessons and best practices from project interventions

	materials on FEWS, climate resilient WASH technologies and practices		▪ At least 4 case studies /lessons learn documented, packaged and shared with key stakeholders on FEWS and climate resilient WASH
	Activity 3.1.2.3 Organize Study tours within the catchment and to other relevant catchments	Participation	▪ At least 3 study tours for 3 community groups per sub-catchment organized ▪ At least 2 national high-level presentations done ▪ At least 1 Regional and Global platform presentation done
Output 3.1.2: FEWS and WASH information sharing platforms strengthened			
	Activity 3.1.2.1 Support gender and disability rights groups to share FEWS and climate resilient WASH information at different levels	Participation and representation	▪ The project team will ensure women and PWDs rights to information concerning FEWS & WASH is disseminated in the rightful form for all to understand
	Activity 3.1.2.2 Share knowledge and information through use of existing and popular platforms e.g., media, telecom that are easily accessible by the stakeholders, advocacy and awareness raising activities targeting key Government Sector Staff	Participation	▪ The project team will ensure women and PWDs rights to information concerning FEWS & WASH is disseminated in the rightful form for all to understand
	Activity 3.1.2.3 Facilitate integration of water security and climate resilience issues into National and Sectoral Development Plans	Participation	▪ The project team will ensure Minutes of 24 meetings on policy engagement at national level are integrated into national and sectoral development plans
	Activity 3.1.2.4 Engage policy makers in dissemination of best practices on climate resilient WASH technologies. For this activity, meetings with MWE, MOH, MoE, MAAIF, OPM, MoLG, MGLSD, MWT, MoFPED, NEMA, NFA, DLG, UWA, MLHUD, and Development partners group, ministry sector working groups and parliamentarians and District Councilors will be organized and supported	Participation	▪ At least 2 national high level meetings and presentations will be done and at least 1 Regional and Global platform meeting will be held
	Activity 3.1.2.5 Organize follow-up meetings and developing a scaling up strategy with key government sectors	Participation	▪ Ensure that both men and women are involved in the meetings and their opinions are included in the strategy

10. **Gender mainstreaming throughout the project**
Gender considerations will be made at every stage and intervention of the proposed project gender will be a major consideration for instance, capacity building meetings or workshops, management committees such as the water management committees, WASH management committees, FEWS management information sharing platforms in communities within the six selected districts, women should constitute at least 40% of each target group. Also, at every stage of providing inputs such as for early warning devices, soil and water conservation, climate-smart WASH technologies, at least 40% of the women will be the sole beneficiaries.

11. Monitoring and evaluation
A Project Monitoring Officer will be hired by the Executing Entity and will be in charge of overseeing the implementation of the project´s Gender Action Plan and Environmental and Social Management Plan. This Technician will be responsible for conveying all reports to the National and Executing Entity. In addition, during quarterly meetings held to monitor project progress, the Officer will report any possible gender risks that may have originated and that have not been previously identified. The Officer will also be responsible for updating the Gender Action Plan whenever unforeseen impacts and risks are identified.

Annex VII: Environment and Social Management Framework for CARFEWW Project in Uganda

ADAPTATION FUND

WaterAid

ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT (CARFEWW), UGANDA

Environment and Social Management Framework for CARFEWW Project in Uganda

JULY 2022

Prepared By

NACOPART UGANDA LIMITED
Your partners in sustainable development

1.0.INTRODUCTION

1.1. RATIONALE FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

One of the key requirements for the approval of the CARFEWW project by the Adaptation Fund is a need to develop an Environmental and Social management Framework for the project and associated activities. The ESMF including a detailed Environmental and Social management plan (ESMP) is intended to ensure that the project activities enhance positive environmental and social impacts while minimizing and mitigating the

negative/adverse social and environmental impacts. The ESMF is a tool intended to guide project implementers to ensure sound environmental and social management practices during project implementation.

Specifically, the ESMF will;

i. Establish clear procedures and methodologies for environmental and social planning, review, approval and implementation of activities to be executed under the project;
ii. Assess the potential environmental and social impacts of envisaged projects activities;
iii. Propose mitigation measures which will effectively address identified negative impacts;
iv. Specify appropriate roles and responsibilities, and outline the necessary reporting procedures for managing and monitoring environmental and social concerns related to this project; and
v. Determine the training, capacity building and technical assistance needed successfully implement the provisions of the ESMP by the various stakeholders.

1.2. OBJECTIVES OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

The main objective of the Environmental and Social Management Plan (ESMP) is to provide an environmental and social screening process for the project. It also provides guidance to the Ministry of Water and Environment, the lead execution agency, on the sustainable environmental and social management of the proposed project.

- screen for potential environmental and social impacts of the project components and activities;
- identify possible impacts and propose appropriate mitigation measures; and
- monitor the implementation of these measures.

1.3. STRUCTURE OF ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

The ESMF is structured as follows:

i. Overview of the project, including activities and documentation on target areas;
ii. Policy Legal and Institutional Framework relevant to the project
iii. Risk Identification and Categorization; and
iv. Environmental and Social Management Plan (ESMP).

2.0. PROJECT DESCRIPTION

2.1. DESCRIPTION OF SELECTED PROJECT SITES

The proposed project will be implemented in different sites upstream, midstream and downstream of Mpologoma catchment (Figure 2.1). The sites considered to be most vulnerable and prone to floods and landslides and climate change have been selected for the proposed project based on the following criteria:

- The sites experience high rainfall variability with increasing frequency and intensity of floods and landslides
- There is high environmental degradation (vegetation and soil degradation), loss of biodiversity resources (flora and fauna) as well as the deterioration of water (quality and quantity) and water resources on which communities depend for alternative livelihoods.
- Most communities practice and depend on rain-fed subsistence agriculture and have low-incomes and limited livelihood options to cope with floods and landslides and associated climate change impacts.
- Socially, there are many vulnerable members among the communities especially women, children, HIV/Aids affected groups, and the elderly.
- Have experienced continuous challenges of timely responding to climate change disasters due to inadequate and limited Early Warning Systems.

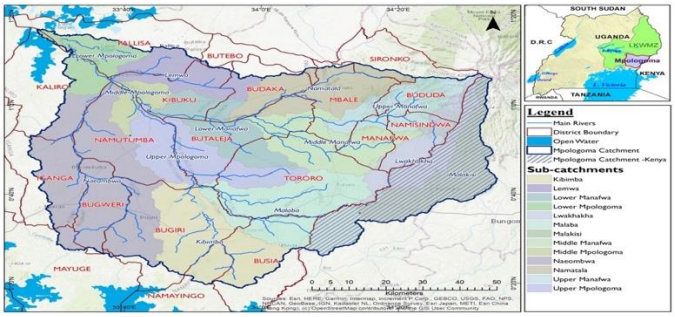


Figure 0.28: Location of Mpologoma Catchment in Uganda

*Source: Mpologoma Catchments – DWRM 2018

Based on the criteria above, sites within the upstream, midstream and downstream sub-catchments of Mpologoma have been selected for the proposed project in lower Manafwa and lower Mpologoma; middle Manafwa and middle Mpologoma; as well as upper Manafwa and upper Mpologoma sub-catchments respectively. The 6 selected sub-catchments cover a total area of 2,994 km^2 (33.3%) and administratively cover 11 districts of Bududa, Namisindwa, Mbale, Manafwa, Butaleja, Tororo, Kibuku, Budaka, Namutumba, Kaliro and Pallisa. From the 6 sub-catchments, intervention areas have been selected.

2.2. PROJECT OBJECTIVES

The overall goal of the project is to increase the resilience of communities to climate change risks of floods and landslides through timely response to climate hazards, sustainable community access to water, sanitation and hygiene services and integrated catchment management measures in Mpologoma catchment.
The Specific objectives of the project are to:

a. Strengthen the institutional capacity for planning, designing, implementation and monitoring of integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies
b. Develop and promote adoption of Floods Early Warning systems (FEWS), climate-smart WASH and Catchment Management technologies
c. Facilitate communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides
d. Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies.

2.3. PROJECT COMPONENTS

The project has four components that include:
Component 1: Strengthening institutional capacity for planning, designing, implementing and monitoring integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies.

Component 2: Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides.

Component 3: Enhance knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies.

3.0. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1. INTRODUCTION

This section presents applicable domestic and international laws given that the first principle of the Adaptation Fund's Environmental and Social Policy emphasizes compliance with the law. The Adaptation Fund's Environmental and Social Policy (ESP), approved in November 2013 and revised in March 2016 ensures that projects/ programmes supported by the Fund promote positive environmental and social benefits, and mitigate or avoid adverse environmental and social risks and impacts. In this Policy, managing environmental and social risks is integral to the success of the projects/ programmes and the desired outcomes are described in the 15 environmental and social principles (principles) of the ESP of AF. The 15 environmental and social principles that are part of the ESP form the basis for identifying and managing environmental and social risks.
In addition to the Adaptation Fund's Environmental and Social Policy, the EIA process in Uganda following the National Environment Act, 2019 and the relevant water sector EIA guidelines were also considered to inform this ESMP. Other international guidelines and conventions relevant to the Project were also reviewed.

3.2. ENVIRONMENTAL AND SOCIAL POLICY AND PRINCIPLES OF THE ADAPTATION FUND (APPROVED IN NOVEMBER 2013; REVISED IN MARCH 2016)

The Environmental and Social Policy of the Adaptation Fund emphasizes the need to ensure that projects/programmes supported by the Fund do not unnecessarily harm the environment, public health or vulnerable communities[47]. All Implementing Entities are required to have an environmental and social management system that ensures environmental and social risks are identified and assessed at the earliest possible stage of project/ programme design, adopt measures to avoid or where avoidance is impossible to minimize or mitigate those risks during implementation, monitor and report on the status of those measures

[47] https://www.adaptation-fund.org/documents-publications/operational-policies-guidelines/

during and at the end of implementation as well as ensure adequate opportunities for the informed participation of all stakeholders in the formulation and implementation of projects/ programmes supported by the Fund.

To ensure that all projects/ programmes supported by the Fund comply with its environmental and social requirements the fund formulated 15 Environmental and Social Principles and all the projects are designed and implemented to meet these principles. However, it is recognized that depending on the nature and scale of a project/ programme all of the principles may not be relevant to every project/ programme. The 15 Environmental and social principles of the Adaptation Fund are summarized below:

i. ***Compliance with the Law:*** Projects/programs supported by the Fund shall follow all applicable domestic and international law.
ii. ***Access and Equity:*** Projects/programs supported by the Fund shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights. Projects/programs should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups.
iii. ***Marginalized and Vulnerable Groups:*** Projects/programs supported by the Fund shall avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS. In screening any proposed project/program, the implementing entities shall assess and consider particular impacts on marginalized and vulnerable groups.
iv. ***Human Rights:*** Projects/programs supported by the Fund shall respect and where applicable promote international human rights.
v. ***Gender Equity and Women's Empowerment:*** Projects/programs supported by the Fund shall be designed and implemented in such a way that both women and men (a) are able to participate fully and equitably; (b) receive comparable social and economic benefits; and (c) do not suffer disproportionate adverse effects during the development process.
vi. ***Core Labor Rights:*** Projects/programs supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
vii. ***Indigenous Peoples:*** The Fund shall not support projects/programs that are inconsistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments relating to indigenous peoples.
viii. ***Involuntary Resettlement:*** Projects/programs supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation.
ix. ***Protection of Natural Habitats:*** The Fund shall not support projects/programs that would involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities.
x. ***Conservation of Biological Diversity:*** Projects/programs supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species.
xi. ***Climate Change:*** Projects/programs supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.
xii. ***Pollution Prevention and Resource Efficiency:*** Projects/programs supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.
xiii. ***Public Health:*** Projects/programs supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health.
xiv. ***Physical and Cultural Heritage:*** Projects/programs supported by the Fund shall be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or

international level. Projects/programs should also not permanently interfere with existing access and use of such physical and cultural resources.

xv. ***Lands and Soil Conservation:*** Projects/programs supported by the Fund shall be designed and implemented in a way that promotes soil conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services.

3.3. UGANDA'S POLICY, LEGAL AND REGULATORY FRAMEWORK

Uganda's policy, legal and regulatory frameworks that are relevant to and that will guide implementation of Environmental and social issues for the CARFEWW Project are summarized below:

Policy Framework Related to the Proposed Project

Table 0.30: Relevant Policy Framework

Policy	Relevance to the project	Institution/ Agency Responsible/ Government
The National Environment Management Policy 1995	The NEMP sets out the overall policy goals, objectives and principles for environmental management in Uganda. Its overall goal is sustainable social and economic development, which maintains and enhances environmental quality and resource productivity to meet the needs of present generations without compromising the ability of the future generations to meet their own needs[48]. It recognizes that Uganda faces a number of environmental issues including: soil degradation, deforestation, loss of biodiversity, increasing pollution and environmentally related diseases. These problems are compounded by poverty, low amounts of environmental awareness and low levels of technology. Specifically, the policy recognizes climate as a 'vital natural resource' that needs to be monitored in order to better direct land use, encourage sustainable economic development, and manage air pollution, and GHG emissions. All the project components 1, 2 and 3 are in line with the objectives of this overarching policy.	Ministry of Water and Environment
The National Climate Change Policy 2015	The goal of the policy is to ensure a harmonized and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development in Uganda. The Policy adopts a comprehensive approach to address climate change, identifying as priority concerns: adaptation, mitigation, monitoring, and research. To address these concerns, the Policy promotes the implementation of activities relating to: education and increased awareness; gender issues; promoting and diffusing research; monitoring and transferring knowledge; and institutional capacity building. Other activities include promotion of sustainable activities in the sectors of agriculture and livestock, fishery production, water management, forestry, wetland, biodiversity and ecosystem services and tourism are identified are important needs to develop Uganda's approach to adaption to climate change. As annex to the Climate Change Policy, the costed Implementation Strategy provides a more detailed account on the implementation of the Policy, including an indicative costing for the programmes and activities to be developed. All the project components and activities are aligned and contribute to the attainment of the policy objectives.	Ministry of Water and Environment
The National Water Policy 1999	The policy advocates for the management and development of water resources in Uganda in an integrated and sustainable manner so as to secure and provide water of adequate quality and quantity for all social and economic needs for present and future generations with the full participation of all stakeholders. This Project is planned to ensure provision of adequate WASH needs in the target communities. Activities under component 2 are in line with and will be guided by this Policy.	Ministry of Water and Environment
The National Wetlands Policy, 1995	Provides for conservation of Uganda's wetlands in order to sustain their ecological, social and economic functions for the present and future generations: Implementation of environment impact assessment procedures on all development activities sited in wetlands.	Wetlands Management Department
The National Policy for Disaster Preparedness and Management 2010	Serves as the framework policy for disaster and risk management and preparedness in Uganda, including disasters caused by climate change. Details the mechanisms and structures aimed at effective management of disasters including: vulnerability assessments, mitigation, preparedness, and response and recovery. Explicitly sites climate variability, climate change, and environmental degradation among the increasing vulnerabilities Uganda faces and needs to prepare for[49]. All project components 1, 2 and 3 are geared towards reducing climate vulnerabilities and increasing resilience of communities and ecosystems hence they are in line with this policy and contribute to the attainment of its objectives.	Office of Prime Minister
The National Land Use Policy 2006	The overall policy goal is to achieve sustainable and equitable socio-economic development through optimal land management and utilization in Uganda. The policy recognizes amongst others, the need for the protection and sustainable use of land resources through conducting environmental	Ministry of Lands, Housing and Urban

[48] https://climate-laws.org/geographies/uganda/policies/national-climate-change-policy

[49] https://climate-laws.org/geographies/uganda/policies/national-policy-for-disaster-preparedness-and-management

	assessments and implementation of measures outlined in such assessment studies. It also recognizes the 3 Rio Conventions and notes that increasing climatic variability is responsible for drought and accelerates desertification, thereby contributing to increased aridity and reduction in the area available for cultivation or grazing	Development
National Policy for the Conservation and Management of Wetland Resources, 1995	The policy has established principles by which, wetlands resources can be optimally used and their productivity maintained in the future and stop existing unsustainable exploitative practices in wetlands. This project aims at catchment protection including development of catchment management plans and involvement of the community members on how to protect the wetlands. Components 2 and 3 contributes to this policy.	Wetlands Management Department
Renewable Energy Policy for Uganda 2007	Among other priorities the policy aims to respond to threats posed by the increasing energy prices, environmental degradation, climate change, as well as Government's commitment to poverty and gender responsive energy actions[50]. Furthermore, implementation of the Renewable Energy Policy will result in the disposition of Uganda's commitments at the Bonn Conference on Renewable Energy in 2004.The project focuses on addressing issues of environmental degradation and climate change.	Ministry of Energy and Mineral Development
The National Forest Policy 2001	The key issues addressed by the Forestry policy include how to maintain and enhance the Permanent Forest Estate, improve the management of forest resources on private and customary land, address the underlying causes of deforestation, including lack of policy support, market failure, weak regulation and rural poverty, capitalize on the economic, social and environmental opportunities in forestry without undermining the resource base, ensure the survival of forest biodiversity and to balance this with the pressing development needs of the country, how to rehabilitate and conserve key watershed forests, how to promote and maintain the greening of the urban environment, as well as ensuring improved tenure to land and trees that acts as an incentive for individuals, and women in particular, and communities to invest in forestry among others. Forestry plays a very important role in enhancing the resilience of ecosystems and some of the activities under components 1, 2 and 3 are in line with this policy.	Ministry of Water and Environment
The National HIV/AIDS Policy, 2004	The policy applies to all current and prospective employees and workers, including applicants for work, within the public and private sectors. It also applies to all aspects of work, both formal and informal. The project will mainstream HIV/AIDS interventions into its activity implementation plans especially activities under sub-projects in components 2 and 3 that may require congregation of labor from different while undertaking activities like construction of WASH demonstration models, fecal sludge management facilities and other water related infrastructure.	Ministry of Health
The National Cultural Policy, 2006	The National Culture Policy, 2006 complements, promotes, and strengthens the overall development goals of the country. Its specific objectives include amongst others, the need to promote and strengthen Uganda's diverse cultural identities and to conserve, protect, and promote Uganda's tangible and intangible cultural heritage. This ESMF outlines Chance Finds Procedures to ensure protection and conservation of any PCRs that will be encountered during project implementation. In addition, the project will be implemented in areas adjacent to Mt. Elgon National Park, thus extra care share be undertaken not to disturb or encroach on the National Park during project implementation.	Ministry of Gender, Labor and Social Development
The National Gender Policy 2007	The Uganda Gender Policy is an integral part of the national development policies. It is a framework for redressing gender imbalances as well as a guide to all development practitioners. The aim of this policy is to guide all levels of planning, resource allocation and implementation of development programmes with a gender perspective[51]. The emphasis on gender is based on the recognition that "gender" is a development concept useful in identifying and understanding the social roles and relations of women and men of all ages, and how these impact on development. This is applicable to all the four project components and efforts shall be made to ensure that all categories of people benefit from the project without discrimination.	Ministry of Gender, Labor and Social Development

