AFB/PPRC.31/7
13 March 2023

Adaptation Fund Board
Project and Programme Review Committee
Thirty-first Meeting
Bonn, Germany, 21-22 March 2023

PROPOSAL FOR UGANDA

Background

1. The Operational Policies and Guidelines (OPG) for Parties to Access Resources from the Adaptation Fund (the Fund), adopted by the Adaptation Fund Board (the Board), state in paragraph 45 that regular adaptation project and programme proposals, i.e., those that request funding exceeding US$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the endorsement of the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would ultimately require the Board's approval.

2. The Templates approved by the Board (Annex 5 of the OPG, as amended in March 2016) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

> *For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.*

3. The first four criteria mentioned above are:
   (i) Country Eligibility,
   (ii) Project Eligibility,
   (iii) Resource Availability, and
   (iv) Eligibility of NIE/MIE.

4. The fifth criterion, applied when reviewing a fully-developed project document, is:
   (v) Implementation Arrangements.

5. It is worth noting that at the twenty-second Board meeting, the Environmental and Social Policy (ESP) of the Fund was approved and at the twenty-seventh Board meeting, the Gender Policy (GP) of the Fund was also approved. Consequently, compliance with both the ESP and the GP has been included in the review criteria both for concept documents and fully-developed project documents. The proposal template was revised as well, to include sections requesting demonstration of compliance of the project/programme with the ESP and the GP.

6. At its seventeenth meeting, the Board decided (Decision B.17/7) to approve "Instructions for preparing a request for project or programme funding from the Adaptation Fund", contained in the Annex to document AFB/PPRC.8/4, which further outlines applicable review criteria for both concepts and fully-developed proposals. The latest version of this document was launched in conjunction with the revision of the Operational Policies and Guidelines in November 2013.

7. Based on the Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Fund was sent out on April 8, 2010.

8. According to the Board Decision B.12/10, a project or programme proposal needs to be received by the secretariat no less than nine weeks before a Board meeting, in order to be considered by the Board in that meeting.

9. The following fully developed project document titled "Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda" was submitted for Uganda by the Ministry of Water and Environment (MWE), which is a National Implementing Entity of the Adaptation Fund.

10. This is the fourth submission of the fully developed project proposal using the two-step submission process.

11. It was first submitted as project concept in the intersessional period between the first session and the second session of the thirty-fifth Board meeting and was endorsed by the Board.

12. It was last resubmitted in the thirty-ninth meeting as a fully developed project and the Board decided:

> *(a) To not approve the fully developed project proposal, as supplemented by the clarification responses provided by the Ministry of Water and Environment (MoWE) to the request made by the technical review;*
>
> *(b) To suggest that MoWE reformulate the proposal taking into account the observations in the review sheet annexed to the notification of the Board's decision, as well as the following issues:*
>
> > *(i) The proposal should fully identify the project activities and demonstrate compliance with the Fund's Environmental and Social Policy and Gender Policy;*
> >
> > *(ii) The proponent should demonstrate the climate change adaptation relevance and concreteness of the proposed activities;*
>
> *(c) To request MoWE to transmit the observations under subparagraph (b) to the Government of Uganda.;*
>
> **(Decision B.39/5)**

13. The current submission was received by the secretariat in time to be considered in the fortieth Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number AF00000236, and completed a review sheet.

14. In accordance with a request to the secretariat made by the Board in its 10th meeting, the secretariat shared this review sheet with MWE and offered it the opportunity of providing responses before the review sheet was sent to the PPRC.

15. The secretariat is submitting to the PPRC the summary and, pursuant to decision B.17/15, the final technical review of the project, both prepared by the secretariat, along with the final submission of the proposal in the following section. In accordance with decision B.25.15, the proposal is submitted with changes between the initial submission and the revised version highlighted.

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular Size Full Proposal

Country/Region: Uganda
Project Title: Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda
Thematic Focal Area: Water management
Implementing Entity: Ministry of Water and Environment (MWE)
Executing Entities: Global Water Partnership Eastern Africa (GWPEA)
AF Project ID: AF00000236 - UGA/NIE/Water/2019/1
IE Project ID: **Requested Financing from Adaptation Fund (US Dollars):** 2,249,000
Reviewer and contact person: Dirk Lamberts **Co-reviewer(s):** Imèn Meliane
IE Contact Person: Callist Tindimugaya and James Kaweesi

Technical Summary	The project "Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda" aims to strengthen the resilience of communities and fragile ecosystems to climate change impacts through promoting appropriate water infrastructure investments and nature-based solutions. This will be done through the four components below: Component 1: Strengthening the capacity of key grassroots stakeholders for climate change adaptation (USD 283,000); Component 2: Promoting appropriate water storage technologies for increased water and food security (USD 479,000); Component 3: Supporting nature-based enterprises for improved community livelihoods (USD 925,000); Component 4: Knowledge management and information sharing (USD 238,000). Requested financing overview: Project/Programme Execution Cost: USD 181,000 Total Project/Programme Cost: USD 2,106,000 Implementing Fee: USD 143,000

	Financing Requested: USD 2,249,000 The initial technical review raised several issues, such as the use of Unidentified Sub-Projects (USPs) and the concrete adaptation character of activities, as is discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review. This proposal was previously submitted in September 2022 to AFB39. The current version, submitted in January 2023 for consideration at AFB40, was verified and confirmed by the Implementing Entity to be the document intended for submission and is identical to the previous version submitted for consideration at AFB39. A revised proposal was submitted for the final technical review. The final technical review finds that the proposal has not addressed most of the CRs and CARs requests. Namely, the following issues remain: the use of USPs and compliance with ESP and GP, and the concrete adaptation character of activities.
Date:	17 February 2023

Review Criteria	**Questions**	**Comments Initial Technical Review**	**Comments Final Technical Review**
Country Eligibility	1. Is the country party to the Kyoto Protocol?	**Yes.**	**-**
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	**Yes**. Communities in the target area experience a range of climate change risks including drought, flooding and soil erosion.	**-**
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	**Yes.** As per the Endorsement Letter dated 22 April 2021.	**-**
	2. Does the length of the proposal amount to no more than One hundred (100) pages for the fully-developed project	**Yes.** The proposal amounts to 100 pages, with 87 pages of annexes.	**No.** The proposal amounts to 104 pages, with 87 pages of annexes.