[50] https://climate-laws.org/geographies/uganda/policies/the-renewable-energy-policy-for-uganda
[51] http://extwprlegs1.fao.org/docs/pdf/uga163564.pdf

Legal Framework Relevant to the Project

Table 0.31: Relevant Legal and Regulatory Framework

Regulations	Relevance to the project	Institution/ Agency Responsible/ Government
The Constitution of the Republic of Uganda, 1995	The right to a clean and healthy environment is enshrined in Article 39 of the Constitution of Uganda, 1995 as well as integration of people in the development process. In particular, the Constitution guarantees a range of basic human rights to the people of Uganda which include: gender balance and fair representation of marginalized groups in development process; protection of the aged; the right to development; access to clean and safe water; basic medical services; and access to education. The project components are in line with the constitution.	Ministry of Water and Environment
The National Environment Act, 2019	Article 69 of the Act on the Management of climate change impacts on ecosystems states that a lead agency may, put in place guidelines and prescribe measures to 1) address the impacts of climate change on ecosystems, including by improving the resilience of ecosystems, promoting low carbon development and reducing emissions from deforestation and forest degradation, sustainable management of forests and conservation of forest carbon stock, and 2) advise institutions, firms, sectors or individuals on strategies to address the impacts of climate change, including those related to the use of natural resources, 3) take measures and issue guidelines to address the impacts of climate change, including measures for mitigating and adaptation to the effects of climate change, and 4) liaise with other lead agencies to put in place strategies and action plans to address climate change and its effects[52]. All project components are in line with this Act.	NEMA
The Land Act, Cap 227	The Act and the Constitution of the Republic of Uganda vest land ownership in Uganda in the hands of Ugandans and guide matters of land acquisition for development project through compensation which has to be fair, timely and adequate. The Act advocates for managing and utilizing land in accordance with the Forests Act, the Mining Act, the National Environment Act, the Water Act, the Uganda Wildlife Act and any other law; and Obtaining concessions or licenses or permits in respect of wetlands, forest reserves, national parks and any other land reserved for ecological and touristic purposes, subject to any law. Project activities shall be undertaken in accordance with the provisions of Act.	Ministry of Lands, Housing and Urban Development
National Forestry and Tree Planting Act, 2003	The National Forestry and Tree Planting Act 2003 is the main law that regulates and controls forest management in Uganda by ensuring forest conservation, sustainable use and enhancement of the productive capacity of forests, to provide for the promotion of tree planting on private and communal lands and through the creation of forest reserves in which human activities are strictly controlled. Specifically, the Act will provide guidance for afforestation, restoration and other tree nursery subprojects under components 2 and 3.	Ministry of Water and Environment
Uganda National Meteorological Authority Act, 2012	This Act establishes the Uganda National Meteorological Authority as a body corporate and provides with respect to its administration, internal organizations, functions and powers, etc. The Authority shall, among other things, establish and maintain systems for the rapid exchange of meteorological and related information, establish networks of stations for taking, recording and transmitting meteorological observations as well as hydrological and other geophysical observations related to meteorology. Among the Authority's functions, it should interpret, review and recommend appropriate changes in the climate policies, as well as disseminating weather information which are applicable to all the Components 1, 2 and 3 of the project.	Ministry of Water and Environment
Uganda Wildlife Act 2019	The Act provides for the conservation and sustainable management of wildlife; to strengthen wildlife conservation and management; to streamline the roles and responsibilities of institutions involved in wildlife conservation. To this end, the Act addresses Wildlife conservation, protected species; wildlife use rights; hunting and trapping; management of problem animals; and international trade in species and specimens. Activities under component 2 will contribute to this Act as the project activities shall be implemented in areas around Mt. Elgon National Park are intended to promote natural resource conservation and reduce pressure on the resources in the natural resources.	Uganda Wildlife Authority
The Occupational Safety and Health Act, 2006	The Act provides for the prevention and protection of persons at all workplaces from injuries, diseases, death and damage to property. The key provision of this Act is safety and welfare of workers. ESMF provides for safety gear for workers during implementation of project activities especially for water infrastructure works among other subprojects	Ministry of Gender, Labor and Social Development
The Employment Act, 2006	This Act spells out general principles regarding forced labor, discrimination in employment, sexual harassment and provisions to settle grievances. It further provides that, a child under the age of twelve years shall not be employed in any business, undertaking or workplace. Therefore, project implementers will not engage any child workers at the project sites at	Ministry of Gender, Labor and Social Development

[52] https://www.mwe.go.ug/library/national-environment-act

	any one time during the project lifecycle especially under components 2 and 3 with labour intensive activities.	
The Workers Compensation Act 2000, Cap 225	The act provides for compensation to workers for injuries suffered in course of their employment. According to the Act, an employee is entitled to compensation for any personal injury from an accident or disease arising out of and in the course of his or her employment even if the injury or disease resulted from the negligence of the employee. Under this Act, compensation is automatic. This will mainly apply to activities under component 3.	Ministry of Gender, Labor and Social Development
Nationally Determined Contribution (NDC) 2015	NDCs are national climate plans highlighting climate actions, including climate related targets, policies and measures governments aims to implement in response to climate change and as a contribution to global climate action. Through this NDC, Uganda hopes to reduce emissions from its business-as-usual (BAU) scenarios by 22% by 2030 via a series of policies and measures to mitigate and adapt to climate change[53] . All project components shall contribute towards the objectives of the NDCs.	Ministry of Water and Environment
Uganda NDC Partnership Plan for Climate Action 2018.	The five priority areas for Uganda identified in its NDC Partnership Plan are: strengthened operational and gender-responsive policy and institutional frameworks for the effective governance of climate change; increased climate financing for planning and budgeting on the national and local levels; effective and institutionalized measurement, reporting and verification (MRV) systems to monitor greenhouse gas emissions and gender-responsive adaptation measures; strengthened capacity of government officials, civil society, the private sector and academia to effectively integrate NDC and Sustainable Development Goal (SDG) commitments with a gender lens into existing and future programs; and accelerated project financing for NDC implementation[54]. All project components shall contribute towards the objectives of the Plan.	Ministry of Water and Environment
Vision 2040	Vision 20140 advocates for need to develop appropriate climate change adaptation and mitigation strategies in all sectors to ensure that the country is resilient to the adverse impact of climate change. In addition is developing guidelines for incorporating climate change in sectorial and local government plans and budgets.	National Planning Authority
The Uganda National Climate Change Communication Strategy 2017-2021	The strategy was developed after the Government identified the need for more effective dissemination of climate change adaptation and mitigation information across the country. It is mean to enhance sustainable development and improve community knowledge, attitudes and practices towards climate change[55]. Components 2 and 3 of the project contributes to this strategy.	Ministry of Water and Environment
The National Environment (Environmental and Social Assessment) Regulations, 2020	The EIA Regulations give a systematic EIA procedure in Uganda. They give a legal mandate to EIA, thus paving the way for an enabling environment for its use as a tool for environmental protection. The regulations also have punitive measures for offenders. The EIA Regulations further provide for: enabling participation of communities in undertaking environmental impact assessment studies; seeking views of people in communities which may be affected by project activities including reforestation and afforestation activities; publication of intended project activities through mass media and holding meetings with the affected communities; holding of public hearings and producing reports of the hearings; and ensuring that all environmental impact assessment reports including terms of reference, public comments, reports of public hearings or any other information submitted to NEMA are public documents. Further assessments shall be done especially for activities under components 2 and 3.	NEMA
Guidelines for strategic Environmental assessment (SEA) in Uganda 2020	Strategic environmental assessment (SEA) is the systematic and participatory process of evaluating the likely environmental, health and social consequences of proposed policy, plan or programme initiatives and alternatives, to ensure that they are integrated and appropriately addressed at the earliest stage of decision making in line with economic, environmental, health and social considerations[56]. Focuses on decisions regarding the implications of policies, plans and programmes which should inform decisions at project level. Focuses on decisions regarding projects which should conform to relevant policies, plans or programmes.	NEMA
The National Environment (Audit) Regulations, 2020:	The Audit Regulations reinforce the requirement to undertake Self-Environmental Audits as contained in the EIA Regulations. Normally, under approval conditions of NEMA, it is a requirement to undertake Audits for projects which comply with the EIA requirement as part of the conditions of EIA approval. Some activities under component 2 may require Audits during their operation Phases.	NEMA
National Environment (Conduct and Certificate of Environment Practitioners Regulations (2003)	Regulation 176 (1) states that no person shall conduct and EIA or carry out any activity relating to the conduct of an environmental impact study, or environmental audit as provided under the Act, unless the person has been duly certified and registered in accordance with the regulations	NEMA

[53] http://ccd.go.ug/wp-content/uploads/2019/10/INDC-Uganda-final-14-October-2015.pdf
[54] https://ndcpartnership.org/news/uganda-releases-first-ndc-partnership-plan-climate-action-africa
[55] https://www.mwe.go.ug/library/uganda-national-climate-change-communication-strategy
[56] https://nema.go.ug/sites/all/themes/nema/docs/Strategic%20Environmental%20Assessment%20(SEA)%20Guidelines%20Pdf%202020.pd

Water Abstraction Regulations, 1998	Regulation 18 provides for the establishment of a controlled water abstraction mechanism through issuance of permits to regulate the amount of water abstraction. The regulation requires that, a Water Abstraction Permit either for ground or surface water abstraction are pre-requisites for motorized and/or abstracting of quantities above 400m3/day for persons involved in construction (damming, diverting surface water). Under water related projects, compliance to water abstraction regulations by water supply schemes needs to be established and associated water abstraction permits need to be verified. This important for activities under component 3.	DWRM
The Water (Waste Discharge) Regulations, S.I. No. 32/1998	Specifies what quality is acceptable in terms of effluent released into rivers, promotes water pollution prevention and provides for effluent discharge in aquatic and sewerage system standards. These need to be observed especially under component 3 of the project.	DWRM
National Environment (Waste Management) Regulations, 1999	These regulations promote cleaner production methods and require a facility to minimize waste generation by eliminating use of toxic raw materials; reducing toxic emissions and wastes; and recovering and reuse of waste wherever possible. The Regulations oblige the Developer to put in place measures for proper management of waste. These apply to activities under components 2 and 3.	NEMA
Wetlands, River Banks and Lake Shores Management) Regulations, S.I., No. 3 /2000	Provides for protection of Wetlands, River Banks and Lakeshore Zones. Every landowner, occupier or user who is adjacent or contiguous with a wetland, River Banks and Lakeshore shall have the duty to prevent the degradation or destruction of these ecosystems and shall maintain their ecological and other functions[57]. Project activities will enhance the conservation of these ecosystems in the Project areas.	NEMA
The National Environment (Mountainous and Hilly Areas Management) Regulations, 2000. 2000 No. 2	Provides guidance on the use of hilly and mountainous areas, the activities and associated measures to ensure sustainable land management. Some of the project under component 2 and 3 may be implemented in hilly and mountainous areas.	NEMA
The National Environment (Noise Standards and Control) Regulations, 2003.	Section 7 of these regulations requires that no person shall emit noise in excess of permissible noise levels, unless permitted by a license issued under these Regulations. Section 8 imparts responsibility onto project developers to use the best practicable means to ensure that noise does not exceed permissible noise levels. This mainly applies to sub-projects under components 2 and 3.	NEMA
The Town and Country Planning Act Cap 246	The Town and Country Planning Act 1964 govern land use and land planning in urban and rural areas. Thus, land acquisition for water supply projects should be done in accordance with this act	
Public Health Act Cap 281	Section 7 provides local authorities with administrative powers to take all lawful, necessary and reasonably practicable measures for preventing the occurrence of, or for dealing with any outbreak or prevalence of, any infectious, communicable or preventable disease, to safeguard and promote the public health.	Ministry of Health
The Local Governments Act Cap 243	Provides for the system of local governments based on the decentralization of district for the enforcement of environmental law. The functions of the Municipal Councils include: land surveying and administration, physical planning, environmental protection (forests and wetlands, streams etc.) and ensuring proper sanitation.	Ministry of Local Government
National physical planning standards and guidelines, 2011	The National Physical Planning Standards (NPPS) is a government manual of criteria for determining the scale, location and site requirements of various land uses and facilities. The planning standards affect the allocation of scarce land and financial resources. They should therefore, be applied with a degree of flexibility. Trade-offs may be necessary so that the community at large could benefit most from the development	Ministry of Lands, Housing and Urban Development
The Water Supply Design Manual	The Water Supply Design Manual is to ensure that the planning and design of water supplies is formalized, follows set procedures, and similar processes and procedures are implemented	Ministry of Water and Environment
Uganda Water Action Plan (1995)	Framework for the development, management, and wise- use of the nation's vital water resources and sustainable provision of clean safe water to the citizens	Ministry of Water and Environment
National Health Policy and Health Sector Strategic Plan (1999)	The overall goal of the health sector is the attainment of a good standard of health by all people in Uganda, in order to promote a healthy and productive life	Ministry of Health

Regulatory Framework Relevant to the Project

Regulations	Relevance to the project	Institution/ Agency Responsible/ Government
The Constitution of the Republic of Uganda, 1995	The right to a clean and healthy environment is enshrined in Article 39 of the Constitution of Uganda, 1995 as well as integration of people in the development process. In particular, the Constitution guarantees a range of basic human rights to the people of Uganda which include: gender balance and fair representation of marginalized groups in development process; protection of the aged; the	Ministry of Water and Environment

[57] https://nema.go.ug/sites/all/themes/nema/docs/wetlands_riverbanks.pdf

	right to development; access to clean and safe water; basic medical services; and access to education. The project components are in line with the constitution.	
The National Environment Act, 2019	Article 69 of the Act on the Management of climate change impacts on ecosystems states that a lead agency may, put in place guidelines and prescribe measures to 1) address the impacts of climate change on ecosystems, including by improving the resilience of ecosystems, promoting low carbon development and reducing emissions from deforestation and forest degradation, sustainable management of forests and conservation of forest carbon stock, and 2) advise institutions, firms, sectors or individuals on strategies to address the impacts of climate change, including those related to the use of natural resources, 3) take measures and issue guidelines to address the impacts of climate change, including measures for mitigating and adaptation to the effects of climate change, and 4) liaise with other lead agencies to put in place strategies and action plans to for climate change and its effects[58]. All project components are in line with the Act.	NEMA
The Land Act, Cap 227	The Act and the Constitution of the Republic of Uganda vest land ownership in Uganda in the hands of Ugandans and guide matters of land acquisition for development project through compensation which has to be fair, timely and adequate. The Act advocates for managing and utilizing land in accordance with the Forests Act, the Mining Act, the National Environment Act, the Water Act, the Uganda Wildlife Act and any other law; and Obtaining concessions or licenses or permits in respect of wetlands, forest reserves, national parks and any other land reserved for ecological and touristic purposes, subject to any law. Project activities shall be undertaken in accordance with the provisions of Act.	Ministry of Lands, Housing and Urban Development
National Forestry and Tree Planting Act, 2003	The National Forestry and Tree Planting Act 2003 is the main law that regulates and controls forest management in Uganda by ensuring forest conservation, sustainable use and enhancement of the productive capacity of forests, to provide for the promotion of tree planting on private and communal lands and through the creation of forest reserves in which human activities are strictly controlled. Specifically, the Act will provide guidance for afforestation, restoration and other tree nursery projects under components 2 and 3.	Ministry of Water and Environment
Uganda National Meteorological Authority Act, 2012	This Act establishes the Uganda National Meteorological Authority as a body corporate and provides with respect to its administration, internal organizations, functions and powers, etc. The Authority shall, among other things, establish and maintain systems for the rapid exchange of meteorological and related information, establish networks of stations for taking, recording and transmitting meteorological observations as well as hydrological and other geophysical observations related to meteorology. Among the Authority's functions, it should interpret, review and recommend appropriate changes in the climate policies, as well as disseminating weather information which are applicable to all the Components 1, 2 and 3 of the project.	Ministry of Water and Environment
Uganda Wildlife Act 2019	The Act provides for the conservation and sustainable management of wildlife; to strengthen wildlife conservation and management; to streamline the roles and responsibilities of institutions involved in wildlife conservation. To this end, the Act addresses Wildlife conservation, protected species; wildlife use rights; hunting and trapping; management of problem animals; and international trade in species and specimens. Activities under component 2 will contribute to this Act as the project activities shall be implemented in areas around Mt. Elgon National Park are intended to promote natural resource conservation and reduce pressure on the resources in the natural resources.	Uganda Wildlife Authority
The Occupational Safety and Health Act, 2006	The Act provides for the prevention and protection of persons at all workplaces from injuries, diseases, death and damage to property. The key provision of this Act is safety and welfare of workers. ESMF provides for safety gear for workers during implementation of project activities especially for water infrastructure works among other subprojects	Ministry of Gender, Labor and Social Development
The Employment Act, 2006	This Act spells out general principles regarding forced labor, discrimination in employment, sexual harassment and provisions to settle grievances. It further provides that, a child under the age of twelve years shall not be employed in any business, undertaking or workplace. Therefore, project implementers will not engage any child workers at the project sites at any one time during the project lifecycle especially under components 2 and 3 with labour intensive activities.	Ministry of Gender, Labor and Social Development
The Workers Compensation Act 2000, Cap 225	The act provides for compensation to workers for injuries suffered in course of their employment. An employee is entitled to compensation for any personal injury from an accident or disease arising out of and in the course of his or her employment even if the injury or disease resulted from the negligence of the employee. Under this Act, compensation is automatic. This will mainly apply to activities under component 3.	Ministry of Gender, Labor and Social Development
Nationally Determined Contribution (NDC) 2015	NDCs are national climate plans highlighting climate actions, including climate related targets, policies and measures governments aims to implement in response to climate change and as a contribution to global climate action. Through this NDC, Uganda hopes to reduce emissions from its business-as-usual (BAU) scenarios by 22% by 2030 via a series of policies and measures to mitigate and adapt to climate change[59] . All project components shall contribute towards the objectives of the NDCs.	Ministry of Water and Environment
Uganda NDC Partnership Plan for Climate Action 2018.	The five priority areas for Uganda identified in its NDC Partnership Plan are: strengthened operational and gender-responsive policy and institutional frameworks for the effective governance of climate change; increased climate financing for planning and budgeting on the national and local levels; effective and institutionalized measurement, reporting and verification (MRV) systems to monitor greenhouse gas emissions and gender-responsive adaptation measures; strengthened capacity of government officials, civil society, the private sector and academia to effectively integrate NDC and	Ministry of Water and Environment

[58] https://www.mwe.go.ug/library/national-environment-act
[59] http://ccd.go.ug/wp-content/uploads/2019/10/INDC-Uganda-final-14-October-2015.pdf

	Sustainable Development Goal (SDG) commitments with a gender lens into existing and future programs; and accelerated project financing for NDC implementation[60]. All project components shall contribute towards the objectives of the Plan.	
Vision 2040	Vision 20140 advocates for need to develop appropriate climate change adaptation and mitigation strategies in all sectors to ensure that the country is resilient to the adverse impact of climate change. In addition is developing guidelines for incorporating climate change in sectorial and local government plans and budgets.	National Planning Authority
The Uganda National Climate Change Communication Strategy 2017-2021	The strategy was developed after the Government identified the need for more effective dissemination of climate change adaptation and mitigation information across the country. It is mean to enhance sustainable development and improve community knowledge, attitudes and practices towards climate change[61]. Components 2 and 3 of the project contribute to this strategy.	Ministry of Water and Environment
The National Environment (Environmental and Social Assessment) Regulations, 2020	The EIA Regulations give a systematic EIA procedure in Uganda. They give a legal mandate to EIA, thus paving the way for an enabling environment for its use as a tool for environmental protection. The regulations also have punitive measures for offenders. The EIA Regulations further provide for: enabling participation of communities in undertaking environmental impact assessment studies; seeking views of people in communities which may be affected by project activities including reforestation and afforestation activities; publication of intended project activities through mass media and holding meetings with the affected communities; holding of public hearings and producing reports of the hearings; and ensuring that all environmental impact assessment reports including terms of reference, public comments, reports of public hearings or any other information submitted to NEMA are public documents. Further assessments shall be done especially for activities under components 2 and 3.	NEMA
Guidelines for strategic Environmental assessment (SEA) in Uganda 2020	Strategic environmental assessment (SEA) is the systematic and participatory process of evaluating the likely environmental, health and social consequences of proposed policy, plan or programme initiatives and alternatives, to ensure that they are integrated and appropriately addressed at the earliest stage of decision making in line with economic, environmental, health and social considerations[62]. Focuses on decisions regarding the implications of policies, plans and programmes which should inform decisions at project level. Focuses on decisions regarding projects which should conform to relevant policies, plans or programmes.	NEMA
The National Environment (Audit) Regulations, 2020:	The Audit Regulations reinforce the requirement to undertake Self-Environmental Audits as contained in the EIA Regulations. Normally, under approval conditions of NEMA, it is a requirement to undertake Audits for projects which comply with the EIA requirement as part of the conditions of EIA approval. Some activities under component 2 may require Audits during their operation Phases.	NEMA
National Environment (Conduct and Certificate of Environment Practitioners Regulations (2003)	Regulation 176 (1) states that no person shall conduct and EIA or carry out any activity relating to the conduct of an environmental impact study, or environmental audit as provided under the Act, unless the person has been duly certified and registered in accordance with the regulations	NEMA
Water Abstraction Regulations, 1998	Regulation 18 provides for the establishment of a controlled water abstraction mechanism through issuance of permits to regulate the amount of water abstraction. The regulation requires that, a Water Abstraction Permit either for ground or surface water abstraction are pre-requisites for motorized and/or abstracting of quantities above 400m3/day for persons involved in construction (damming, diverting surface water). Under water related projects, compliance to water abstraction regulations by water supply schemes needs to be established and associated water abstraction permits need to be verified. This important for activities under component 3.	DWRM
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National Environment (Waste Management) Regulations, 1999	These regulations promote cleaner production methods and require a facility to minimize waste generation by eliminating use of toxic raw materials; reducing toxic emissions and wastes; and recovering and reuse of waste wherever possible. The Regulations oblige the Developer to put in place measures for proper management of waste. These apply to activities under components 2 and 3.	NEMA
Wetlands, River Banks and Lake Shores	Provides for protection of Wetlands, River Banks and Lakeshore Zones. Every landowner, occupier or user who is adjacent or contiguous with a wetland, River Banks and Lakeshore shall have the duty to prevent the degradation or destruction of these ecosystems and shall maintain their	NEMA

[60] https://ndcpartnership.org/news/uganda-releases-first-ndc-partnership-plan-climate-action-africa
[61] https://www.mwe.go.ug/library/uganda-national-climate-change-communication-strategy
[62] https://nema.go.ug/sites/all/themes/nema/docs/Strategic%20Environmental%20Assessment%20(SEA)%20Guidelines%20Pdf%202020.pd

Management) Regulations, S.I., No. 3 /2000	ecological and other functions[63]. Project activities will enhance the conservation of these ecosystems in the Project areas.	
The National Environment (Mountainous and Hilly Areas Management) Regulations, 2000. 2000 No. 2	Provides guidance on the use of hilly and mountainous areas, the activities and associated measures to ensure sustainable land management. Some of the project under component 2 and 3 may be implemented in hilly and mountainous areas.	NEMA
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The Town and Country Planning Act Cap 246	The Town and Country Planning Act 1964 govern land use and land planning in urban and rural areas. Thus, land acquisition for water supply projects should be done in accordance with this act	
Public Health Act Cap 281	Section 7 provides local authorities with administrative powers to take all lawful, necessary and reasonably practicable measures for preventing the occurrence of, or for dealing with any outbreak or prevalence of, any infectious, communicable or preventable disease, to safeguard and promote the public health.	Ministry of Health
The Local Governments Act Cap 243	Provides for the system of local governments based on the decentralization of district for the enforcement of environmental law. The functions of the Municipal Councils include: land surveying and administration, physical planning, environmental protection (forests and wetlands, streams etc.) and ensuring proper sanitation.	Ministry of Local Government
National physical planning standards and guidelines, 2011	The National Physical Planning Standards (NPPS) is a government manual of criteria for determining the scale, location and site requirements of various land uses and facilities. The planning standards affect the allocation of scarce land and financial resources. They should therefore, be applied with a degree of flexibility. Trade-offs may be necessary so that the community at large could benefit most from the development	Ministry of Lands, Housing and Urban Development
The Water Supply Design Manual	The Water Supply Design Manual is to ensure that the planning and design of water supplies is formalized, follows set procedures, and similar processes and procedures are implemented	Ministry of Water and Environment
Uganda Water Action Plan (1995)	Framework for the development, management, and wise- use of the nation's vital water resources and sustainable provision of clean safe water to the citizens	Ministry of Water and Environment
National Health Policy and Health Sector Strategic Plan (1999)	The overall goal of the health sector is the attainment of a good standard of health by all people in Uganda, in order to promote a healthy and productive life	Ministry of Health

Institutional Framework Relevant to the Project

Table 0.3: Relevant Institutional Framework

Institution	Relevance to the Project
Policy Committee on Environment	The Policy Committee on Environment established under the National Environment Act, 2019 provides strategic policy guidance on climate action in Uganda
Parliamentary Standing Committee on Climate Change	Launched in 2019 with the mandate to review, consider, and scrutinize all matters related to climate change mitigation and adaptation, make recommendations to Parliament on responses to address climate change among their other mandates
The National Climate Change Advisory Committee (NCCAC)	The National Climate Change Policy of 2015 established the NCCAC chaired by the Permanent Secretary of Ministry of Water and Environment. NCCAC is a high-level technical multi sectoral stakeholder platform which provides technical guidance on issues related to implementation of the policy strategic interventions.
The Ministry of Finance, Planning and Economic Development (MoFPED)	In addition to its mandate, MoFPED, ensures that national, sectoral and district-level budgets and indicative planning figures integrate climate change through appropriate provisions for the implementation of the policy and its strategy. MoFPED also facilitates the introduction of relevant financial mechanisms and tools to support financial resource mobilization and investment for the implementation of the policy.
The National Planning Authority	In executing its planning function, NPA also ensures that climate change is integrated through adequate provisions in plans of Ministries, Agencies and local government.
National Environment Management Authority (NEMA)	National Environment Management Authority (NEMA) is responsible for environmental coordination, supervision and monitoring. NEMA has a direct role in terms of approval of

[63] https://nema.go.ug/sites/all/themes/nema/docs/wetlands_riverbanks.pdf

	Environmental and Social Impact Assessment and Audit Reports as well as monitoring the implementation of the Project ESMP.
Uganda National Meteorological Authority (UNMA)	The Uganda National Meteorological Authority (UNMA) is responsible for establishing and maintaining weather and climate observing stations network, collection, analysis and production of weather and climate information, (including warnings/advisories) to support social and economic development[64]. The key sectors served by UNMA include; transport (mainly aviation and marine), defence, agriculture, disaster preparedness, environmental and water resources management, tourism and construction industry. UNMA accomplishes these responsibilities in collaboration and coordination with the World Meteorological Organization (WMO) and its Member States and other global and regional meteorological centers.
Ministry of Water and Environment/ Climate Change Department (MWE/CCD)	The overall goal is to coordinate climate change related issues. MWE/CCD is also the National Focal Point for the United Nations Framework Convention on Climate change. MWE/CCD works with climate change coordination units in different Ministries, Departments and Agencies (MDAs) to ensure the mainstreaming of climate change in the different sectors of the economy. It also works with the Ministry of Local Government (MoLG) and NPA to ensure integration of climate change in District Development Plans (DDPs) and Ministries and Agencies respectively
Ministry of Water and Environment – Directorate of Water Resources Management.	The directorate of Water resources management will take lead in the implementation of this project.
The Ministry of Local Government	In addition to its mandate, the Ministry of Local Government provides guidance to the districts to translate the policy priorities and the implementation strategy into coherent plans at the district level and ensures that adequate provisions in district development plans, annual work plans and budgets for the implementation of the Climate Change Policy.
District Environment and Natural Resources Committees/District Disaster Management Committees	Responsible for climate change matters in the district
District Environment and Natural Resources and Production departments	Responsible for implementation of climate change interventions in the district

OTHER INTERNATIONAL GUIDELINES AND CONVENTIONS

Other key international guidelines and conventions relevant to the Project include among others:

United Nations Convention on Biological Convention (UNCBD) 1993 - The Convention on Biological Diversity (CBD) entered into force on 29 December 1993[65]. It has 3 main objectives that include conservation of biological diversity, sustainable use of the components of biological diversity and fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

United Nations Framework Convention on Climate Change (UNFCCC) 1994 - The main objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." It states that "such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threat[66]ened, and to enable economic development to proceed in a sustainable manner."

United Nations Convention to Combat Desertification 1994 - The United Nations Convention to Combat Desertification (UNCCD), adopted in 1994, is the sole legally binding international agreement linking environment and development to sustainable land management. It aims at combating aims to combat desertification and the ill-effects of drought.

The Paris Agreement **2015-** The Paris Agreement requires all countries—developed and developing—to make significant commitments to address climate change. The Paris Agreement includes a stronger transparency and accountability system for all countries—requiring reporting on greenhouse gas inventories and projections that are subject to a technical expert review and a multilateral examination. Countries will continue to provide climate finance to help the most vulnerable adapt to climate change and build low-carbon economies.

[64] https://www.devex.com/organizations/uganda-national-meteorological-authority-unma-135238
[65] https://www.cbd.int/intro/
[66] https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change

Ramsar Convention 1975 - The mission of the Convention is to conserve and use wisely all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world[67].

ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS OF THE PROJECT SITES

This section presents the environmental and social baseline conditions of the project sites.

PHYSICAL ENVIRONMENT

Location of the Project sites

The project area is located in Mpologoma Catchment within Kyoga Water Management Zone. The catchment traverses a wide range of land-cover types including settled agricultural areas, bushland, swamp/ riverine, wetlands of different types, and forested areas. There are numerous wetlands in the catchment: around 16% of the total area of the catchment is covered by wetlands (mainly seasonal wetlands). The main wetland systems include the Naigombwa, Namatala, Malaba, Mpologoma, Manafwa, Lumboka, and Lwakhaka wetland systems.

CLIMATE

The catchment has a tropical climate with comparatively small seasonal variations in temperature, humidity and wind throughout the year. The winds are generally light and variable. Rainfall is spatially distributed, with a more pronounced gradient in the eastern Mpologoma Catchment, between the foothills of Mount Elgon and the area around Tororo as presented below (MWE, 2018).

Rainfall

The area experiences two rainy seasons with heavy rain from March to May and lighter rains between October and December with mean annual rainfall about 1,375mm. The topographic effects of Mt Elgon and the catchment's proximity to Lake Victoria are two important factors responsible for the rainfall patterns in the catchment. These two factors contribute to the increase of total rainfall received in the area and help to reduce the severity of the dry period. The upland areas covered by Mt Elgon; Mbale, Bududa and Manafwa receive more rainfall compared to other areas. This kind of rain is sometimes excessive resulting in landslides that lead to loss of life, crops, livestock and property in the area. The average annual rainfall per annum in hotspots such as areas in Mbale, Bududa and Manafwa districts is 1,800mm. Such rainfall amount is considerably higher than the average annual rainfall of 1,375mm received in the entire catchment. In recent years rainfall occurrence in various sites of the catchment has been reported to be erratic in terms of duration and intensity (MWE, 2018). This is commonly attributed to the effects of climate change. The unpredictable rainfall patterns translate into a shift in the planting season with associated crop failures apparent. This kind of rainfall unpredictability does not only affect crop yields but also the supply of water. The proposed project will focus on promoting adaptation measures to the erratic rainfall patterns thereby reducing the impact of climate change. The Figure 4.3 below gives the average rainfall and potential evapotranspiration in the Mpologoma Catchment over 65years.

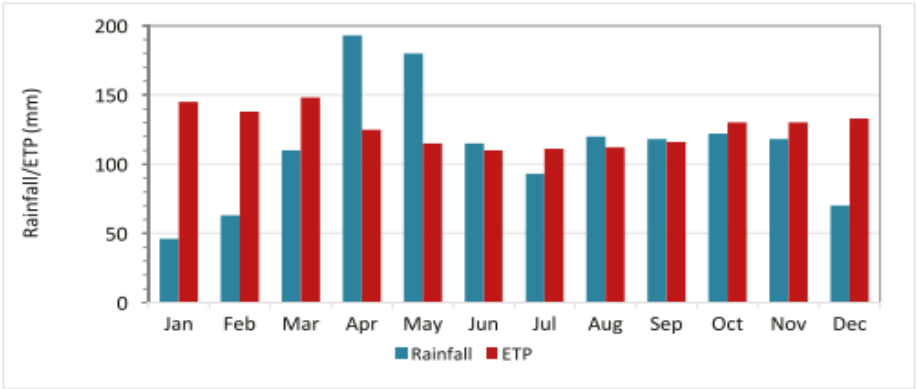


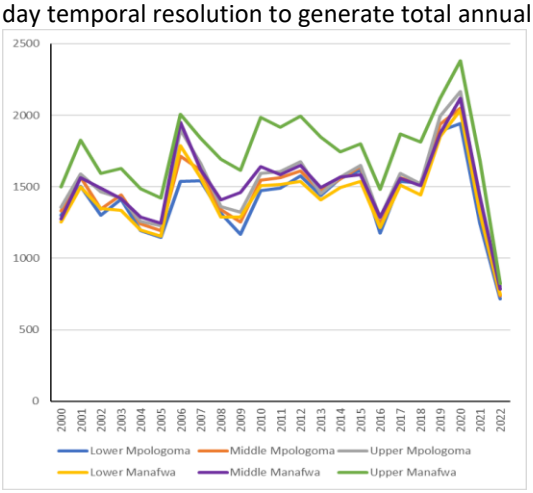
Figure 0.29: Average rainfall and potential evapotranspiration in the Mpologoma catchment

*Data source: GPCC, climwat)

Rainfall in the project area is spatially distributed, with a more pronounced gradient in the eastern Mpologoma Catchment, between the foothills of Mount Elgon (Upper Manafwa Sub-Catchment) and the area around Tororo. Upper Manafwa sub-catchment receives the highest amount of rainfall while Lower Mpologoma and Lower

[67] https://byjus.com/free-ias-prep/ramsar-convention/

Manafwa receive the least. The rainfall patterns over the years for the six sub-catchments is irregular, with 2005 having the lowest mean rainfall and 2020 having the highest (Figure 4.3). The 'Precipitation CHIRPS' product is derived from processing Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS v2) grids at 5-day temporal resolution to generate total annual precipitations analysis for the period 2000 to present.