	document, and one hundred (100) pages for its annexes?		
	3. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?	**Unclear.** Most of the project interventions are described in rather generic and unspecific terms that do not allow to appreciate if, or to which extent, they will build climate change adaptive capacity and resilience. Apart from the training activities, specific locations for physical infrastructure or livelihood activities have not been identified. Some of the activities appear to have an inherent risk of exacerbating the problems they are intended to address e.g., by diverting water from wetlands. The proposal includes a section on coffee-based agroforestry as a nature-based enterprise model. The description of the activity is unclear in several ways. There is no specific information on which types of lands or in which ecosystems it will be implemented. In addition, the project implementation period is just over 3 years, which is too short for the planted coffee trees to bear much fruit, raising questions about the associated value chain activities. The proposal provides few arguments to support the feasibility	Three of the four component titles have been changed but these changes have not been applied consistently throughout the proposal. **CR 1: Not cleared.** Some additional information has been provided but remains overall insufficient to demonstrate how relevant adaptive capacity and resilience will be built to address the predicted climate impacts. **CR 2: Cleared.** As per the additional information provided on p. 20. **CR 3: Not cleared.** The mechanism by which the proposed activities address the specific vulnerabilities of the fragile ecosystem has not been clarified. **CR 4: Not cleared.** **CAR 1: Not cleared.** No justification for the use of USPs is provided. The ESMP is in a number of ways not in line with the ESP and does not provide an applicable, performant pathway for the project to ensure that the USPs comply with the ESP and GP.

		of establishing profitable ventures under output 3.1.2. **CR 1:** Please provide specific information on the envisaged activities – in particular with respect to their locations – to demonstrate how relevant adaptive capacity and resilience will be built to address the predicted climate impacts. This may require additional project formulation work. The justification for Component 1 (para 60) includes using the guidelines developed under EURECCCA/OSS project for capacitating duty bearers to mainstream climate change into the catchment management plans including the Katonga CMP. However, there is no corresponding activity. **CR 2:** Please clarify how existing planning at catchment level will benefit and how the project will support this process. The description of the components and the activities is strongly focused on community resilience rather than that of fragile ecosystems as stated in the project goals.	

		CR 3: Please clarify the mechanism by which the proposed interventions will contribute to achieving the goal of enhancing the resilience of the fragile ecosystems in or near which they will take place. Demarcation of 'degraded wetlands' and 'degraded riverbanks' may be a minor activity but with potentially major implications for current (informal) land use, land value, transportation, etc. The implications of the envisaged demarcation activities are not sufficiently explained in the proposal. In addition, the qualification of land as being 'degraded' typically creates governance issues. **CR 4:** Please clarify the location and nature of the ecosystems involved and how the proposed activities will contribute to their 'health' and conservation. Please also consider and describe all the relevant implications of demarcating 'degraded' wetlands and riverbanks, and how this will not lead to maladaptation. The proposal contains unidentified sub-projects (USPs) throughout. However, the justification for the use of the USP approach is lacking; the information on which the	

		identification of the USPs will be based is currently already available. The particular importance of identifying the project activities only during project implementation is not demonstrated, even though the case could be argued for elements that there are specific benefits from the USP approach. **CAR 1:** Please clarify why it is not possible and what the specific benefits are from not fully identifying the project activities during project formulation to the extent that adequate Environmental Social Policy (ESP) risks identification becomes possible. Please ensure that the proposal is in line with the updated guidance on the use of USPs (AF Board Decision B.39/52, please see https://www.adaptation-fund.org/wp-content/uploads/2022/10/PPRC.30.54-Updated-guidance-on-USPs-with-Annex.pdf).	
	4. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the	**Unclear.** The project activities have an inherent potential to generate benefits. However, the economic and environmental benefits are unproven, and the likelihood of such benefits materializing is not demonstrated. They are also dependent on a large number of	**CR 5: Not cleared.** No relevant additional information was provided.

	Environmental and Social Policy and Gender Policy of the Fund?	external conditions that are not described in the project context (e.g., availability and accessibility of land, which is one of the problems described for the project area). The environmental benefits claimed are dependent on activities that are not included in the project. E.g., the activities of Outcome 3.2 on enhanced ecosystem health lack credibility, and the related milestones, targets and indicators presented are not related to or supported by other information in the proposal. **CR 5:** Please clarify the economic and environmental benefits the project will provide whilst also presenting supporting information and outlining key assumptions.	
	5. Is the project / programme cost effective?	**Unclear.** The proposal includes a feasibility analysis for the project, with detailed analysis for the activities of component 3. The analysis lists a number of assumptions that were used. Some of the assumptions are not relevant or are overly optimistic, e.g., on the generation of revenue and benefits from year one for activities that will take at least the whole duration of the project to become productive. Other	**CR 6: Not cleared.** An elaborate economic cost-effectiveness analysis has been included. In it, the number of direct beneficiaries is almost double that presented in the results framework. More assumptions are presented but most are highly to unrealistically optimistic such as the expected coffee crop in the same year as the planting of the seedlings. Alternatives are considered, but

		assumptions are missing, like on the success rate of the activities. A feasibility analysis as partially presented does not demonstrate cost-effectiveness, which needs to be demonstrated from a sustainability point of view. The proposal also does not include any description of alternative options to the proposed measures. It does not include a comparison to other possible interventions that could take place to help adapt and build resilience in the same sector, geographic region, and/or community, with quantitative estimates where feasible and useful. **CR 6:** Please clarify the cost-effectiveness of the project.	cost-effectiveness is not considered from a sustainability point of view.
	6. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?	**Yes.** The project is in line and consistent with the mentioned major relevant national strategies and programmes.	**-**
	7. Does the project / programme meet the relevant national technical standards, where	**Unclear.** This section of the proposal includes several plans and policies	**CR 7: Not cleared.** No additional information on the steps required and taken to comply

	applicable, in compliance with the Environmental and Social Policy of the Fund?	that are not relevant to this part of the proposal, as well as references to applicable national technical standards. However, technical standards e.g., on food quality (e.g., coffee and coffee products) are not mentioned. From the regulations that are included (e.g., the National Environment Wetlands, River Banks And Lake Shores Management Regulations, No. 3/2000) it is clear that several of the project activities are subject to prior issuance of permits. The proposal does not specify how it will comply with these requirements. **CR 7:** Please clarify the steps taken to comply with all relevant and applicable national technical standards, and the nature of the authorization/clearance granted for the project to be implemented.	with all relevant national technical standards has been provided. Some apparently relevant elements (e.g. the Water Abstraction Regulations 1998) have been deleted.
	8. Is there duplication of project / programme with other funding sources?	**Unclear.** The proposal states previous and current initiatives that the project complements or to which it provides synergies within the catchment area. Using the lessons learned from the recently completed EURECCCA/OSS AF project in Uganda "*Enhancing resilience of communities to climate change through catchment-based integrated management of water*	**CR 8: Not cleared.** No further information was provided.

		and related resources in Uganda", implemented by OSS and solely executed by the Ugandan NIE, is limited to a statement of intent to "build on some of the initiatives of this project and benefit from the experiences". The proposal should detail how it will use the lessons learned from this project. **CR 8:** Please specify how this project will build on and upscale and integrate results and lessons learned from the OSS implemented project.	
	9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	**Yes.** The project has a dedicated knowledge management component.	**-**
	10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	**Yes.** A consultative process has taken place. The proposal describes the consultations that were held. The use of USPs implies that it is not possible to appreciate how appropriate and relevant the consultations would have been vis-à-vis the actual beneficiaries and stakeholders that will only be determined during implementation. **CR 9:** Please clarify how the consultations process is	**CR 9: Not cleared.** No further information was provided on how consultations will be part of the USP-related ESMP process.

		comprehensive and relevant to the eventual project beneficiaries and stakeholders.	
	11. Is the requested financing justified on the basis of full cost of adaptation reasoning?	**Unclear.** The relevant section of the proposal explains for each of the components their climate change adaptation relevance but does not demonstrate that the interventions will achieve the stated objectives (apart perhaps those from components 1 and 4). This is in particular the case for those activities that aim at addressing larger-scale problems such as ecosystem degradation. **CR 10:** Please clarify that the requested financing will help achieve the project adaptation objectives, in particular for the issues requiring a larger-scale approach and (much) more substantive financing for effective adaptation.	**CR 10: Not cleared.** Additional information on p. 58 indicates that some of the project adaptation actions will require more financing. While it is plausible that many of the proposed interventions (not all, some have risks of maladaptation) contribute to building adaptive capacity, it is not demonstrated in the proposal that adaptive capacity will actually be achieved.
	12. Is the project / program aligned with AF's results framework?	**Mostly yes**. It is unclear what are the innovations the project will introduce to justify including AF Output indicator 8.1. (No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated)	**CR 11: Cleared.** The related information has been deleted.

		CR 11: Please clarify what would be the innovations mentioned related to Output Indicator 8.1.	
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	**Unclear.** The section describing the different key areas of sustainability does not clearly describe how the adaptation benefits can be sustained or how financing that is currently lacking will be secured beyond lobbying government. The proposal should show how the key lessons learned from the OSS EURECCCA project (based on its completion evaluation) are being addressed in the proposal. **CR 12:** Please clarify and substantiate the sustainability of the project outcomes.	**CR 12: Not cleared.** Reference is made only to the mid-term review of the AF-funded OSS project, while the Terminal Evaluation should have been completed some time ago considering that the project was completed in July 2021.
	14. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	**Not adequately.** The risks identification table in section II.K of the proposal should merely indicate if for each principle risk of unwanted negative impact has been identified. It is currently unclear for most principles if risks have been identified, and the table includes a mix of findings-substantiating information and management and mitigation measures. This section of the proposal includes risks for the activities that are USPs, which by	**CR 13: Not cleared.** The risks findings also include those related to the USPs. **CAR 2: Not cleared.** Please see CR 13. **CAR 3: Not cleared.**

		definition is premature and that should not be included. Some risks findings are not in line with the ESP. This is, inter alia, the case for those principles on involuntary resettlement and climate change. For most of the risk findings, the proposal does not contain elements that can be considered substantiating those findings. **CR 13:** Please clarify the ESP risks identification presented to be limited to the fully identified activities. **CAR 2:** Please provide adequate substantiation of the risks' findings. The indication of a village as location for a project activity is in most cases insufficient to allow adequate environmental and social risks identification. The proposal provides no justification for the use of USPs. **CAR 3:** Please identify all the project activities to the point where adequate comprehensive environmental and social risks identification is possible and update the proposal accordingly.	
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	**Yes.**	

	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	**Yes.** The IE fee is below the cap at 6.8 per cent of the total budget before the fee.	**-**
	3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?	**Yes.** The EE fee is below the cap at 8.6 per cent of the total budget.	**-**
Eligibility of IE	1. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	**Yes.** MWE is an accredited National Implementing Entity.	**-**
Implementation Arrangements	1. Is there adequate arrangement for project / programme management, in compliance with the Gender Policy of the Fund?	**Yes.** A full organization chart is provided. The implementation arrangements include a clear description of the roles and responsibilities of the implementing entity as well as the executing entity.	**-**
	2. Are there measures for financial and project/programme risk management?	**Yes.** Financial and other project risks have been identified and are listed together with mitigation measures.	**-**
	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy and Gender Policy of the Fund?	**Not adequately.** Considering the issues with risks identification and the use of USPs, the proposed management measures for environmental and social risks need to be revised accordingly, in line with the ESP	**CAR 4: Not cleared.**

		and the Gender Policy (GP) of the Fund. **CAR 4:** Please address the issues related to compliance with the ESP and GP. The grievance mechanism seems adequate.	
	4. Is a budget on the Implementing Entity Management Fee use included?	**Yes.**	**-**
	5. Is an explanation and a breakdown of the execution costs included?	**Yes.**	**-**
	6. Is a detailed budget including budget notes included?	**Yes.**	**-**
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	**Yes.** Arrangements for monitoring and evaluation are included, as well as a budgeted M&E plan. Gender-disaggregated data, targets and indicators are included in the Gender Action Plan but are not reflected in the monitoring and evaluation arrangements. **CR 14:** Please clarify how gender-disaggregated data, targets and indicators will be used in the M&E activities.	**CR 14: Not cleared.** No clarifications were provided.
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will	**Yes.**	**-**

	be utilized in the supervision of the M&E function?		
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	**Yes.** The proposal aligns with outcomes 2, 3, 4, 5, and 6 of the AF's results framework. In addition, it includes an estimation of the number of direct beneficiaries for the project and proportion of degraded ecosystems that are restored or conserved.	**-**
	10. Is a disbursement schedule with time-bound milestones included?	**Yes.**	**-**