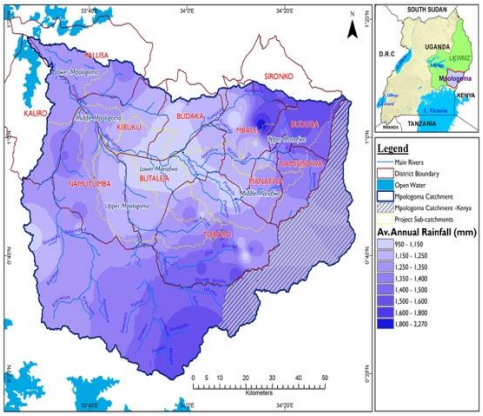


Figure 0.30: Mpologoma catchment annual rainfall over a twenty two year period ; Figure 0.31: Spatial distribution of rainfall in the Mpologoma catchment

Temperature

The mean temperature across the sub catchments since 2000 are graphically presented (refer to Fig 10, Annex 4, Socio economic and environmental baseline report) with upper Manafwa sub catchment exhibiting the lowest mean annual temperatures, and lower Mpologoma the highest. The Mean Temperature is derived from processing European Centre for Medium-Range Weather Forecasts (ECMWF) ERA5 atmospheric reanalysis of the global climate product. Across board, 2016 exhibited the highest mean temperatures over the period (25.3^{o}C for lower Mpologoma), though variations between years within respective sub catchments were minimally gradual.

Soils and Geology

The geology map is shown in Fig 7, Annex 4, Socio economic and environmental baseline report. The wetland systems are broadly composed of Gleysols, and Histosols soil classes (MWE, 2018). Gleysols are soils frequently developed under depression areas and low landscape positions with shallow groundwater, which therefore render it appropriate for wetland rice cultivation. Histosols are composed of soils formed in organic material, frequently under papyrus vegetation. It is desirable to protect and conserve such fragile lands because of their intrinsic value (especially their common function as sponges in regulating stream flow and in supporting wetlands containing unique species of animals) and because prospects for sustained agricultural use.

Looking at it in more detail, there is a diversity of soil types in the upper Manafwa sub catchment straddling from Humose red sandy clay loams, Yellowish brown sandy clay loams, red clay loams and sandy clay loams, Black humose sandy clay loam, Dark brown clays to clay loams to Red sandy clay loams occasionally lateritized. The upper catchment soils are generally volcanic soils. Whilst the soil types in the remaining sub catchments are to a greater extent different, majorly comprising of Peat or peaty sands and clays, Greyish and yellowish-brown sands, Black and grey clays often calcareous and Grey-brown and brown sandy loams over laterite (refer to Fig 8, Annex 4, Socio economic and environmental baseline report).

Topography

The most striking topographical feature in the Mpologoma catchment is Mount Elgon with its craters, deep valleys and ridges. Mount Elgon on the east rises up 4,320 metres, dominating Mbale, Manafwa, Bududa and Namisidwa districts. In Tororo, the terrain is composed of undulating plains with the occurrence of some river and swamp valleys. There are also out crop of rocks and isolated hills like the Tororo Rock and the Osukulu hills. On average, the plain runs in the north-south direction, from the border of Sironko District to the north, through Bukedea, Pallisa, and Tororo districts to south and southwest, respectively. Areas in Tororo and Butaleja districts consist of very flat plains. Butaleja District is generally composed of continuous flat plains although standing gneisses occur in the form of rocky outcrops in sub-counties such as Kachonga, Butaleja and Budumba (MWE,

2018).

Photo 0.1: Rocky outcrops within the Mpologoma Catchment in the Gogonyo Sub-County, Pallisa District

Hydrology

The main rivers in the Mpologoma Catchment are: Rivers Manafwa and Namatala, flowing from the North-Eastern side of the catchment, from the slopes of Mount Elgon, and joining Mpologoma Mbale-Tirinyi road, close to Butaleja town. This part of the catchment includes the large Doho-Namatala wetland system. The river Malaba, and its tributaries (including River Malakisi), flowing from the Southern slopes of Mount Elgon, including a transboundary section in Kenya, and going through Busia and Tororo districts. The rivers Kimbimba and Naeombwa, flowing from the south, and joining the lower part of the Mpologoma Catchment. Within the project targeted sub catchments however, drainage consists of two main rivers namely river Mabafwa and River Mpologoma, tributaries and associated wetlands.

Photo 0.2: Mpologoma river near confluence with Manafwa at border between Namutumba and Butaleja

BIOLOGICAL ENVIRONMENT

Flora

The vegetation of the lower Mpologoma catchment is predominantly savannah grassland, mainly comprising of isolated savanna woodlands interspersed with shrubs such as Lantana Camara. The woodland and grassland types are scattered in such low areas of the catchment. The upper parts of Mount Elgon consist of four broad classes of vegetation namely, mixed montane forest below 2500m asl, a broad belt of bamboo and low canopy montane forest occurring between 2,400 and 3000m asl, a zone of high montane forest between 3000 and 3,500m asl, and the high moorland community above 3,500m (Byaruhanga, et al, 2001).

The project sub catchments are a host to a number of globally IUCN categorized threatened plant species. *Milicia excelsa* (Iroko or African Teak), popularly known as the Mvule tree in Uganda, is widely distributed within the lower project sub catchments. In the upper Manafwa catchment in the park, are found species of conservation concern that include *Olea welwitschii* (Elgon olive,Elgon teak), *Bothriocline auriculata* (Aster sp.) *Afrocarpus gracilior* (East African Yellowwood) among many others (MTWA, 2018).

Fauna

The targeted project area is a host to two globally recognized Key Biodiversity Areas namely the Doho Rice Scheme, and Mt Elgon National Park. The Doho Rice Scheme and associated wetlands ecosystems in the targeted project area are habitats for the Globally near threatened Papyrus Gonolek, common in remaining papyrus swamps, though the numbers are not assessed. The rice scheme is also known to be a habitat of globally recognized congregations of Glossy Ibis, Marsh Sandpipers, and Wood Sandpipers. The sub catchments are host to few known nesting habitats for the African Spoonbill in Uganda, classified as a bird species of least concern by the IUCN. Another species of global conservation concern is the *Sitatunga Tragelaphus spekii* found in swamps, but highly threatened within these areas because of the encroachment on its habitats, and hunting by the surrounding communities (Byaruhanga, et al. 2001).

The Mount Egon Forest is diverse in birds with a total of 300 species (Davenport et al 1996; Rossouw and Sacchi, 1998). The park has 56 of the 87 Afrotropical Highland biome species, of which worthy mentioning are the Moorland Francolin, Moustached Green Tinkerbird, and Alpine Chat only known from this site amongst the Key

Biodiversity Areas in Uganda (Byaruhanda, et al). Mt Elgon is richest in small mammal fauna in Uganda, with *Rhabdomys pumilio* only known from here in East Africa, and appears to represent a relict distribution (Davenport, *et al* 1996). Mount Elgon National Park fauna is particularly notable for its rarity rather than its diversity.

Protected areas

The project areas traverse a range of land use types including protected areas such as Mt Elgon National Park, a number of Central and Local Forest Reserves (Table 4.1), and Arable land (Figure 4.8). The National Park section within the project area covers about 541 KM^2 (54089 hectares). About 2,052KM^2 (90%) of arable land in the targeted project area is under rainfed agriculture, and only 225KM^2 (10%) is under irrigation.

Table 0.32: Forest Reserves in the designated project area

	Central Forest Reserve	Area (Ha)	Local Forest Reserve	Area (Ha)
1	Budunda CFR	105	Bubolo LFR	21
2	Bugaali CFR	116	Bukigai LFR	19
3	Buyenvu CFR	632	Bulyabwita LFR	5
4	Nagongera (East) CFR	158	Busumbu LFR	8
5	Nakwiga CFR	117	Buwola LFR	27
6	Pokoli CFR	18	Kanginima LFR	16
7	Sala CFR	320	Oduarata LFR	90
8	Tebakoli CFR	20		
	TOTAL	**1486**		**186**

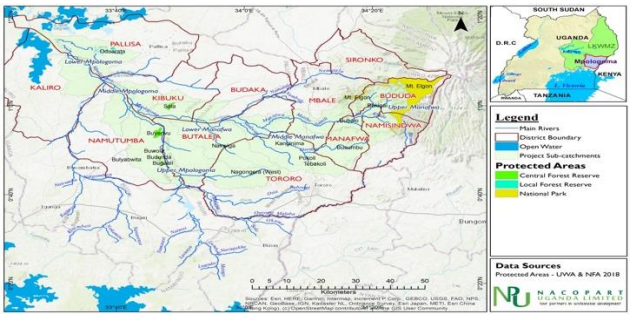


Figure 0.32: Protected Areas in the targeted project sub catchments

SOCIO-ECONOMIC ENVIRONMENT

Demography

The Mpologoma Catchment covers, totally or partially, 16 districts of Budaka, Bududa, Bugiri, Busia, Butaleja, Iganga, Kaliro, Kibuku, Manafwa, Mayuge, Mbale, Namayingo, Namutumba, Pallisa, Sironko, and Tororo with an estimated total human population of 4,093,340 (UBOS, 2014). This population is highly dependent on rain-fed agriculture and natural resource base for their livelihoods. The land tenure in the catchment is faulty and encourages people to own land titles in wetlands yet the ownership of wetland is vested in the Government of the Republic of Uganda under the Uganda Land Act-1998. These titles were obtained by some community members before the enactment of the Land Act whereas others illegally obtained the titles even after the Land Act was enacted. Customarily, the women are more disadvantaged as they are unable to own or inherit land. At times, women do not have the financial ability to purchase land. Women representation in the catchment management for instance on the Catchment Management Organization (CMO) is not significant enough. Women access to access to credit and markets is still poor due to poor roads. Women are poorer compared to men and contribute more to poverty in the catchment (MWE, 2018).

Livelihoods

Rain-fed agriculture is the biggest form of land use for the rural dwellers and so more than half of the total land area is used for cultivation. Livestock grazing is also a common livelihood in the catchment (Figure 4.8). Rice is the commonly grown crop in the lowland wetlands whereas crops grown in the highly drained areas include; maize, bananas, coffee, sweet potatoes, millet, sorghum, cassava and fruit trees. The cultivable areas comprise of the upstream dry lands and the lowland wetlands. It is subsistence kind of farming characterized by low yields,

small land holdings, poor soil management practices and use of rudimentary tools for farming that make communities in the catchment highly vulnerable to climate change. The livestock reared include; cattle, sheep, goats, pigs and poultry. Fishing is another economic activity in the catchment fueled by the high demand for domestic consumption and export. Fish is done from small lakes, rivers, streams and wetlands. Apparently, the fish harvests are reducing due to degradation of water quality in lakes, rivers and wetlands, invasive weeds and the subsistence kind of fishing that encourages use of illegal methods. There are also small-scale fish ponds owned by individual farmers or groups of farmers that supplement the fish demand in the catchment area.

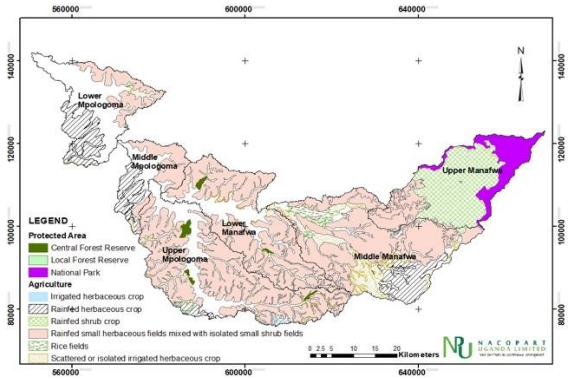


Photo 0.3: Rice growing along Mpologoma wetland in Namutumba ; Figure 0.33: Land use practices and Livelihoods Sources in the targeted project sub-catchments

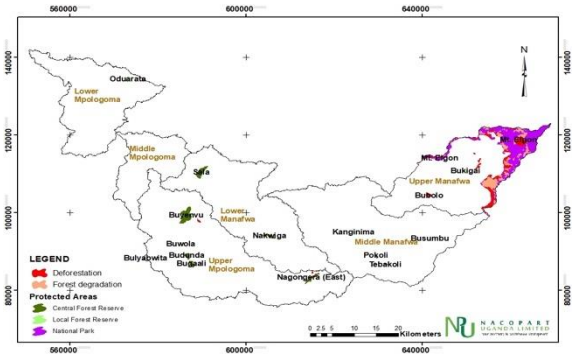
ENVIRONMENTAL AND SOCIAL ISSUES IN THE CATCHMENT

The key environmental and social issues identified during field visit and stakeholder engagement include: deforestation resulting from the indiscriminate tree cutting for cultivation and charcoal burning especially in Namutumba, Pallisa, Bududa and Manafwa districts; wetland encroachment and uncontrolled reclamation of wetlands as well as unsustainable crop farming practices which are highly prevalent in the catchment. The permanent forest estate comprising of the Mt. Elgon National Park, Central and Local Forest reserves have been degraded to a great extent (Figure 4.10). All the central and local forest reserves estimated at 1672 ha have been encroached on and are completely degraded. Forest patches and Parts of Mt Elgon National Park have either been deforested or degraded. The environmental management challenges are exacerbated by social issues related to high population densities and growth rate that stress the natural resource base in the catchment. Natural resource degradation leads to food insecurity, conflict over utilization, but also impedes incomes and alternative livelihoods for the human population, high incidence and severity of waterborne diseases thereby increasing the vulnerability of populations and ecosystems to floods and landslides in the catchment.

Floods occur mainly at the foothills of Mt Elgon characterized by flash flood that originate from the upstream parts of Mpologoma catchment in the upper and middle Manafwa sub-catchments that are very steep and are highly degraded and flow through various rivers such as River Manafwa (Figure 4.11). Floods are common in low-lying areas and areas along riverbanks and close to wetlands mainly in the midstream and downstream sub-catchments. On the other hand, landslides and massive soil and river bank erosion occur on the slopes Mt. Elgon especially in Bududa, Namisindwa, Manafwa, Tororo and Mbale districts that form the upper and middle Manafwa sub-catchment covering the most upstream parts of the Mpologoma catchment. There is therefore a geographical overlap between the origin of flood waters, landslides and soil erosion, namely Mt Elgon foot hills covered by the most upstream sub-catchments of Mpologoma catchment.

Therefore, interventions such as biophysical structures (contour bands, terraces, infiltration trenches and percolation pits) will be implemented in the upstream sub-catchments (upper and middle Manafwa) to control the fast run-off of water from the upstream areas of the Mpologoma catchment. The biophysical structures in the upstream parts of the catchment will also help to address the challenge of landslides and soil erosion. In flood prone low-lying areas in the midstream and downstream sub-catchments, flood control and water harvesting structures (canals, check dams, retention ponds etc.) will be implemented. In this way, project interventions that are aimed at building the resilience of communities to floods and landslides will be implemented in the appropriate sub-catchments in a linked way. There is a need for the proposed project to address environmental management challenges related to floods and landslides such as deforestation, limited

drainage etc. by improving awareness and enforcement of environmental policies to build resilience of communities to floods and landslides. The capacity of to adapt to climate change should be strengthened.



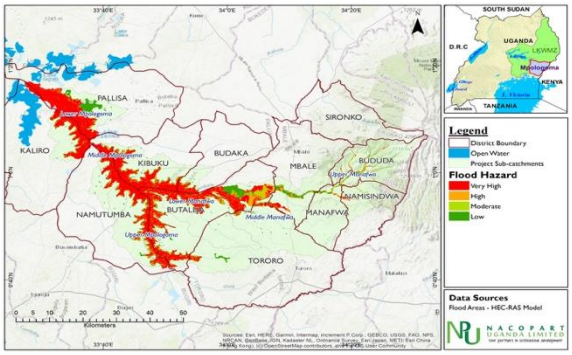


Photo 0.4: Wetland encroachment along Mpologoma wetland in Namutumba; Figure 0.34: Flood Areas in Mpologoma Catchment; Photo 0.5: Flood area in Manafwa lowlands; Figure 0.35:Status of forest resources and deforestation

5.0. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

5.1. METHODOLOGY

The Environmental and Social Policy (ESP) of the Adaptation Fund is meant to ensure that projects supported by the Fund promote positive environmental and social benefits and mitigate or avoid adverse environmental and social risks and impacts. The ESP, in effect since November 2013, require that all AF projects enhance positive social and environmental opportunities and benefits as well as ensure that adverse social and environmental risks and impacts are avoided, minimized, and mitigated.

The ESP has 15 principles to manage unnecessary risks that are put into practice during the development of projects. Among them are compliance with the law, access and equity, marginalized and vulnerable groups, human rights, gender equality and women's empowerment, core labour rights, indigenous people, involuntary resettlement, protection of natural habitats, conservation of biological diversity, Climate Change, pollution prevention and resource efficiency, public health, physical and cultural heritage and lands and soil conservation.

5.2. PHASE I: SCREENING

The purpose of screening is to identify potential adverse environmental and social impacts and risks early in the project cycle and help in drawing up action plans to mitigate them, as well as to allow for meaningful and inclusive multi-stakeholder consultations and engagement throughout the lifecycle of the project.

The objectives of the identification and evaluation of socio-environmental risk are to:

- Integrate the ESP Principles in order to maximize social and environmental opportunities and benefits and strengthen social and environmental sustainability,
- Identify potential social and environmental risks and their significance; and,
- Determine the level of social and environmental assessment and management required to address potential risks and impacts.

Screening was undertaken during project proposal development to categorize whether or not a project requires a full EIA, partial EIA or no EIA at all. This is important as it enables the application of an EIA only to those projects,

which generate significant impacts. This is because certain projects may have less impact than others. Water resources related projects have four screening categories namely:

Table 0.33: Categorization of the Proposed Project

Category 1	Small projects which do not have potential significant impacts and for which separate EIAs are not required, as the environment is the major focus of project preparation. These could include borehole drilling, hand augured shallow wells, protected springs and earth reservoir construction.
Category 2:	Environmental analysis is normally unnecessary, as the project is unlikely to have significant environmental impacts. A project brief is enough. This could include project location in less sensitive areas or where many such schemes are in the same locality and their synergetic effects have potential impacts.
Category 3	A limited environmental analysis is appropriate, as the project impacts can be easily identified and for which mitigation measures can be easily prescribed and included in the design and implementation of the project. Projects in this category could include: rural water supply, large earth reservoirs, but not located in very sensitive areas, big gravity flow schemes, all category one projects located in sensitive areas etc.
Category 4	An EIA is normally required because the project may have diverse significant impacts. Projects in this category could include: water projects requiring water to a level more than 400m^3 in any period of twenty-four hours, or projects requiring using motorized pumps; storage dams, barrages, weirs, valley tanks and dams; river diversions and inter-basin water transfer among others.

According to this scheme, the water related activities of the CARFEWW project would fall into category 1.

5.3. PHASE II: THE EIA STUDY PHASE

The EI Study process for water resources related projects shall comply with the National Environment Act, 2019 and EIA Regulations 1998. The main steps to be followed in the EIStudy phase include:

- Scoping which involves identification-what will happen as a result of the project?
- Prediction - what will be the extent of the changes?
- Evaluation - do the changes matter?
- Mitigation - what can be done about them?
- Monitoring - how can critical impacts and the compliance of mitigation measures be monitored?
- Documentation-how can the decision makers be informed of what needs to be done?

5.4. SCREENING AGAINST 15 ENVIRONMENTAL AND SOCIAL PRINCIPLES OF ESP OF AF

Each activity of the project will undergo screening against the 15 Environmental and Social Principles of the Adaptation Funds. Hence, Table 5.1 *"Project Activities Screening in accordance with the AF ESP "* assesses the proposed project activities for potential environmental and social risks.

Table 0.2: Screening of Project Activities in accordance with ESP of the Adaptation Fund

Component/Activity	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
Component 1															
Activity 1.1.1.1 Assess the status of FEWS at different levels and incorporate indigenous/ traditional FEWS options with modern FEW technologies															
Activity 1.1.1.2 Assess application status of Climate resilient/ climate proof WASH technologies at different levels															
Activity 1.1.1.3 Support integration of FEWS and Climate-smart WASH technologies in planning, design implementation and monitoring in national, regional, district and community level planning and development frameworks		√	√		√										
Activity 1.1.1.4 Equip/ upgrade selected weather stations in the catchment for timely and effective weather information		√	√		√										
Activity 1.1.1.5 Popularize and disseminate the developed guidelines															
Activity 1.2.1.1 Undertake a FEWS and WASH capacity needs assessment for national, district and local levels															
Activity 1.2.1.2 Develop a capacity building plan and materials for different levels at national. Regional, district and community levels															
Activity 1.2.1.3 Train stakeholders at different levels in FEWS and climate resilient WASH technologies															
Activity 1.2.1.4 Facilitate learning exchange visits for WASH		√	√												
Activity 1.2.2.1 Establish and incorporate climate resilient WASH into governance committees in Catchment and Sub-catchment organizations															
Activity 1.2.2.2 Facilitate WASH and CM and SCM committees to hold awareness creation meetings															
Activity 1.2.2.3 Develop/review WASH information sharing forums for Catchment Management Organisations															
Activity 1.2.2.4 Develop MOUs and implementation action plan for climate resilient WASH information Forums at regional, district and Sub-County levels (CM stakeholders e.g. CBOs, LG Authorities, MWE structures)															
Activity 1.2.2.5 Support inter-ministerial and inter-sectoral climate resilient WASH information sharing (Water, Health, Education)															
Component 2															
Activity 2.1.1.1 Conduct a KAP survey on WASH in the catchment															
Activity 2.1.1.2 Establish demonstration sites for climate resilient WASH models	√	√	√		√	√									
Activity 2.1.1.3 Conduct quarterly training sessions on climate resilient WASH															
Activity 2.1.2.1 Assess status of water points and protection measures in the catchment															
Activity 2.1.2.2 Train communities in source protection measures against floods and landslides															
Activity 2.1.2.3 Support establishment of source protection and management measures		√													
Activity 2.1.2.4 Facilitate indigenous community source monitoring															
Activity 2.1.2.5 Provide inputs to communities for source protection		√	√												
Activity 2.1.2.6 Assess, demarcate and map degraded ecosystems upstream, midstream and downstream areas (including hilly/ mountainous forests, wetlands, riverbanks, swamp/ riverine forests etc.)															

Activity 2.1.2.7 Support rehabilitation of degraded ecosystems upstream, midstream and downstream areas (including hilly/ mountainous forests, wetlands, riverbanks, swamp/ riverine forests etc.)	√	√	√	√	√	√	√		√	√				√	
Activity 2.1.2.8 Raise awareness on ecosystem restoration/ rehabilitation among communities upstream, midstream and downstream areas (including hilly/ mountainous forests, wetlands, riverbanks, swamp/ riverine forests etc.)															
Activity 2.1.2.9: Support and promote a revolving fund scheme for alternative income generating activities		√	√		√										
Activity 2.1.3.1 Train communities in landscape flood control and landslide management															
Activity 2.1.3.2 Facilitate construction of landscape flood control structures	√	√	√	√	√	√	√		√	√				√	
Activity 2.1.3.3 Construct landslides resilient WASH technologies															
Activity 2.2.1.1 Support women groups to construct and operate public sanitation facilities in small towns and rural growth centres such as the low-cost sanitation set-ups that are associated with low-income; mud brick lined/ elevated chambers, The Elevated Pit Latrine (including Earth Stabilized or Mound Latrine), Sand Enveloped Raised Pit Latrine, and Step Latrine will be considered.	√	√	√	√	√	√	√		√	√				√	
Activity 2.2.1.2 Support construction of climate proof fecal sludge management facilities	√	√	√	√	√	√	√		√	√				√	
Activity 2.2.1.3. Support construction of climate proof wastewater re-use and waste management facilities	√	√	√	√	√	√	√		√	√				√	
Activity 2.2.1.4 Train community operators on life cycle costing and maintenance of WASH facilities in towns and rural growth centres															
Activity 2.2.1.5 Hold hygiene behaviour change awareness meetings in communities															
Activity 2.2.1.6 Support women groups to undertake sanitation value chain (e.g., fecal sludge emptying)		√	√	√	√	√	√		√	√				√	
Activity 2.2.2.1 Undertake assessment of low-cost climate proof water supply infrastructure															
Activity 2.2.2.2 Reinforce water abstraction, storage and transmission infrastructure/facilities	√	√	√	√	√	√	√		√	√				√	
Activity 2.2.2.3 Undertake awareness raising meetings on piped water supply, wasteful water supply and other water losses															
Activity 2.1.3.4 Construct domestic rain water harvesting facilities for communities	√	√	√	√	√	√	√		√	√				√	
Component 3															
Activity 3.1.1.1 Document good practices and lessons learned on FEWS, climate resilient WASH technologies and practices															
Activity 3.1.2.2 Generate, package and develop information and communication materials on FEWS, climate-resilient WASH technologies and practices															
Activity 3.1.2.3 Organise Study tours within the catchment and to other relevant catchments		√	√												
Activity 3.1.2.1 Support gender and disability rights groups to share FEWS and climate resilient WASH information at different levels		√	√		√										
Activity 3.1.2.2 Share knowledge and information through use of existing and popular platforms e.g., media, telecom that are easily accessible by the stakeholders, advocacy and awareness raising activities targeting key Government Sector Staff		√													
Activity 3.1.2.3 Facilitate integration of water security and climate resilience issues into National and Sectoral Development Plans															

Activity 3.1.2.4 Engage policy makers in dissemination of best practices on climate resilient WASH technologies. For this activity, meetings with MWE, MOH, MoE, MAAIF, OPM, MoLG, MGLSD, MWT, MoFPED, NEMA, NFA, DLG, UWA, MLHUD, and Development partners group, ministry sector working groups and parliamentarians and District Councilors will be organised and supported. At least 2 national high level meetings and presentations will be done and at least 1 Regional and Global platform meeting will be held															
Activity 3.1.2.5 Organise follow-up meetings and developing a scaling up strategy with key government sectors															

KEY:

	No risks generated
√	Risks Identified according to the corresponding AF ES Principle

Table 0.3: Checklist of the Adaptation Fund Environment and Social principles-Potential impacts and risks and possible mitigation measures

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
1. Compliance with the Law	Yes. The project is consistent and complies with the relevant domestic laws and policies such as environmental and climate change policies strategies and plans (see section 3 of this ESMF)	According to Environmental Impact Assessment (EIA) Regulation (1998) and Sectorial EIA Guidelines of Uganda, all components/ activities of the proposed project do not fall within the First Category of projects that require full EIA except for Some of the activities such as proposed **construction of WASH technologies** may require EIA depending on the size and location of the interventions
2. Access and Equity	Yes. The proposed project promotes fair and equitable access to benefits of the project including access to clean water, sanitation and hygiene, flood early warning information, enhancement of resilience against flood and landslide related impacts, livelihoods diversification and general ecosystems' resilience	-Although, the project has been designed to ensure equity in access and sharing of resources, some activities of the project, such as for **climate-resilient WASH technologies, flood early warning systems,** livelihood improvement may not provide benefit for all, but target those **communities** in need and which are involved in **hotspot areas** due to their proximity to the natural resources which are to be protected. -The principle of access and equity has been catered for through stakeholder mapping, detailed consultations and assessments. Active involvement of the vulnerable groups including the elderly, youth (boys and girls) and women has been done to capture any issues in their interest. The project design will benefit all categories of stakeholders without discrimination. The activities include Capacity building, improved availability of water, **sanitation and hygiene, flood early warning systems, and catchment management** as well as Income generating activities **to enhance resilience of the communities to floods and landslides impacts.** The selection criteria for the beneficiary communities and groups w**ill be** done in a transparent manner. Notably, a grievance redress mechanism **has been** developed to handle any reported/identified issues of inequality and lack of access to project benefits. The project will monitor target project beneficiaries to ensure equal access of men, women youth and the most vulnerable. Indicators in this regard are included in the M&E scheme.
3. Marginalized and Vulnerable Groups	No activities are identified with orientation or execution that could generate negative impacts on marginalized and/or vulnerable groups. Some activities, such as the construction of climate-resilient WASH technologies are targeting women and women groups and marginalized groups.	Delineation of buffer zones, restoration of river banks, wetlands and forest landscapes' conservation activities need to be monitored closely, particularly with regards to former resource users in those areas to ensure that these measures are accompanied with livelihood improvement activities and other means of ensuring sustainability of people's livelihoods who depend on those resources. The

		marginalized and Vulnerable groups should not miss out due to dominance by men and other well positioned decision makers who may take up all the available project opportunities.
4. *Human Rights*	No activities are identified whose execution is not in line with the established international human rights. Project objectives promote basic human rights for equitable access to water, sanitation and hygiene, flood early warning information and capacity building	The risks associated with construction and restoration activities that will require additional labour, issues related to treatment of workers by the project Contractors will need to be monitored closely during project execution to ensure no violation of any established local and international human rights
5. *Gender Equality and Women's Empowerment*	Yes. The activities of the project are oriented to promote a fair and equal access of men and women. The project promotes equal participation in decision-making processes by ensuring women representation in Catchment Management Committees, establishing participatory platforms for all stakeholders, balancing representation in the forums.	All project activities have been screened and analysed to ensure full participation of Women and youth groups in project activities and consideration of all gender aspects. An in-depth gender analysis of the involvement of men and women in the in options proposed as concrete adaptation activities will be undertaken in the initial project phase.
6. *Core Labour Rights*	Yes. The project respects the labour standards as identified by ILO.	The risks of occupational health and safety hazards for workers that may occur during construction and restoration activities, violation of existing labour laws and conventions including late or no payments, harsh working conditions and exploitation of workers, child labour, discrimination based on sex among others, risks of transmission of sexually transmitted diseases like HIV/AIDS especially during construction activities have all been screened and analysed to cater for labour standards as identified by ILO.
7. *Indigenous Peoples*	The Project promotes the rights and responsibilities set forth in the United Nations Declaration on the Rights of Indigenous Peoples. Although there are different tribes in the project area, no sharp distinction can be made between the indigenous and non-indigenous	There is a risk that traditional natural resource use and land use rights are undermined. Therefore, a detailed analysis of resource use rights and land use rights particularly with regards to water, wetland and forest resources will be undertaken in the initial project phase.
8. *Involuntary Resettlement*	No activities lead to involuntary resettlement. Community members that have encroached on natural resources such as riverbanks, wetlands and forests will be trained on how to sustainably use the natural resources during restoration activities. Such community members will lose their farmlands along river banks, wetlands or forests to facilitate restoration activities of the protected areas	The project will closely monitor particularly those people who have encroached on protected natural resources to ensure that they have access to the revolving fund and are involved in income generating activities. Indicators in this regard are included in the M&E scheme
9. *Protection of Natural Habitats*	The protection of wetlands and its natural habitats and biological diversity is a core objective of component 2 of the project i.e., Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides	There are risks of vegetation clearance from sites for construction **of climate-resilient WASH technologies** that may affect natural habitats, destruction of vegetation and compaction of soils by construction equipment. During the implementation of the all activities related to construction and restoration of wetlands, riverbanks and forests, project shall be closely monitored to evaluate if the expected impact is achieved or if any unexpected negative side effects turn up. Indicators in this regard are included in the M&E scheme.
10. *Conservation of Biological Diversity*	The protection of wetlands and its natural habitats and biological diversity is a core objective of component 2 of the project i.e., Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides	The project risks in relation to conservation of biological diversity include Vegetation clearance for construction **of climate-resilient WASH technologies** that will result in loss of biodiversity on those sites, opening up of new lands for agriculture leading to vegetation loss and introduction of invasive pasture seeds or tree species. During implementation of all activities related to construction and restoration of wetlands, riverbanks and forests, the project shall be closely monitored to evaluate if the expected impact is achieved or unexpected negative effects turn up. Indicators in this regard are included in M&E scheme.
11. *Climate Change*	The project does not only increase the adaptation capacity of the local population and the resilience of the ecosystems, but also reduces greenhouse gas emissions through ecosystem restoration and reforestation initiatives	

12. Pollution Prevention and Resource Efficiency	Yes. The project will minimize material resource use and contribute to energy efficiency for example through construction and use of climate-smart water, sanitation and hygiene technologies such as clean water sources and faecal sludge management	There are potential risks of water contamination in the **WASH** storage reservoirs, over use or un regulated usage of the water resources and water and soil contamination. The project shall be closely monitored to evaluate if any unexpected pollution effects turn up. Indicators in this regard are included in the M&E scheme.
13. Public Health	No activities are identified whose execution will have negative impacts on public health. Instead, the project will contribute to improve health conditions of the communities by improving living environment (healthy surroundings) through initiatives such as ecosystem restoration, climate-smart water, sanitation and hygiene technologies e.g., clean water sources, rain water harvesting and faecal sludge management. However, Water harvesting, storage facilities may aggravate some diseases such as malaria	The risks include, **WASH infrastructure** being a source of water or vector-borne diseases such as malaria in cases where mosquitoes hide in stagnant water points, concentration of workers at Water infrastructure construction sites during the construction that will increase the risk of spread of sexually transmitted diseases (STD) especially that most vulnerable members of communities and potential risks to safety of persons and animals around the dams/tanks. During the implementation of the project awareness raising activities will be undertaken on malaria and other water related diseases as well as HIV/AIDS sensitization programs
14. Physical and Cultural Heritage	The project will not have any activity related to affecting physical and cultural heritages. Instead, the project will promote their protection/ conservation	
15. Lands and Soil Conservation	Soil conservation, reduction of land degradation through promotion of biophysical flood control structures including afforestation and catchment management is a core objective of component 2	Potential risks include soil erosion due to exposure and compaction by machinery during construction of WASH models as well as soil pollution from agrochemicals and acaricides. During the implementation all the activities related to protection and management of land shall be closely monitored to evaluate if the expected impact is achieved or if any unexpected negative side effects turn up

5.5. RESULTS OF SCREENING OF PROJECT AGAINST ENVIRONMENTAL AND SOCIAL 15 PRINCIPLES

This section presents detailed analysis of the possible environmental and social impacts of the CARFEWW project in relation to the social and environmental principles of the adaptation fund that apply to this project. It discusses the probability of risks occurring, anticipated magnitude of impacts and possible mitigation measures.

Principle 1: Compliance with the law

The project activities shall be implemented in compliance within the National laws and regulations as explained in section 3. All relevant laws and regulations and their relevance to the project has been explained and no further assessment of potential impacts and risks is required for compliance with the law. For activities in component 2 involving construction or rehabilitation, the risk screening process has been done considering the adherence of these activities with the national laws and technical standards and further EIA may be required depending on the size and the location of their implementation to determine their impacts and possible mitigation measures.

Principle 2: Access and equity

There is a potential risk if selection criteria of the beneficiaries are not fairly done. This could be a barrier to accessing the benefits and marginalize other stakeholders. In order to address this a detailed stakeholder mapping, consultations and assessments have been undertaken during the proposal development stage. Special focus has been given to vulnerable groups including the elderly, youth and women. Issues and proposed actions specific to each group have been captured and incorporated in the design of the project. This will ensure equitable participation in the project activities and access to project benefits by all groups including men women, elderly, youth and any other vulnerable and marginalized groups. The project is designed in such way that all categories of people shall benefit from the projects interventions including Capacity building, provision of climate-smart WASH technologies, flood early warning systems, enhancement of community resilience to floods and landslides impacts and catchment management.