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular Size Full Proposal

Country/Region: Uganda
Project Title: Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda
Thematic Focal Area: Water management
Implementing Entity: Ministry of Water and Environment (MoWE)
Executing Entities: Global Water Partnership Eastern Africa (GWPEA)
AF Project ID: AF00000236 - UGA/NIE/Water/2019/1
IE Project ID: **Requested Financing from Adaptation Fund (US Dollars):** 2,249,000
Reviewer and contact person: Dirk Lamberts **Co-reviewer(s):** Imèn Meliane
IE Contact Person: Callist Tindimugaya and James Kaweesi

Technical Summary	The project "Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda" aims to strengthen the resilience of communities and fragile ecosystems to climate change impacts through promoting appropriate water infrastructure investments and nature-based solutions. This will be done through the four components below: Component 1: Strengthening the capacity of key grassroots stakeholders for climate change adaptation (USD 283,000); Component 2: Promoting appropriate water storage technologies for increased water and food security (USD 479,000); Component 3: Supporting nature-based enterprises for sustainable socio-economic development (USD 925,000); Component 4: Knowledge management and information sharing (USD 238,000). Requested financing overview: Project/Programme Execution Cost: USD 181,000 Total Project/Programme Cost: USD 2,106,000 Implementing Fee: USD 143,000

	Financing Requested: USD 2,249,000 The initial technical review raises several issues, such as the use of Unidentified Sub-Projects (USPs) and the concrete adaptation character of activities, as is discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review. This proposal was previously submitted in September 2022 to AFB39. The current version, submitted in January 2023 for consideration at AFB40, was verified and confirmed by the Implementing Entity to be the document intended for submission and is identical to the previous version submitted for consideration at AFB39.
Date:	28 January 2023.

Comments Initial Technical Review	**Responses**
Unclear. Most of the project interventions are described in rather generic and unspecific terms that do not allow to appreciate if, or to which extent, they will build climate change adaptive capacity and resilience. Apart from the training activities, specific locations for physical infrastructure or livelihood activities have not been identified. Some of the activities appear to have an inherent risk of exacerbating the problems they are intended to address e.g., by diverting water from wetlands. The proposal includes a section on coffee-based agroforestry as a nature-based enterprise model. The description of the activity is unclear in several ways. There is no specific information on which types of lands or in which ecosystems it will be implemented. In addition, the project implementation period is just over 3 years, which is too short for the planted coffee trees to bear much fruit, raising questions about the associated value chain activities. The proposal provides few arguments to support the feasibility of establishing profitable ventures under output 3.1.2. **CR 1:** Please provide specific information on the envisaged activities – in particular with respect to their locations – to demonstrate how relevant adaptive capacity and resilience will be built to address the	While the proposal submitted to AFB36 seemed to indicate that water will be diverted from the Katonga wetland to support micro-irrigation, the current response shows that the flood control infrastructure (*i.e. the five earth dams to capture and store rain water and run off*) will be established in areas that are hotpots to floods to trap flood water which will be used in the micro irrigation system by the beneficiary community members/groups. Water channels will not be dug to divert water from the wetland but water will be pumped from the earth dams to the gardens. While the proposal submitted to AFB36 seemed to indicate that there is no specific information on which types of lands or in which ecosystems e.g. the coffee-based agroforestry as a nature-based enterprise model will be implemented, the current response shows that the coffee-based agroforestry as a nature-based enterprise model will be implemented on the agriculture land of smallholder farmers at household level. In the first year, the beans will be planted as a short-term (3 months) crop because the beans are a food security and commercial crop as well which will generate incomes from the 2 harvests in the first year of the project.

predicted climate impacts. This may require additional project formulation work.	
The justification for Component 1 (para 60) includes using the guidelines developed under EURECCCA/OSS project for capacitating duty bearers to mainstream climate change into the catchment management plans including the Katonga CMP. However, there is no corresponding activity. **CR 2:** Please clarify how existing planning at catchment level will benefit and how the project will support this process.	Catchment level benefits will be centred along operationalization and functioning of the micro-catchment and catchment management committees. The project will support this process through financial provision through the proposal budget.
The description of the components and the activities is strongly focused on community resilience rather than that of fragile ecosystems as stated in the project goals. **CR 3:** Please clarify the mechanism by which the proposed interventions will contribute to achieving the goal of enhancing the resilience of the fragile ecosystems in or near which they will take place	In clarifying the mechanism by which the proposed interventions will contribute to achieving the goal of enhancing the resilience of the fragile ecosystems, capacity building of key grass root stakeholders will enable them adapt to climate change in the catchment in addition to enhancing good natural resources governance to secure resilience of ecosystems. The Integrated Water Resources Management approach will enable both the conservation of the fragile ecosystems and communities to access adequate and sufficient water for productive agricultural activities thus contributing to improved ecosystems' health and food security situation in the catchment; The Nature-based enterprises shall reduce the rampant degradation of the forest and other natural resources, by addressing and linking the three pillars of sustainability i.e., environmental, social and economic development. While knowledge management and information sharing is hoped to create well-informed communities that are able to manage their natural resources and promote their resilience. Section C presents the key assumptions used to inform the determined the feasibility/viability (NPVs, IRRs and BCRs) of the proposed interventions (see Table 5) per components 1-4 including project coordination and management.

	Coffee based agroforestry is particularly suited for landscape restoration and control of soil erosion. It can thus contribute to the resilience of landscapes to extreme weather conditions. While the proposal submitted to AFB36 indicated that the project implementation period is just over 3 years, which is too short for the planted coffee trees to bear much fruit, raising questions about the associated value chain activities, the current response shows that the hybrid clonal Robusta coffee (CWD-r) variety grows in 1 year with harvesting starting in the second year is being promoted by UCDA and will be procured from certified nurseries/suppliers so the farmers will harvest and sell starting in the second year. This intervention was selected and prioritized by farmers as suitable for the area because it allows growth of beans as a short-term crop harvested 2 times in the first year for income and food security to the beneficiary households while allowing the trees to grow over and beyond the life of the project..
CR 4: Please clarify the location and nature of the ecosystems involved and how the proposed activities will contribute to their 'health' and conservation. Please also consider and describe all the relevant implications of demarcating 'degraded' wetlands and riverbanks, and how this will not lead to maladaptation. The proposal contains unidentified sub-projects (USPs) throughout. However, the justification for the use of the USP approach is lacking; the information on which the identification of the USPs will be based is currently already available. The particular importance of identifying the project activities only during project implementation is not demonstrated, even though the case could be argued for elements that there are specific benefits from the USP approach.	Clarified under section A, part II under outcome 3.2

Demarcation of 'degraded wetlands' and 'degraded riverbanks' may be a minor activity but with potentially major implications for current (informal) land use, land value, transportation, etc. The implications of the envisaged demarcation activities are not sufficiently explained in the proposal. In addition, the qualification of land as being 'degraded' typically creates governance issues. **CAR 1:** Please clarify why it is not possible and what the specific benefits are from not fully identifying the project activities during project formulation to the extent that adequate Environmental Social Policy (ESP) risks identification becomes possible. Please ensure that the proposal is in line with the updated guidance on the use of USPs (AF Board Decision B.39/52, please see https://www.adaptation-fund.org/wp-content/uploads/2022/10/PPRC.30.54-Updated-guidance-on-USPs-with-Annex.pdf). (**Peter, Anthony and G. Kairu)**	The proposal has been revised to comply with the updated guidance on the use of USPs (AF Board Decision B.39/52.
Unclear. The project activities have an inherent potential to generate benefits. However, the economic and environmental benefits are unproven, and the likelihood of such benefits materializing is not demonstrated. They are also dependent on a large number of external conditions that are not described in the project context (e.g., availability and accessibility of land, which is one of the problems described for the project area). The environmental benefits claimed are dependent on activities that are not included in the project. E.g., the activities of Outcome 3.2 on enhanced ecosystem health lack credibility, and the related milestones, targets and indicators presented are not related to or supported by other information in the proposal. **CR 5:** Please clarify the economic and environmental benefits the project will provide whilst also presenting supporting information and outlining key assumptions. **(Peter, Anthony, Daniel and Joseph)**	While the proposal submitted to the AFB36 indicated that the economic and environmental benefits are unproven, and the likelihood of such benefits materializing is not demonstrated, the current response shows that the economic benefit are the increased household income of the beneficiary group members from the sale of the bee products, crop and livestock products from the agriculture activities. The beneficiary group members will include the women, youths, elderly and PWDs and thus will benefit as vulnerable groups. This ensures inclusiveness and participation of the vulnerable members of the population. The social benefits are that there will increased access to livelihood options and also there will be peaceful co-existence and participation in the beneficiary group project activities e.g bee keeping.

Unclear. The proposal includes a feasibility analysis for the project, with detailed analysis for the activities of component 3. The analysis lists a number of assumptions that were used. Some of the assumptions are not relevant or are overly optimistic, e.g., on the generation of revenue and benefits from year one for activities that will take at least the whole duration of the project to become productive. Other assumptions are missing, like on the success rate of the activities. A feasibility analysis as partially presented does not demonstrate cost-effectiveness, which needs to be demonstrated from a sustainability point of view. The proposal also does not include any description of alternative options to the proposed measures. It does not include a comparison to other possible interventions that could take place to help adapt and build resilience in the same sector, geographic region, and/or community, with quantitative estimates where feasible and useful. **CR 6:** Please clarify the cost-effectiveness of the project. **(Daniel, Joseph and Lawrence)**	Revenue from the coffee agro-forestry will come in first year because a hybrid clonal Robusta coffee (CWD-r) variety promoted by UCDA which is fact growing and resistant to drought CWD but also grows well in beans, bananas and trees will be planted but also the short term crops such as beans which take 3 months will also be planted to generate income in the first year. **Success rates:** For bee keeping, the scenarios have been presented based on the colonisation rates of 50%, 80% and 100%. Higher colonisation rate was assumed because of the training that will be provided to the bee keeping groups by model farmers and experts and also the use of modern bee hives with high colonisation and productivity rates. **For coffee agroforestry**, the success rate is high (90% survival rate of seedlings) attributed to the use of high quality seedlings from certified nurseries and the training in the best agronomic practices for coffee/agroforestry systems/model by the experts facilitated project. While the proposal submitted to AFB36 presented a partial feasibility analysis which does not demonstrate cost-effectiveness, the current response presents the full economic effectiveness generated for each of the components 1, 2, 3 and 4 including the project coordination and management. The overall estimated economic rate for the project is 12.73% with a Net Present Value (NPV)1 estimated at USD 1,724,367 and benefit Cost ration (BCR) of 2 all at 5% discount rate (Table 5) from all the project components 1-4 including Project Co-ordination and Management. The overall discounted total cost was USD 2,123,758 and discounted total revenue was USD 3,848,113, hence a positive NPV at 5% discount rate. The total population in target project sites in the Katonga Catchment is 139,011 people (UBOS 2014). Considering a target of 15% of the total population

[1] 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.

	as direct project beneficiaries, this means that 20,852 people are expected to directly benefit from the RECOFE project within the three years of implementation of RECOFE. Based on the total investment cost (USD 2,249,000) of the project, it has been estimated that the unit cost per beneficiary will be USD 108 which is less than the unit discounted total revenue of USD 185 per beneficiary. While the proposal submitted to AFB36 did not include any description of alternative options to the proposed measures and also excluded a comparison to other possible interventions that could take place to help adapt and build resilience in the same sector, geographic region, this current response shows that; • The *alternative to the dams that will be constructed to trap flood water and use it for micro irrigation is digging channels to divert water from the wetland* directly but this would exacerbate the already precarious situation of low water volumes of water in the wetland during the dry season. • *The alternative to coffee-agroforestry is the Banana-Coffee agroforestry because the area also grows bananas as a commercial and food security crop but also bananas grow well when inter cropped with the proposed hybrid clonal Robusta Coffee (CWD-r) promoted by UCDA. However, this was not prioritized because there would no yield/direct economic returns from the bananas, Coffee and trees within the first year of RECOFE.* • *The alternative to bee keeping as a nature –based enterprise would be ecotourism*. However, the local community members were interested in the bee keeping because it provides a double benefit in terms of bee products (i.e. honey, propolis, bee venom, wax) for nutrition value, medicinal use and selling to get income but also bees pollinate the crops on farm and in the Katonga catchment. The time and investment costs required to setup the tourism facilities is also high as compared to bee keeping as a NBE.