After consultations with the stakeholders the following criteria has been proposed to be followed in selecting beneficiary communities and groups;

Criterion 1: Vulnerability: The most vulnerable groups will be considered, for example, women, youth (boys and girls), Peoples with Disability (PWD) as well as the absolute poor. The vulnerable communities are struggling to survive and therefore, seek for the closest option. Natural resources are considered open, as such are a culprit.

Criterion 2: Proximity to the fragile ecosystems along floods and landslides hotpots: People in the most degraded areas will be targeted because these are frontline people that interact with the fragile ecosystems daily. They are affected and affect the resources. So, it is these communities that own the land or are most responsible for its degradation. In this case community members will be selected to participate in interventions for the natural resources. This approach will help in protecting the resource.

Criterion 3: Resource users: Even among the communities that are in proximity of the natural resources, it is important to target the resource users. The people using the resources are the best people to restore them as they understand the resource better.

Criterion 4: Gender: Deliberate effort will be made to ensure that at least 50% of the target CARFEWW project beneficiaries are women. This will be done in consultation with local leaders and sub catchment management committees. For the case of engaging in enterprise development 80% of women and women groups will be targeted by the proposed project.

In addition to applying this criterion to ensure that all people have equitable access to project interventions and benefits there will be sustained and continuous sensitization of all stakeholders to ensure that marginalized and most vulnerable groups will be considered, for example, women, youth (boys and girls), Peoples with Disability (PWD) as well as the absolute poor from the project. In case there are few issues that arise regarding access and equity during project implementation, the project has developed a Grievance redress mechanism that shall be followed in handling reported issues of inequality and lack of access to project benefits.

Principle 3: Marginalized and vulnerable groups

The main focus of the project is to increase the resilience of communities as grass root stakeholders mainly the marginalized and vulnerable groups. Detailed stakeholder mapping and consultations have ensured that all the

marginalized and vulnerable groups in the project area have been identified and incorporated in the project design. Some of the project activities like capacity building and IGAs are mainly designed to benefit these groups. To ensure equity amongst the groups, there will be deliberate effort to integrate vulnerable and marginalized groups who include women, youth (boys and girls), elderly and Peoples with Disability (PWD) as well as the absolute poor (live on less than USD 1 per day) to directly benefit from project activities. Activities under component 2 involving construction of WASH technologies, flood early warning systems target marginalized and vulnerable groups in order to increase their resilience through employment opportunities and income generating and improve their livelihoods.

The selection of project activities was done after wide consultations with all stakeholders and project beneficiaries in particular vulnerable and marginalized groups including Women, youth, elderly as well as PLWDs and this ensured most of their issues in respect to the project have been captured and incorporated.

The project monitoring system is also based on disaggregated data to enable tracking of the participation by these groups during project implementation. Continuous awareness raising about the project target groups and the need to involve the most vulnerable and marginalized groups will also help to alleviate the problem. Any outstanding issues on this can be addressed through the project grievance redress mechanism.

Principle 4: Human rights
The Project is designed to respect and adhere to the requirements of all relevant conventions on human rights in compliance with the ESP. No violation of human rights is envisaged during implementation of this project and the project shall promote the rights of all stakeholders involved in the project. No activities are identified whose execution is not in line with the established international human rights. Project objectives promote basic human rights for fair and equitable access to resources to enhance their resilience to climate change in the beneficiary communities.

Principle 5: Gender equality and women's empowerment:
Despite significant progress, the vast majority of women are still subject to gender inequalities in Uganda. They continue to bear a disproportionate burden of poverty and illiteracy; they still have little access to economic resources and opportunities; many women still die in childbirth and are the first victims of the HIV&AIDS pandemic. Few Women own land and have less land tenure security than men. While women can often use land for free for subsistence farming, as soon as their production generates revenue, men want to highjack the proceeds from them. For activities that are long term like tree and fruit growing, women often need to first seek the consent of their spouses to use the land.

The project design emphasizes gender equity and women empowerment through equal participation of both men and women in project activities. Furthermore, Women will be empowered in decision making through having representation on group management committees for the project investments and enterprises. Some of the key project activities such as capacity building in fecal sludge management and climate-smart WASH technologies will deliberately target women and other marginalized and vulnerable groups.

The project monitoring plan as well as the Grievance Redress Mechanism shall incorporate gender equity and women empowerment issues such that they are closely followed during project implementation. To emphasize the issues of gender in this project a more detailed assessment focusing on integration of gender issues in project design and implementation been done separately.

In addition, the projects intend to carry out communication and sensitization of populations on the gender issues to ensure gender equality in access to water, sanitation and hygiene, flood early warning information, income-generating activities and strengthening representation of women and youth on project management committees as well as raising awareness on the use of the project grievance redress mechanism to solve issues.

Principle 6: Core labour rights:
There is a potential risk especially for Activities under component 2 involving construction or rehabilitation such as Activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4 shall involve the use of local labour especially during the construction Phases of the different projects. MWE will ensure that the project activities fully comply with relevant National labour laws and regulations as elaborated in section 3 of this ESMF well as ILO labour standards. Contracts under this project shall have clear clauses on compliance with

the National labour laws and regulations as well as requirements relating to the safety of workers in accordance with ILO Convention in so far as they are applicable to the project. Activities throughout the project are targeted at reducing inequality and raising gender awareness for gender equality to overcome traditional stereotypes regarding the role of women in society. Positive discrimination in favour of women will be used to provide fair and equal opportunity to women who seek employment as labour and gain from wages earned under this project. All stakeholders including workers and populations should be sensitized about the risks related to the activities to be undertaken activities.

In addition, emphasis should be put on giving the local people the first priority for activities they can manage, ensuring that adequate safety measures are in place, timely payments for services offered, non-discrimination on basis of sex, tribe while employing workers and a defined grievance redress mechanism for handling workers as well as a robust monitoring and evaluation system to ensure that these provisions are being implemented.

Principle 7: Indigenous people:
Although there are different tribes in the project area, but no sharp distinction between indigenous and non-indigenous people can be made. There is a risk that traditional natural resource use and land use rights are undermined. Therefore, a detailed analysis of resource use rights and land use rights particularly with regards to water, wetland and forest resources will be undertaken in the initial project phase

Principle 8: Involuntary resettlement:
There are no activities that will lead to involuntary resettlement under this project. Community members that have encroached on natural resources such as riverbanks, wetlands and forests will be trained on how to sustainably use the natural resources during restoration activities. Such community members will lose their farmlands along river banks, wetlands or forests to facilitate restoration activities of the protected areas. The project will closely monitor particularly those people who have encroached on protected natural resources to ensure that they have access to the revolving fund and are involved in income generating activities. Indicators in this regard are included in the M&E scheme

Principle 9: Protection of Natural Habitats:
The project activities will be taking place in areas along Mpologoma wetland system and areas adjacent to Mt. Elgon National Park. However, most of the activities will have positive impact on the integrity of the national park and the wetland system as they will promote their conservation. Key among these is; sensitizing stakeholders in sustainable utilization of natural resources (e.g., appreciation and importance of the natural ecosystems) and undertaking ecosystem restoration activities (wetlands and river bank restoration, Reforestation etc.). Therefore, the project will not only protect but will enhance the integrity of natural habitats among others. However, there is need to engage the project beneficiaries near the boundaries of the wetland and the national park to ensure that none-of the project or other activities encroaches into the national park land or the wetland. The already enacted Wetlands, River Banks and Lake Shores Management) Regulations, S.I., No. 3 /2000 shall be followed to ensure no degradation of any part of the wetland system and conservation area during project implementation.

Principle 10: Conservation of biological diversity:
Most of the Project activities promote and enhance biodiversity conservation including sensitizing stakeholders in sustainable utilization of natural resources (e.g., appreciation and importance of the natural ecosystems) and undertaking ecosystem restoration activities (wetlands and river bank restoration, Reforestation etc.). Therefore, the project will not only protect but will enhance the integrity of natural habitats as well as well as building the capacity of organized resource use groups to promote biodiversity conservation. This is in line with the National Biodiversity Strategy and Action Plan, Nationally Determined Contributions (NDC) for Uganda and other relevant laws under section 3. In addition, project interventions will be implemented in areas surrounding Mt. Elgon National Park and Mpologoma wetland hence contributing to the conservation of biodiversity inside the park and the wetland.

However, activities under component 2 involving construction or rehabilitation such as Activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4
will involve presence of labour and construction equipment as well as clearances for siting of the infrastructure for the projects could have negative impacts on the fauna and flora on certain intervention sites. The risk

screening process has considered the adherence of these activities with the national laws and technical standards and further EIA may be required depending on the size and the location of the projects.

With guidance from District technical officers, the project will ensure that the tree species promoted by the project for restoration as well as crop and grass varieties are not invasive in nature to threaten the existing natural vegetation. Soil and water activities as well as restoration through tree planting of areas around water bodies shall prevent their siltation and enhance conservation of aquatic resources in these water bodies especially the Mpologoma river system. Follow up and monitoring of the implementation of mitigation measures proposed in the Project ESMP, awareness raising and capacity building on biodiversity conservation and other sound environmental management measures will ensure that biodiversity conservation is enhanced during project implementation.

Principle 11: Climate change:
The main focus of the project is addressing climate change issues and impacts and a detailed Climate Change vulnerability study has been conducted during the design and preparation of the project's full proposal. All the three project objectives of strengthening the capacity of communities for climate change adaptation, flood early warning systems, promoting appropriate climate-resilient WASH technologies for improved water, sanitation and hygiene and enhancing the resilience of communities to floods and landslide impacts. All project activities are in line with the National climate change policy and strategic plan, NDC and priorities defined in the NAPA. Apart from likely changes in land use due to the field clearing to construct WASH models that may result in a slight decrease in sequestration capacity of the environment none of the activities is envisaged to result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change. But still this decrease in vegetation shall be offset through restoration activities. Where there is need for pumping use of Solar power or HEP shall be encouraged. The project approach of raising awareness on the impacts of climate change and sharing of lessons learnt and success stories as well as capacity building to undertake climate change focused adaptation interventions will have a significant impact in addressing climate change issues in the catchment and the country at large.

Principle 12: Pollution prevention and resource efficiency:
Activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4 under component 2 will involve construction or rehabilitation activities that have potential to cause water and air pollution as well as resource use efficiency issues during pumping and utilization of water resources. However, project activities are not anticipated to generate sizeable amounts of waste. Some of these issues shall be addressed using the project Environmental and Social management plan (ESMP) to ensure compliance with national laws and technical standards as well as AF ES principles.

Principle 13: Public Health:
Construction activities for WASH technologies may cause air and water pollution and stagnant water in storage facilities may pose health risks such as Malaria (due to mosquitoes that hide in the stagnant water) or cholera if consumed raw. Also, the process of feacal sludge management may result in public health issues especially as a result of bad odor and air pollution. These shall be addressed through awareness raising and capacity building of project beneficiaries to take precaution during feacal sludge handling to avoid pollution and contamination, use of relevant PPE and boiling drinking water particularly. These shall be addressed through detailed measures in the ESMP to ensure compliance national laws and technical standards as well as AF ES principles.

Principle 14: Physical and cultural heritage:
As mentioned in principle 10 above most of the Project activities promote and enhance biodiversity conservation including sensitizing stakeholders in sustainable utilization of natural resources (e.g. appreciation and importance of the natural ecosystems) and undertaking ecosystem restoration activities (wetlands and river bank restoration, Reforestation etc.). The project will not have any activity related to affecting physical and cultural heritages. Instead, the project will promote their protection/ conservation.

Principle 15: Land and soil conservation:
Soil and water conservation is one of the key issues to be addressed by the project especially through activities Activity 2.1.3.2 Facilitate development of biophysical flood control structures and Activity 2.1.2.7 Support rehabilitation of degraded ecosystems upstream, midstream and downstream areas (including hilly/mountainous forests, wetlands, riverbanks, swamp/riverine forests etc.). The project will enhance the

conservation of water and soil resources. However, there is a potential risk of soil erosion during and after the construction of WASH models. water and irrigation infrastructure. Efforts should be undertaken to ensure that these sites are properly restored with appropriate grasses and trees to avoid exposed landscapes. Communities and contractors shall be sensitized and trained to restore exposed degraded landscapes.

5.6. CONSULTATIONS WITH KEY STAKEHOLDERS

This ESMP has been developed by the Ministry of Water and Environment with guidance from National Environment Management Authority (NEMA), and in consultation with the Lake Kyoga Water Management Zone (LKWMZ) staff, the Directorate of Water Resources Management, and other key national stakeholders. NEMA provides guidance regarding the required social and environmental impact assessments per Ugandan law, and approves the environmental and social impact assessments. During the extensive consultation process, stakeholders identified some of the environmental and social issues in relation to the proposed project.

The list of institutions consulted during the project development process include:

- ***Government Organizations***: including the Ministry of Finance Planning and Economic Development, the Ministry of Water and Environment (MWE), the National Environmental Management Authority (NEMA), the Uganda National Meteorological Authority (UNMA), Directorate of Environment Affairs, MWE, Directorate of Water Resources Management, MWE, Climate Change Department, MWE
- ***Non-Government Organizations:*** including UWONET, WaterAid, Environment Alert/ENRsNET (Environment and Natural Resources Network of CSOs) and ECOTRUST
- The Kyoga Water Management Zone where Mpologoma catchment as the project area is located
- The districts that neighbor the targeted Mpologoma catchments such as Bududa, Namisindwa, Mbale, Manafwa, Butaleja, Tororo, Kibuku, Budaka, Namutumba, Kaliro and Pallisa
- The Catchment Management Committees that represent different government sectoral offices, NGOs, representatives of women, youth and local government.
- The Project Design Team also paid field visits to the different parts of Mpologoma catchment and made consultations with the local communities and also appreciated the challenges and possible interventions.

5.7. CONSULTATIONS WITH AND GUIDANCE FROM NATIONAL ENVIRONMENTAL MANAGEMENT AUTHORITY (NEMA)

During the development of the proposed project, the approach of conducting environmental and social impact assessment for the proposed project is guided by the National Environmental Management Authority (NEMA) such that at this project preparation phase, an Environmental and Social Management Plan/Framework has been prepared, while a detailed assessment will be carried out for certain specific projects depending on their size, location and type. Further consultation and guidance will be given by NEMA and other relevant sectors during the preparation of detailed assessments for certain activities in a participatory stakeholders' approaches as per the Uganda regulation requirement.

6.0. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

6.1. INTRODUCTION

The most significant **positive impact** of the project is the provision of safe drinking water along with appropriate sanitation facilities to the people located in the project area towns and their surroundings. This is more so as the program is perceived to be a core part of the Human Development Index and also contributing to the SDGs. The program has positive economic benefits. The proposed program will free women and girls of the burden of having to spend a lot of their time collecting and carrying water in the dry season often from sources distant from their houses. This reduction in burden allows women and girls time for other activities including furthering their education and participating in income generating activities.

6.2. POSITIVE IMPACTS AND BENEFITS

Positive benefits are outlined below as follows:

- The project will strengthen the catchment management structures of communities that will contribute to increase the capacity to adapt to climate change
- Establishing Catchment Management Plans that integrate issues of climate change for Mpologoma catchment will contribute to climate resilient and sustainable management of water and other natural resources
- Training and awareness raising on flood early warning systems and climate change issues will contribute to the resilience of the communities and better management of environment

- WASH facilities and flood control structures will contribute to recharging groundwater help environmental rehabilitation, and increase the resilience against the risk of floods and landslides.
- Rehabilitating fragile areas such as degraded lands, wetlands, riverbanks, will contribute to ecosystems restoration and increase the resilience to floods and landslides
- Establishment of climate resilient WASH demonstration centers to facilitate learning and experience sharing regarding resilience of WASH will increase capacity of communities and promote decentralized innovations and service provision
- Introducing income generating activities (IGAs) such as faecal sludge management and construction of WASH models will contribute to reduction of pressure on natural resources as alternative sources of livelihoods other than encroaching on natural resources e.g., wetlands for survival
- Use of appropriate labor-intensive methods for some of the construction activities (e.g., WASH facilities, flood control structures) will present employment opportunities to local people (including women and youths) and generate direct income benefits to local households.
- The project will contribute to alleviation of poverty and improving the socio-economic and health status of the vulnerable groups through IGAs and climate resilient WASH technologies.
- The project will promote the implementation of the Uganda National Development Plan (NDP III) and contribute the achievement of the SDGs especially on safe water provision.
- Reduction in the potential for outbreaks of waterborne epidemic infectious diseases such as cholera, dysentery, diarrhea as result of climate resilient WASH facilities

6.3. NEGATIVE IMPACTS

The main potential adverse impacts of the as a result of construction of the water supply systems are outlined below as follows:

- Increased incidences of diseases as result of increase of people involved in the project activities in the project areas, especially during the construction phase. The above situation will be aggravated by the entry of commercial sex workers into the area following the commencement of project activities. Consequently, there will be potential risk of contracting sexually transmitted diseases (STDs) especially HIV/AIDS among the program workers and local communities.
- Delineation of degraded areas for rehabilitation may shift the pressure to non-degraded areas
- Visual intrusion arising from the erection of WASH facilities and flood early warning systems. In addition, visual intrusion will occur where project activities are likely to create modified landscapes for flood control structures and around sites for quarries and borrow areas and other sites where construction activities might result in deposition of large spoils
- Some conservation measures (if not carefully selected) may aggravate degradation
- Increased accidents and occupational hazards as result of increased volume of human and motor traffic in the project areas/sites during implementation of the project. The increase in human and motor traffic will be aggravated by the transportation of construction materials, and equipment required in constructing the project facilities. This is likely to result in a higher risk of accidents and occupational hazards occurring in the areas of operation. Factors that may exacerbate this situation are inadequate appropriate working gear for project workers including the helmets, overalls, boots and gloves. Inadequate sensitization of both project workers and communities in the project areas, and lack of proper traffic management planning will expose the communities to potential traffic related risks
- WASH facilities and flood control structures particularly faecal sludge management may cause contamination of ground and surface water and aggravate diarrheal diseases
- Increased soil erosion in the vicinity of project sites during the construction of the flood control structures, water and sanitation facilities, sludge management works, operations of borrow areas and quarries, installation of FEWS and other related construction works
- Selection of project beneficiaries might cause some conflicts particularly Vulnerable groups including the elderly, youth and women may miss out of the project activities and accessing benefits due to dominance by men and other well-positioned decision makers.
- Increased siltation of the aquatic habitats as result of the excavated sediments from the project sites and the construction spoils emanating from excess excavated material and construction debris nearby aquatic habitats such as rivers& streams, wetlands and other sensitive ecological zones
- Introducing forest trees to replace indigenous plants during restoration activities may turn out invasive
- Ponding due to creation of stagnant water bodies in quarries, borrow areas and depressions created during the construction works. The resultant stagnant water bodies are likely to be suitable habitats for

the breeding of mosquitoes and snails that are disease vectors for malaria and bilharzias, respectively. However, these material sourcing related impacts are not at the project

- Disturbance of floral and faunal communities due to clearance of vegetation with subsequent loss of some trees, shrubs and grasses from the area of operation albeit on a small scale. This is likely to cause loss of habitat and disturbance to faunal communities in the affected sites. However, it is important to note that no such activities will take place in protected areas and thus these impacts are considered negligible and limited to only sites where construction might be implemented
- Increased noise levels during the construction phase of the proposed project. High levels of noise are likely to prevail in the project sites due to the use of heavy machinery in construction activities and operations at the quarries, borrow areas and crushing plants.
- Gas emissions from exhaust pipes for vehicles and machinery used in the construction works.
- Dust emissions especially where construction activities will take place including project sites, quarries, borrow areas and crushing plant sites thus creating a hostile environment and a health hazard to the workers and the affected local communities
- Water vendors (men (very rarely are women) who currently collect water and sell it on to individual users are one social group likely to have their livelihoods seriously undermined following project implementation particularly on the provision of climate resilient WASH facilities.

ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT PLAN AND MITIGATION MEASURES IN LINE WITH ADAPTATION FUND ESP

ENVIRONMENT AND SOCIAL MANAGEMENT PLAN (ESMP)

The proposed project will take measures that will enhance positive environmental impacts as described in Section 5 above. Similarly, it will make sure that there will be no significant adverse impacts by taking mitigation measures

Table 0.34: Environment and Social Management Plan

ES Principles checklist	Potential impacts	Mitigation measures	Indicators	Responsible Persons	Cost (USD)
3. Compliance with the Law	Most of the project activities will comply with all the relevant National and laws, regulations and standards as well as the relevant international laws and regulations. However, for activities under component 2 involving construction or rehabilitation such as Activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4 may require EIA depending on the size and the location of their implementation to determine their impacts and to comply with national and international standards, laws and regulations	• The identified project activities do no need mitigation measures since they generate no risks. • The assessment of the risks related to activities under component 2 involving construction or rehabilitation will require detailed assessments will be conducted to ensure compliance with the national and international standards, laws and regulations.	No of screening and EIA reports	MWE-PMU, DEOs, DNROs, DAOs and DPOs Contractors	Cost Incorporated in the total project cost.
4. Access and Equity	• Vulnerable groups including the elderly, youth and women likely to miss out of the project activities and accessing benefits due to dominance by men and other well positioned decision makers • Access and ownership of land and other related resources including finance is limited for Women, youth and other vulnerable groups and this may limit their participation, opportunities and benefits from project activities such as tree planting activities and those that need reasonable amounts of money to start up like IGAs.	• A detailed stakeholder mapping, consultations and assessments have been undertaken during the proposal development stage • Issues and proposed actions specific to each group have been captured and incorporated in the design of the project to ensure equitable participation in the project activities and access to project benefits by all groups including men women, elderly, youth and any other vulnerable and marginalized groups without discrimination • Develop a beneficiary's selection criteria taking care of all categories of people including women youth, elderly, PLWDs	• Reports of stakeholder mapping and consultations including lists • Documented criteria for selection of beneficiaries and No of selection criteria agreed on • No of beneficiaries with no land or limited access to land activities and other resources • Presence of a functional grievance redress mechanism • No of complaints handled through the GRM	MWE-PMU, DEOs, DNROs, DAOs, DPOs and Contractors	Cost incorporated in the total project cost

		and other vulnerable and marginalized groups • For groups with limited access to land they will be encouraged and targeted for activities that do not need a lot of land such as fecal sludge management among others • A project Grievance redress mechanism shall also be developed to handle any reported issues of inequality and lack of access to project benefits • Close monitoring of the project beneficiaries to assure equal access of men; women, youth and the most vulnerable			
5. Marginalized and vulnerable groups	• Marginalized and Vulnerable groups including the elderly, youth and women likely to miss out of the project activities and accessing benefits due to dominance by men and other well positioned decision makers who may take up all the available project opportunities • Limited or no access to land other resources may affect the ability of the marginalized and vulnerable groups to participate and benefit from project activities • Limited knowledge and awareness about the project about the project, its activities and benefits	• Marginalized and vulnerable groups will be deliberately targeted during project design to ensure that they participate and benefit from project activities. A beneficiary's selection criterion with positive bias towards these groups will be developed. • Marginalized/ vulnerable groups and people who do not own land will be given priority for access to other project activities such as IGAs that do not require a lot of land to undertake • Conduct awareness raising campaigns about the project and possible benefits targeting all categories of people using broad cast media and IEC materials in local languages to ensure that all the target communities understand • The project team and partners will also closely monitor the targeting of all project beneficiaries to ensure equal access of men, women youth and the most vulnerable	• No of Marginalized and vulnerable groups and individuals participating and benefiting from project activities • No of marginalized and vulnerable groups and individuals with limited access to land other resources participating and benefiting from IGAs • No of awareness raising sessions about the project conducted	MWE-PMU, DEOs, DNROs, DAOs and DPOs	Cost incorporated in the total project cost

6. Human rights	Most of the project activities do not generate risks related to human rights. However, for activities that will involve construction and for IGAs that may require additional labor, there may be issues arising from treatment of workers by the project Contractors	• Contractors and other employees shall be sensitized and obliged to observe the human rights of their workers as well as the guidance provided by the employment Act, Workers' compensation Act, Occupational health and safety Act and other relevant local and internationals laws and regulations • The Project Grievance redress mechanism shall also be used to resolve any human right issues that may arise.	• No of awareness raising sessions conducted for contractors • No of human rights complaints handled using the Project Grievance redress mechanism		
7. Gender Equality and Women empowerment	• Limited participation of Women and youth groups in project activities due to low representation and lack of land and other resources • Limited benefits accruing to Women, youth and disadvantaged groups	• A Gender Assessment and Action Plan have been developed to ensure that gender issues and women are meaningfully integrated and engaged in project activities and realize an equitable share of project benefits • The project has been intentionally designed to emphasize gender equity and women empowerment through equal participation of both men and women in project activities • Women will be empowered at the start and during project implementation in decision making through having representation on group management committees for the project investments and enterprises. • Some of the key project activities including capacity building in climate smart WASH technologies and feacal sludge management. This will enhance their access to finance and enable them to generate income, contributing directly to their financial empowerment	• An operational Gender Action plan for the Project in place • Percentage of Women on Enterprise management committees for the different enterprises • Percentage of women involved in IGAs • Percentage of Women participating in IGAs on the project • Project Reports with Gender disaggregated data • No of complaints handled through the GRM	MWE-PMU, DEOs, DNROs, DAOs and DPOs	Cost incorporated in the total project cost

		• The project monitoring plan as well as the Grievance mechanism shall incorporate gender equity and women empowerment issues such that they are closely followed during project implementation. • Project Reports to emphasize Gender disaggregated data. • Communication and sensitization of the population on the gender issues to ensure gender parity in all project activities • A Project Grievance redress mechanism to handle all issues arising during project implementation			
8. Core labour rights	• Activities under component 2 involving construction or rehabilitation such as Activities 2.1.1.2, 2.1.2.7, 2.1.3.2, 2.1.3.3, 2.2.1.1, 2.2.1.2, 2.2.1.3, 2.2.1.6, 2.2.2.2 and 2.2.2.4 may require hiring of additional labour depending on the scale. These may lead to accidents and occupational hazards during the project preparation and implementation • Violation of existing labour laws and conventions including late or no payments, harsh working conditions and exploitation of workers, child labour, discrimination based on sex among others and general non-compliance with the National and international labour legislations and laws • Transmission of sexually transmitted diseases like HIV/AIDS especially during construction of Water infrastructure due to movement of workers from one area to another.	• Ensure that the Contractors for construction works have site health and safety as well as emergency plans including risk assessment procedures and signage to reduce accidents • Sensitize Contractors, workers on occupational health and safety procedures, employment and Workers' compensation Act to ensure that they meet the national and international standards, laws and guidelines • Provide workers with protective clothing (nose and mouth masks, ear muffs, overalls, industrial boots and gloves) and helmets as applicable and training them in their usage • Ensure that each site has a trained first Aiders and adequate first Aid Boxes to handle site emergencies • Ensure workers are paid Salaries in time and in line with the best common practices in the districts and villages;	• No of training sessions for workers and contractors on health and safety measures for construction sites • No of participants to these sessions and gender distribution • Percentage of companies that comply with safety standards • Percentage of workers equipped with protective gear • Compliance monitoring reports	MWE-PMU, DEOs, DNROs, DAOs and DPOs Contractors	Cost incorporated in the total project cost

		• Regular monitoring of all worksites by the PMU and District Environment officers to ensure compliance with the applicable national and international laws and standards • Contracts under this project shall have clear clauses on compliance with the National labour laws and regulations as well as requirements relating to the safety of workers in accordance with ILO Convention in so far as they are applicable to the project. • Positive discrimination in favor of women will be used to provide fair and equal opportunity to women who seek employment as labour and gain from wages earned under this project • Sensitize local communities and workers on the dangers of HIV/AIDs and provide free condoms.			
9. Indigenous people	Although there are different tribes in the project area, but no sharp distinction between indigenous and non-indigenous people can be made. There is a risk that traditional natural resource use and land use rights are undermined	A detailed analysis of resource use rights and land use rights particularly with regards to water, wetland and forest resources will be undertaken in the initial project phase	No of traditional natural resource use and land use rights reports	MWE-PMU, DEOs, DNROs, DAOs and DPOs Contractors	Cost incorporated in the total project cost
10. Involuntary resettlement	There are no activities that will lead to involuntary resettlement under this project. Community members that have encroached on natural resources such as riverbanks, wetlands and forests will be trained on how to sustainably use the natural resources during restoration activities. Such community members will lose their farmlands along river banks, wetlands or forests to facilitate restoration activities of the protected areas.	The project will closely monitor particularly those people who have encroached on protected natural resources to ensure that they have access to the revolving fund and are involved in income generating activities	No of training sessions on sustainable use of natural resources	MWE-PMU, DEOs, DNROs, DAOs and DPOs Contractors	Cost incorporated in the total project cost

11. Protection of natural habitats	• Encroachment on Mt. Elgon National Park and Mpologoma wetland resources • Clearance of vegetation from sites for construction of WASH technologies may affect natural habitats • Destruction of vegetation and compaction of soils by labour concentration of labourers and compaction of soil by construction equipment	• Efforts shall be undertaken to ensure that the project activities do not encroach on the Mt. Elgon National Park and Mpologoma wetland resources through awareness raising on the importance biodiversity conservation ensuring that laws and regulations • Comprehensive site assessment shall be done to ensure that WASH technologies are not located in sensitive habitats and mitigation measures to limit impacts proposed. • Vegetation clearance shall be limited in scope as much as possible to only those areas that are necessary to enable construction to limit the environmental foot print. • Ensure that construction work is done in the shortest time possible to limit the environmental foot print of the labourers and construction machinery. • Avoid unnecessary movement of construction machinery. • Follow-up of the implementation of all activities related to the protection and management of ecosystems and natural habitats; • Establishment of E&S Impact Assessment Studies; • Sensitization sessions to local communities on good environmental practices and the protection of natural habitats • Clearly demarcating the boundaries of the Wildlife reserve and the forest reserves within the catchment. • Training in proper honey harvesting methods and	• Site assessment reports with possible mitigation measures • No of awareness sessions on the protection of biodiversity and ecosystems • No of people sensitized by gender • Monitoring reports including status of water infrastructure sites	MWE-PMU, DEOs, DNROs, DAOs and DPOs Contractors	Cost incorporated in the total project cost

		provision of improved harvesting equipment.			
12. Conservation of biological diversity	• Vegetation clearance for establishment of WASH technologies will result in loss of biodiversity on those sites • Opening up of new lands for tree planting initiatives may also lead to vegetation loss	• Vegetation clearance should be minimized as much as possible. Only the areas required for siting the infrastructure facilities should be cleared. • Selection of proposed construction site areas should try as much as possible to avoid sensitive habitats that have high diversity of indigenous plants; • Offset planting should be undertaken where sizeable areas of biodiversity are to be cleared • Opening up of virgin lands for re-forestation should be discouraged where possible and improved land management practices promoted to improve the productivity of the existing agricultural lands. • Standards should be followed and relevant technical advice sought to ensure that trees species introduced are not invasive.	• Sessions/trainings for Contractors on sustainable Environment/ biodiversity conservation • Site selection reports and criteria for site selection of sites • Acreage of offset planting done • No of trainings conducted and people trained in improved land management practices • No of training sessions in species selection • Species verification reports	MWE, DAOs, DEOs & DFO Contractor	Cost incorporated in the total project cost
13. Climate change	The project activities do not generate risks related to climate change	• The project activities do not generate risks related to climate change so no mitigation measures to plan; • The main focus of the project is addressing climate change issues and impacts and to ensure that the project activities are focused to the project purpose a detailed Climate Change vulnerability study has been conducted during the design and preparation of the project's full proposal. All the three project objectives of strengthening the capacity of communities for climate change adaptation, promoting appropriate WASH			

		technologies, flood early warning systems, enhancing community resilience to floods and landslide impacts and supporting catchment management. None of the activities is envisaged to result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change			
14. Pollution prevention and resource efficiency	• There is potential of water contamination in the WASH technologies and storage reservoirs • Over use or un regulated usage of the water resources	• Ensure establishment of water management committees to ensure regular maintenance of water sources reducing changes of contamination • Ensure regular quality control checks and monitoring to detect and address any sources of pollution and contamination. Regular sensitization on water source protection and maintenance • Ensuring regulated use of water resources through enactment of bylaws	• Functional water management committees in place • Water quality assessment Reports • Water abstraction/use Reports • By-laws regulating water use in place.	MWE, District Water Officer	Cost incorporated in the total project cost
15. Public Health	• The WASH models that will be constructed during the project may act as a source of water or vector-borne diseases such as malaria in cases where mosquitoes hide in stagnant water points or cholera where people may take water without treatment/ boiling • High concentration of workers at Water infrastructure construction sites during the construction could increase the risk of spread of sexually transmitted diseases (STD) especially that most vulnerable members of communities. • Potential risks to safety of persons and animals around the dams/tanks	• Sensitize communities and other stakeholders on water treatment and control of water borne • Sensitize workers and community members on HIV/AIDS prevention and control and provide. • Give priority to workers in the project sites to avoid migration of workers • Ensure fencing is done around the Water tanks/dams to ensure safety of people and animals • Ensure the workers and Local people construction, maintaining/cleaning the tanks and reservoirs have appropriate PPE	• No of sensitization meetings on water treatment and control of water borne diseases • Number of participants in these sessions by Gender • No. of HIV/AIDS sensitizations conducted • No of people sensitized and condoms distributed • No. of people supplied with adequate PPE • No. of WASH facilities fenced off	MWE, District Water Officer, Contractor' EHS Officer, DEOs	Cost incorporated in the total project cost

16. Physical and cultural heritage	There is a possibility of encroachment of Mt. Elgon National Park and Mpologoma wetlands or other forest reserves either accidentally or intentionally especially for income generating activities purposed that may endanger cultural resources	• Creating awareness on the need to conserve cultural resources • Clearly demarcating the boundaries of the park, wetland and the forest reserves within the catchment.	• Number of awareness campaigns conducted • Length of boundaries clearly demarcated	MWE, UWA, NFA DAOs, DEOs & DFO	Cost incorporated in the total project cost.
17. Soil and land conservation	• Construction activities including construction/ rehabilitation of low cost and appropriate physical water storage facilities and construction of micro-irrigation schemes as learning centers as well as agricultural activities may lead to soil exposure, erosion and compaction.	• Ensuring all exposed areas during construction are restored using grass or trees • Training project beneficiaries involved in agriculture activities/ enterprises in sustainable soil and water conservation measures.	• Acreage of exposed or cleared areas restored • Number of trainings in soil and water conservation conducted • Number of beneficiaries trained in soil and water conservation	MWE, DAOs, DEOs & DFO	Cost incorporated in the total project cost

PROJECT GRIEVANCE REDRESS MECHANISM

INTRODUCTION

During project or programme design, implementation and operation, many issues and complaints may come that must be addressed for the smooth running of the projects and programmes. One of the key requirements as Implementing Entity (IE) is to have robust Grievance Redress Mechanism (GRM) through which stakeholders are able to raise concerns, grievances and legitimate complaints throughout the process of design, implementation and where applicable operation of projects/ programmes implemented directly or supported by the Ministry through partners.