The project is in line and consistent with the mentioned major relevant national strategies and programmes.	
Unclear. This section of the proposal includes several plans and policies that are not relevant to this part of the proposal, as well as references to applicable national technical standards. However, technical standards e.g., on food quality (e.g., coffee and coffee products) are not mentioned. From the regulations that are included (e.g., the National Environment Wetlands, River Banks And Lake Shores Management Regulations, No. 3/2000) it is clear that several of the project activities are subject to prior issuance of permits. The proposal does not specify how it will comply with these requirements. **CR 7:** Please clarify the steps taken to comply with all relevant and applicable national technical standards, and the nature of the authorization/clearance granted for the project to be implemented. **(Peter and Anthony)**	**The National technical standards e.g., on coffee particularly for** Component 3 of the project particularly activities 3.1.1.6, 3.1.1.7, 3.1.1.8, 3.1.1.8, 3.1.1.9, 3.1.1.10 and 3.1.1.11 focus on promotion of coffee-based agro-forestry systems have been added for example in Table 7, National Coffee Policy, 2013 and The Uganda National Coffee Strategy 2015/16-2019/2020 have been added and in Table 8 the Clonal Robusta Coffee Nursery Manual for Extension Workers, 2019 has been added. In addition, the responsible institutions have been identified in case for project activities that will required prior issuance of permits. In order to promote environmental sustainability, an ESMP has been developed to guide the implementation of the project and in addition, for activities under component 2 that will involve construction of infrastructure such as earth dams and micro-irrigation schemes, environmental and social impact assessment will be conducted depending on the sizes of the proposed infrastructure and submitted to National Environment Management Authority (NEMA) for approval before implementation.
Unclear. The proposal states previous and current initiatives that the project complements or to which it provides synergies within the catchment area. Using the lessons learned from the recently completed EURECCCA/OSS AF project in Uganda "*Enhancing resilience of communities to climate change through catchment-based integrated management of water and related resources in Uganda*", implemented by OSS and solely executed by the Ugandan NIE, is limited to a statement of intent to "build on some of the initiatives of this project and benefit from the experiences". The proposal should detail how it will use the lessons learned from this project.	

CR 8: Please specify how this project will build on and upscale and integrate results and lessons learned from the OSS implemented project. **(Gerald, Polycarp and Lawrence)**	
Yes. The project has a dedicated knowledge management component.	
Yes. A consultative process has taken place. The proposal describes the consultations that were held. The use of USPs implies that it is not possible to appreciate how appropriate and relevant the consultations would have been vis-à-vis the actual beneficiaries and stakeholders that will only be determined during implementation. **CR 9:** Please clarify how the consultations process is comprehensive and relevant to the eventual project beneficiaries and stakeholders. **(Peter, Maurice and Polycarp)**	**Comprehensiveness of the consultative process** The consultative process was conducted in a phased approach for the most part at; high (Districts and MoWE), Mid (Sub County) and low (Parish and village) levels. The District technical staffs (DNROs DFOs), Ministry of water environment officials and, Development partners, Sub County, and parish levels with Political leaders, Catchment and sub catchment committee members, and communities living within or adjacent the Katonga catchment hotspot areas constituted the wide range of stakeholders that were to be consulted. During the planning meeting with VWMZ staff, vulnerable groups were identified to include the women, youths, children, elderly and people living with disabilities. These were drawn from the proposed project sites within the Katonga catchment area. Visits the proposed project sites were carried out to ascertain the level of degradation but largely to zero on the ultimate project beneficiaries. The VWMZ team made prior contacts to arrange key informant interviews and also introduced the consultants to the districts and sub county officials. During consultative meeting with the District officials such as the; Chief Administrative Officers, Resident District Officers, District Chairpersons, District Technical Staff (i.e. DNROs, Forestry Officers, Agriculture and Natural Resources, District planner, DCDO), Sub-County Chiefs, Sub-County Chairpersons and Sub-County Community Development Officers, hotspot areas (areas prone to climatic hazards and those experiencing high degradation were identified and agreed upon).

	Accordingly, consultative and planning meetings were held with District officials i.e. Natural Resource Officers, District Environmental Officers and District Planners and Sub county leadership helped in the identification of hotspots (i.e areas prone to the most devastating climate change related impacts and environmental degradation activities) which subsequently formed the basis for selecting project beneficiaries to be consulted at local community level. In addition, the District and Sub County officials (Technical and political) also participated in the identification of the vulnerable groups and the following categories were qualified as a true record to include; women, youth, children, elderly and people living with disabilities as most vulnerable local community members. Therefore the Grassroots level consultations were conducted in the sub catchment, at particular villages, parishes in the targeted sub-counties considered as hotspots. Consultations were held with the selected project beneficiaries at parish level and in the afternoons to allow women participate in the consultations after attending to their gardens and other domestic chores. The Local Council leaders helped in mobilization of the local community members to participate in the focus group discussions. During the FGDs, several local languages such as (Lutoolo, Lunyankole, Lukiga and Luganda) commonly spoken in the selected hotspots areas were mainly used to allow participants to easily express their opinion, seek clarification and request for information from the team of consultants from NACOPART Uganda Limited. During the National level validation meeting attended by the consulted stakeholders, the proposed project sites (hotspots) and project beneficiaries were qualified to be the ultimate target group. The validation meeting crowned the entire consultative process.
Unclear.	**See section on** Funding justification with full cost of adaptation reasoning

The relevant section of the proposal explains for each of the components their climate change adaptation relevance but does not demonstrate that the interventions will achieve the stated objectives (apart perhaps those from components 1 and 4). This is in particular the case for those activities that aim at addressing larger-scale problems such as ecosystem degradation. **CR 10:** Please clarify that the requested financing will help achieve the project adaptation objectives, in particular for the issues requiring a larger-scale approach and (much) more substantive financing for effective adaptation.	The section has been enhanced especially objective 2 and 3- where the requested financing will help to achieve the adaptation objectives. The promotion of water infrastructure and support to nature based enterprises will help to achieve adaptation of stakeholders to climate
Mostly yes. It is unclear what are the innovations the project will introduce to justify including AF Output indicator 8.1. (No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated) **CR 11:** Please clarify what would be the innovations mentioned related to Output Indicator 8.1.	Output indicator 8.1 appears not to be relevant to this project. Has been deleted accordingly.
Unclear. The section describing the different key areas of sustainability does not clearly describe how the adaptation benefits can be sustained or how financing that is currently lacking will be secured beyond lobbying government. The proposal should show how the key lessons learned from the OSS EURECCCA project (based on its completion evaluation) are being addressed in the proposal. **CR 12:** Please clarify and substantiate the sustainability of the project outcomes.	The section on sustainability of project outcomes has been enhanced to provide more clarification on sustainability of adaptation benefits and securing funds beyond lobbying government. A consultative and participatory approach will be adopted to develop a stakeholder holder owned sustainability plan that provide an efficient use of funds and achieve maximum benefit and impact. Also, creating relationships with Climate Finance Unit to open more opportunities for the project to get additional funding for interventions beyond the project.
Not adequately. The risks identification table in section II.K of the proposal should merely indicate if for each principle risk of unwanted negative impact has been identified. It is currently unclear for most principles if risks have been	For activities under component 2 that require land such as those that will involve construction of infrastructure i.e, earth dams and micro-irrigation schemes, the required land will be either government land (e.g, wetland areas) or land offered by the

identified, and the table includes a mix of findings-substantiating information and management and mitigation measures. This section of the proposal includes risks for the activities that are USPs, which by definition is premature and that should not be included. Some risks findings are not in line with the ESP. This is, inter alia, the case for those principles on involuntary resettlement and climate change. For most of the risk findings, the proposal does not contain elements that can be considered substantiating those findings. **CR 13:** Please clarify the ESP risks identification presented to be limited to the fully identified activities. **(Peter and Anthony)**	beneficiary community group members as was promised during the stakeholder consultations. At this proposal development stage, location for project activities was possible to a village level through stakeholder consultations and the actual locations will be determined during implementation after actual beneficiary community members have been identified and offered land. We have developed an ESMP at this proposal development stage through which we identified a number of environmental and social risks. However, environmental and social impact assessment will be conducted depending on the sizes of the proposed infrastructure and submitted to National Environment Management Authority (NEMA) for approval before implementation. The procedures for conducting the environmental and social impact assessment have been elaborated in Paragraphs 186
CAR 2: Please provide adequate substantiation of the risks' findings. **(Peter and Anthony)**	
The indication of a village as location for a project activity is in most cases insufficient to allow adequate environmental and social risks identification. The proposal provides no justification for the use of USPs. **CAR 3:** Please identify all the project activities to the point where adequate comprehensive environmental and social risks identification is possible and update the proposal accordingly.	
Not adequately. Considering the issues with risks identification and the use of USPs, the proposed management measures for environmental and social risks need to be revised accordingly, in line with the ESP and the Gender Policy (GP) of the Fund. **CAR 4:** Please address the issues related to compliance with the ESP and GP. The grievance mechanism seems adequate.	Addressed in in the respective sections K, and C in part II and Part III of the proposal.

Yes. Arrangements for monitoring and evaluation are included, as well as a budgeted M&E plan. Gender-disaggregated data, targets and indicators are included in the Gender Action Plan but are not reflected in the monitoring and evaluation arrangements. **CR 14:** Please clarify how gender-disaggregated data, targets and indicators will be used on the M&E activities.	Proposal updated in the M&E section, part III

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	**REGULAR**
Country/ies:	**UGANDA**
Title of Project/Programme:	**ENHANCING RESILIENCE OF COMMUNITIES AND FRAGILE ECOSYSTEMS TO CLIMATE CHANGE IN KATONGA CATCHMENT, UGANDA**
Type of Implementing Entity:	**NATIONAL IMPLEMENTING ENTITY (NIE)**
Implementing Entity:	**MINISTRY OF WATER AND ENVIRONMENT**
Executing Entity/ies:	**GLOBAL WATER PARTNERSHIP EASTERN AFRICA (GWPEA)**
Amount of Financing Requested:	**USD 2,249,000**

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ACRONYMS

AF	Adaptation Fund
CBMS	Community Based Management System
CBOs	Community Based Organisations
CC	Climate Change
CCD	Climate Change Department
CDO	Community Development Officer
CFRs	Central Forest Reserves
CMC	Catchment Management Committee
CMO	Catchment Management Organisation
CMP	Catchment Management Plan
CSOs	Civil Society Organisations
DAO	District Agriculture Officer
DDP	District Development Plan
DEA	Directorate of Environmental Affairs
DEO	District Education Officer
DLGs	District Local Governments
DNRO	District Natural Resources Officer
DPO	District Production Officer
DRDIP	Development Response to Displacement Impacts Project
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	Environment and Social Policy of the Adaptation Fund
EURECCCA	Enhancing Resilience of Communities to Climate Change through Catchment Based Integrated Management of Water and related resources in Uganda
FAO	Food and Agricultural Organization
FEWS NET	Famine Early Warning Systems Network
GoU	Government of Uganda
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GWPEA	Global Water Partnership Eastern Africa
HHs	Households
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
ICPAC	IGAD Climate Predictions and Application Centre
IGAD	Intergovernmental Authority on Development
IGAs	Income Generating Activities
ILO	International Labour Organisation
INDC	Intended Nationally Determined Contributions
IPCC	Inter-governmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
KAPs	Knowledge, Attitudes and Practices
KCMP	Katonga Catchment Management Plan
LC III	Local Council III
LCV	Local Council V