This GRM provides a predictable, transparent and credible process to all parties, resulting in outcomes that are seen as fair, effective and lasting. Accordingly, Grievance Redress Committees (GRCs) will be appointed to take necessary steps to harmonize projects or programmes activities with the expectations as well as the wellbeing of the General Public. Issues of gender will also be emphasized during the implementation of this GRM by ensuring that equal opportunities are given for men and women at any stage of GRM and to encourage women's participation in the decision-making process in project or programme activities.

The GRM makes reference to the national and international Grievance and Conflict Management Mechanisms such as the Local Courts, National Courts, the Uganda Human Rights Commission, Office of the Inspectorate of Government (IGG), Natural Resource Management Institutions, the World Bank Inspection Panel; the International Human Rights System and in particular the Committee on Economic, Social, and Cultural Rights and Human Rights Committee as well as the Regional Human Rights bodies as other redress mechanism levels that aggrieved parties can turn to.

STRUCTURE OF THE GRIEVANCE REDRESS MECHANISM

The proposed project Grievance Redress Mechanism will consist of Grievance Redress Committees (GRCs) at three levels who will aim to adopt participatory and conciliatory approaches as far as possible to ensure that practical solutions can be found through dispute prevention, dispute management and dispute resolution.

First Level of Redress: Community Level

The main targets at this level are the communities and project beneficiaries. The GRC at the community/ project site level will be comprised of seven people. At every community unit, three community leaders shall be appointed including a Representative of a local CBO or NGO/ Religious Leader and trained to handle complaints. These three community leaders shall work under the supervision of the Sub-County Community Development Officer also as a member of GRC. All project beneficiaries will be informed of the appointed recipients of complaints. The received complaint shall be recorded on a standardized form as shown in Appendix II. This Community Level GRC will be obligated to submit a quarterly report using the standardized format as in Appendix 4 of registered complaints to the Second Level Redress: District Level committee for onward transmission to the National Implementing Entity (NIE).

i. Points of receipt of complaints at community level

The community members will be advised to register their complaints at the following points:

i. The three appointed community leaders
ii. Sub-County Community Development Office
iii. Head of Community Based Organizations (CBOs)
iv. Project/ Programme Manager from the Executing Entity (WaterAid) at project site office

ii. Mode of receipt of Complaints and Timelines at First Level of Redress

- A grievance or complaint shall be submitted to the GRC through any of the following, through an online complaints form, mail, email, voice or video recording, letters dropped into a suggestion box that will be at the Project offices and offices of the Sub-County where the project is located or by calling a toll-free hotline that will be established and communicated by all stakeholders by each project site.
- A grievance or complaint may be submitted in English or any other language the complainant uses. Where the grievance or complaint is in a language other than English and the complainant is unable to submit a translation, the GRC will have it translated into English. The GRC may extend any deadlines in order to enable it to fulfil this requirement.
- The GRC shall provide confidentiality to complainants or those acting on their behalf, if so requested by the complainants, provided that, in the case of a representative, the GRC is satisfied that the confidentiality request is justified in the circumstances of the case.

- The officer receiving the complaints shall obtain relevant basic information regarding the grievance. Anticipated that at this level, most complaints will be made verbally.
- The four Points of receiving complaints as illustrated above shall be in possession of a standardized complaint receiving form as shown in Appendix 2 which must be filled in for every complaint. As soon as a complaint is received, an acknowledgement receipt as shown in Appendix 5 shall be issued.
- After registering the complaint, the Grievance Handling Team under the guidance of the Sub-County Development Officer shall set a date to investigate the matter, after which they shall provide a recommendation. If necessary, meetings have to be held between the complainants and the concerned officers to find a solution to the problem and arrange for grievance redress. The deliberations of the meetings and decisions taken are recorded in a standardized format for proceedings as shown in Appendix 3.
- This stage is expected to benefit from the proximity of most of the members of GRC that involves the team leader, Project Manager as well as other members of the committee who are locally based to resolve the issue at site and avoid or minimize any delays in rectifying the problem. Tit is thus expected that resolution for complaints at the first level will be done within three weeks after receiving them and notified to the concerned party. Should the Grievance not be solved within this period it would be referred to the next level of Grievance Redress. However, if the complainant requests for an immediate transfer of the issue to the next level or is dissatisfied with the recommendation, the issue will be taken to the next level.

Second Level of Redress: District Level

The main targets at this level are the project implementers, executers, communities and project beneficiaries and their related institutions. At every district implementation level, a grievance handling committee shall be comprised of seven people appointed and trained to handle complaints and work under the supervision of the Chief Administrative Officer and will include District Environment Officer and district Community Development office. All stakeholders shall be informed of the existence of the grievance committee. If the complainant is not satisfied with the recommendation, they shall be advised to report to the third level of redress.

iii. Points of receipt of complaints at Second Level of Redress: District Level

Any aggrieved person/organization shall be advised to register their complaints at the following points:

i. The GRM Committee
ii. District Environment Officer
iii. Project/ Programme Manager from the Executing Entity
iv. District Community Development Officer
v. Resident District Commissioners
vi. District Local Government Office

iv. Mode of receipt of Complaints and Timelines at Second Level Redress

- A grievance or complaint shall be submitted to the GRC through any of the following, through an online complaints form, mail, email, voice or video recording, letters dropped into a suggestion box that will be at the Project offices and offices of the district where the project is located or by calling a toll-free hotline that will be established and communicated by all stakeholders by each project site.
- A grievance or complaint may be submitted in English or any other language the complainant uses. Where the grievance or complaint is in a language other than English and the complainant is unable to submit a translation, the GRC will have it translated into English. The GRC may extend any deadlines in order to enable it to fulfil this requirement.
- The officer receiving the complaints should try to obtain relevant basic information regarding the grievance. The points of receiving complaints as illustrated above shall be in possession of a standardized form as shown in Appendix 2 which must be filled in by every complaint. As soon as a complaint is received, an acknowledgement receipt as shown in Appendix 5 is issued.
- After registering the complaint, the Grievance Handling Team under the guidance of the District Community Officer shall set a date to investigate the matter, after which they shall provide a recommendation. If necessary, meetings have to be held between the complainants and the concerned officers to find a solution to the problem and arrange for grievance redress. The deliberations of the meetings and decisions taken are recorded in a standardized format for proceedings as shown in Appendix 3.
- At the second level, the resolution period will be within three weeks after receiving the complaints and notified to the concerned party. Should the Grievance not be solved within this period, this would be referred to the next level of Grievance Redress. However, if the complainant requests for an immediate transfer of the issue to the next level or is dissatisfied with the recommendation, the issue will be taken to the next level.

Third Level of Redress: National Level

The main targets the funding agencies, project implementers, executing entities, communities, project beneficiaries and their related institutions. At the national implementation level, a grievance handling committee of seven members shall be appointed and trained to handle complaints. Ministry of Water and Environment as the National Implementing Entity shall appoint a Grievance Handling Officer to operationalize the grievance handling processes. This committee shall work under the supervision of the Grievance Handling Officer. All stakeholders shall be informed of the existence of the grievance committee. If the complainant is not satisfied with the recommendation, they shall be advised to seek other recourse measures, such as the Courts of Law. The National GRM committee shall be obligated to do a quarterly report of registered complaints, and submit it to the National Implementing Entity Secretariat

v. Points of receipt of complaints at national level

Any aggrieved person/organization shall be advised to register their complaints at the following points:

i. The National Implementing Entity (NIE) Grievance Handling Officer
ii. The National GRM Committee (hosted at MWE)
iii. The National Implementing Entity (NIE) Programme Coordinator
iv. The National Implementing Entity (NIE) Secretariat
v. The relevant funding agencies' secretariat
vi. Project officers from Executing Entities (EE)
vii. The District Community Officers
viii. Resident District Commissioners

vi. Mode of receipt of Complaints and Timelines at National Level Redress

- A grievance or complaint shall be submitted to the GRC through any of the following, through an online complaints form, mail, email, voice or video recording, letters dropped into a suggestion box that will be at the Project offices and offices of the National Implementing Entity (NIE) or by calling a toll-free hotline that will be established and communicated by all stakeholders by each project site.
- A grievance or complaint may be submitted in English or any other language the complainant uses. Where the grievance or complaint is in a language other than English and the complainant is unable to submit a translation, the GRC will have it translated into English. The GRC may extend any deadlines in order to enable it to fulfil this requirement.
- The GRC shall provide confidentiality to complainants or those acting on their behalf, if so requested by the complainants, provided that, in the case of a representative, the GRC is satisfied that the confidentiality request is justified in the circumstances of the case.
- The officer receiving the complaints should try to obtain relevant basic information regarding the grievance. The issues that could not be resolved by Second Level Redress: District Level GRC, will be forwarded to the National Level GRC within five days (working days) of the final decision of the Second Level Redress: District Level GRC.
- The points of receiving complaints as illustrated above shall be in possession of a standardized form as shown in Appendix 2 which will be used to record each complaint. As soon as a complaint is received, an acknowledgement receipt as shown in Appendix 5 will be issued to the complainant.
- After registering the complaint, the Grievance Handling Committee under the guidance of the Grievance Handling Officer shall set a date to investigate the matter, after which they shall provide a recommendation. If necessary, meetings have to be held between the complainants and the concerned officers to find a solution to the problem and arrange for grievance redress. The deliberations of the meetings and decisions taken are recorded in a standardized format for proceedings as shown in Appendix 3.
- The main objective of National Level GRC is to review the issues in a policy point of view within 10 days after receiving the report and to take appropriate policy measures to overcome such issues. Accordingly, National Level GRC is requested to convey its decisions to Second Level: District Level GRC and other relevant parties within three weeks' time from the date of receiving issues from Second Level: District Level GRC without further delay to take immediate actions: (Community Level GRC - 3 weeks + Second Level: District Level GRC – 3 weeks + National Level GRC - 3 weeks = 9 weeks). Should the grievance not be solved within this period, the complainant will be advised to seek recourse through national arbitration processes.

Lessons Learned and Capacity Building

The GRCs shall report to the National Implementing Entity, on lessons learned and insights gained from handling cases and from good National and international practices, and may recommend reconsideration of relevant policies, procedures, guidelines and systems of the MWE, including environmental and social safeguards

ENVIRONMENTAL MONITORING PROGRAM

INTRODUCTION

Environmental and social monitoring will be mainstreamed in the overall Monitoring and Evaluation (M&E) system of the CARFEWW Project. Environmental monitoring of sub-projects will be undertaken at different levels. The monitoring activities of the project's ESMP will be undertaken by the Executing Entity (WaterAid) both at national and project levels. The Executing Entity will designate an Environmental expert and a Social safeguards Expert who will be responsible for day-day supervision and monitoring of implementation of environmental and social aspects of the Project as well as and preparing routine Reports. Also trained persons at lower local government levels will undertake monitoring at Local level. The National Environmental Management Authority (NEMA) may also carry out "spot checks" to ensure the implementation of the ESMP and that implementation of mitigation measures is done satisfactorily. This will help in determining whether the project is being carried out in conformity with environmental and social management plan and legal agreements, identify problems as they arise during implementation and recommend means to resolve them.

The Implementing Entity (MWE) must ensure that implementation of the ESMP is done satisfactorily and so will regularly visit the project area to review and monitor the implementation of the ESMP. It is very useful to understand that the Enhancement and Mitigation programs described in the above section 6 are part and parcel of the project design, including budget. The overall project budget including the implementation of the ESMP is USD 9.5 Million. Activities for undertaking the ESMP studies alone include the budget, which amounts to 70,000 USD.

Monitoring activities are based on indicators that measure changes over time of key environmental and social components and will include the following:

- Check the extent to which the mitigation and benefit enhancement measures have been adopted and their effectiveness in practice;
- Provide a mechanism whereby unforeseen or unexpected impacts during the ESIA study can now be identified and provide measures to mitigate the unexpected negative impacts;
- Prepare periodical reports and liaise relevant bodies and authorities through an established forum in order to discuss and resolve issues arising from the monitoring process; and
- Prepare the annual Environmental and Social Audit (ESA) report to the relevant environmental watchdog institutions like NEMA in Uganda,
- Monitoring of key environment parameters such as changes in water quality; increase in pollution; soil erosion; level of awareness; incidences of diseases including water-borne diseases e.g., malaria; climatic variables; changes in human population and social dimensions; changes in employment characteristics; changes in biodiversity; and any other relevant changes in ecological, socio-economic and environmental attributes.

ANNUAL REVIEWS AND PERIODIC AUDITS

An independently commissioned environmental and social audit will be carried out periodically (between 12 – 36 months) depending on the level of implementation of the project and sub-projects. The audit team will report to NEMA, the MWE and WaterAid who will lead the implementation of any corrective measures that are required. An audit is necessary to ensure (i) that the ESMF process is being implemented appropriately, and (ii) new issues arising and mitigation measures are being identified and implemented. The audit will be able to identify any amendments in the ESMF that are required to improve its effectiveness.

INSTITUTIONAL ARRANGEMENTS FOR ESMP IMPLEMENTATION

Institutional strengthening for all the components of the project has already been identified and forms an intrinsic part of the program. It includes support at community, catchment, district, water management zone and national levels to properly implement the environmental and social management plan of the project. The Implementing Entity and executing entity will oversee and coordinate the implementation of all mitigation measures proposed in the ESMP. The District and Sub-County Political and Technical leadership will take lead in the monitoring of the ESMP implementation at Local levels. At this stage, a broader view of Environmental and Social Management Plan (ESMP) for the proposed program has been developed, but ESMP for each intervention will be formulated during the detail design for each sub-project. Key institutions and officers that will be involved in the implementation of this ESMP are presented in Table 8.1 below.

Table 0.35: Main Institutions and Officers that will be involved in the Implementation of the ESMP

Institution	Mandate
National Environment Management Authority (NEMA)	Oversee, coordinate and supervise environmental management. NEMA's overall goal is to promote sound environmental management and prudent use of natural resources in Uganda.
Ministry of Water and Environment (MWE)	The Ministry, through its Directorate of Water Resources Management (DWRM) and Environmental Affairs will monitor all activities as well as providing technical backstopping and capacity building to field officers.
WaterAid	Supervise and monitor the overall implementation of ESMF, Facilitate and provide training for and other institutions' environmental and social specialists. Aid during environmental and social screening and monitoring processes
Ministry of Gender, Labour and Social Development (MGLSD)	The objectives of the MGLSD are to minimize Occupational Accidents, Diseases and Injuries. Promote good Health of he Workers at the Workplace to promote good Working Conditions, promote awareness of Occupational Safety and Health among Workers, Employers and General Public through Training its department of Occupational Health and Safety (OHS).
Local Government Administration Structures	District and Local Council Administrations (LC1-5) are stakeholders in the Project and will be involved in implementation of the project ESMP as well as subsequent monitoring. They will also take part in grievance mechanisms and sensitization of communities especially HIV/AIDS aspects.
District Local Governments represented by District, Natural Resources, Agriculture Water, Community, and Agriculture Officers	The Ministry if Water & Environment/ DWRM in collaboration with the respective Local Governments will be primarily responsible for program planning, management and overall coordination within the District and Sub-counties. The assigned environmental and social personnel will also be responsible in conducting environmental and social screening, monitoring and following up of the implementation of the proposed mitigation measures.
District Environment Officer (DEOs)	DEOs are expected to review and approve ESIA documents, and oversee the Environment and social aspects of the Project. They will carry out spot checks on programs to confirm that environmental and social screening and environmental management plans are properly done. They will also advise the implementers including contractors in regard to impacts beyond the generic issues, determining if the mitigation measures are acceptable or program redesign is required
Catchment Management committees	Catchment management committees will act on behalf of the community in planning and managing of natural resources management activities and water resources management activities within the catchment. Committees will be responsible for facilitating participatory planning and ensuring that implementation of mitigation measures are carried out.
Beneficiary communities	Being the primary beneficiaries of the project, the community will be made to participate fully in all aspects of the program including project identification, preparation, implementation, operation and maintenance.
Construction contractors	Implement the ESMP for their specific sub-projects

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8th August 2022

The Adaptation Fund Board
C/o Adaptation Fund Board Secretariat
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ENDORSEMENT FOR A PROJECT PROPOSAL: ENHANCING COMMUNITY ADAPTATION TO CLIMATE CHANGE THROUGH CLIMATE RESILIENT FLOOD EARLY WARNING, CATCHMENT MANAGEMENT AND WASH TECHNOLOGIES IN MPOLOGOMA CATCHMENT, UGANDA

Government of Uganda represented by Ministry of Water and Environment – Directorate of Water Resources Management in collaboration with Water Aid Uganda have developed a full project proposal for the project entitled "Enhancing Community Adaptation to Climate Change through Climate Resilient Flood Early Warning, Catchment Management and Wash Technologies in Mpologoma Catchment, Uganda."

The Project aims at:

1) Strengthening the institutional capacity for planning, designing, implementation and monitoring of integrated Flood Early Warning systems (FEWS) and climate-smart WASH technologies;
2) Developing and promoting adoption of Floods Early Warning systems (FEWS), climate-smart WASH and Catchment Management technologies
3) Facilitating communities to undertake adaptation actions for reinforcing resilience of populations and ecosystems against floods and landslides
4) Enhancing knowledge management and skills sharing in FEWS, climate resilient WASH and Catchment Management technologies

In my Capacity as the appointing Authority of the Designated Authority for the Adaptation Fund in Uganda, I confirm that the above project proposal is in accordance with the National Climate Adaptation Priorities of the Government of Uganda.

Accordingly, I am pleased to endorse this project proposal for support from the Adaptation Fund. If approved, the project will be executed by the Uganda Green Enterprise Finance Accelerator and Implemented by the United Nations Industrial Development Organization.

Matia Kasaija (M.P)
MINISTER OF FINANCE, PLANNING AND ECONOMIC DEVELOPMENT

Copy: -The Permanent Secretary/Secretary to the Treasury
-The Permanent Secretary, Ministry of Water and Environment
-The Country Director, Water aid Uganda