MAAIF	Ministry of Agriculture Animal Industries and Fisheries
MGLSD	Ministry of Gender, Labour and Social Development
MoFPED	Ministry of Finance Planning and Economic Development
MoUs	Memorandum of Understanding
MTWA	Ministry of Tourism, Wildlife and Antiquities
MWE	Ministry of Water and Environment
NAADS	National Agricultural Advisory Services
NACOPART	Nature Conservation Partners
NAP	National Adaptation Plan
NAPA	National Adaptation Programmes of Action
NCCAC	National Climate Change Advisory Committee
NDA	National Designated Authority
NDC	Nationally Determined Contributions
NDP	National Development Plan
NDP	National Development Plan
NEMA	National Environment Management Authority
NEMP	National Environment Management Policy 1995
NFA	National Forestry Authority
NGOs	Non-Governmental Organisations
NIE	National Implementing Entity
NPA	National Planning Authority
NSC	National Steering Committee
NWSC	National Water and Sewerage Corporation
OSS	Sahara and Sahel Observatory
PWDs	People with Disabilities
RCP	Representative Concentration Pathways
RECOFE	Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment Project
SDGs	Sustainable Development Goals
UBOS	Uganda Bureau of Statistics
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
UNMA	Uganda National Meteorological Authority
UWA	Uganda Wildlife Authority
VWMZ	Victoria Water Management Zone
WFP	Water for Production
WMD	Wetlands Management Department
WMZs	Water Management Zones
WSDF	Water and Sanitation Development Facility
WUWS	Western Umbrella for Water and Sanitation

1. Project Background and Context:

1.1 Climate change rationale

1. Uganda lies within a relatively humid equatorial climate zone, but the topography, prevailing winds and water bodies cause large differences in rainfall patterns across the country. The average annual rainfall ranges from 800 mm to 1500 mm[1], and average daily temperature is around 28 ºC, but varies with altitude[2].
2. ~~The country~~Uganda is endowed with significant portions of the world's most spectacular biodiversity and rich natural resource base, which deliver numerous ecosystem goods and services that are shared by millions of people ~~across the country~~globally. With a total land area of 241,038km^2, about 30% of Uganda's land is suitable for agriculture. Uganda's economy, therefore, fundamentally depends on the careful management of a delicate balance between safeguarding the integrity of the environment and natural resource base and meeting the increasing economic needs of land users particularly the rural vulnerable poor.
3. Striking this balance amidst a changing climate coupled with other stresses such as the increasing human population and a multitude of anthropogenic pressures presents an enormous challenge that undermines and threatens the~~ir~~ capacity to provide ecosystem goods and services for local communities.
4. Currently, Uganda experiences significant impacts of climate change manifested in form of changing weather patterns, drop in water levels, increased frequency of extreme weather events such as floods, and droughts, whose social economic impacts render communities highly vulnerable[3].
5. Uganda's second ~~national~~ National Communication 2014 presents IPCC models and Representative Concentration Pathways (RCPs) 4.5 and 8.5 that reveal temperature rises in all the Climatologically Homogenous Zones (CH) of Uganda[4]. From these models, maximum temperature ranges of between 1-1.5°C, 1.7-2.2°C; 1.7-2.1°C, 3.2-3.9°C for RCP4.5 (moderate emission) and RCP8.5 (high emission) for the 2050s and 2100s respectively are projected. Similarly, minimum temperature ranges of between 0.8-1.8°C, 1.7-2.5°C; 1.4-2.1°C, 1.2-2.3°C for RCP4.5 (moderate emission) and RCP8.5 (high emission) for the 2050s and 2100s respectively are projected.
6. Majority of these and other models predict an ~~increment~~ increase in rainfall with varied magnitudes of precipitation increase throughout Uganda. The ensemble means show ~~an~~ increments for all the CHR zones with mean rainfall amount predicted to increase significantly and consistently for the western shores of Lake Victoria and central western region; Mount Elgon region; and to the zone extending from Mount Rwenzori to the southern parts of Lake Kyoga. The greatest change in the intensity and frequency of extreme weather events is likely to take place between the current and the mid-century period (Anonymous, 2021).
7. The expected changes in rainfall patterns will lead to a potentially less favourable rainfall distribution over the year. The warming trend is projected to continue with increases of more than 2ºC by 2030, and between 1.4 ºC and 4.2 ºC projected for the end of the century. Consequently, the warming trends, will lead to increases in the frequency of extreme events (e.g., heavy rainstorms, flooding, droughts, etc.). For instance, Uganda has experienced an increase in the frequency and intensity of droughts and floods in recent years. The percentage of rainfall coming in the form of heavy precipitation events is anticipated to increase, which would escalate the risk of disasters such as floods and landslides. Such disasters cause extremities leading to economic losses of crops and animals depriving communities of a better livelihood. From these scenarios, extreme climate events such as droughts, floods and landslides are increasing in frequency and intensity with various sectors including agriculture, water, health and human settlements particularly affected[5].
8. In Uganda, Katonga catchment is among the most climate-vulnerable regions. The catchment traverses' part of the dry Ugandan cattle corridor, which is affected by a wide range of climate change effects. Climate change is expected to exacerbate the impacts of existing threats to the catchment's inhabitants and ecosystems.
9. Within the catchment, there is high variability in precipitation timing coupled with intermittent droughts that often alter available soil moisture and scotch pastures for livestock thereby altering crop and livestock production. With growing population pressure, droughts associated with climate change are not only increasing food and

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[1] USAID, 2013. Uganda Climate Change Findings. USAID, ARCC brief, 2013 https://www.climatelinks.org/resources/uganda-climate-change-vulnerability assessment-report and USAID Climate Change Adaptation Plan, June 2012 https://www.usaid.gov/sites/default/files/documents/1865/Agency%20Climate%20Change%20Adaptation%20Plan%202012.pdF

[2] Climate Service Center Germany (2015). Climate-fact-sheet. Uganda. Updated version 2015. http://www.climate-service-center.de/products_ and publications/fact_sheets/climate_fact_sheets/index.php.en

[3] Uganda Climate Action Report, 2016. Resilience and Economic Inclusion Team. Irish Aid 2017.

[4] Anonymous 2021. https://climateknowledgeportal.worldbank.org/country/uganda/climate-data-projections?variable=pr

[5] GoU, 2015. The Government of Uganda Intended Nationally Determined Contributions (INDC), 2015.

water stressors, but also stimulate population scale water insecurity catchment-wide[6]. Other climate effects in the catchment include, more extreme and frequent periods of intense rainfall, erratic on-set and cessation of the rainy season as well as more frequent episodes of drought.

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10. The mean annual rainfall in Katonga catchment ranges between 800mm-1300mm (based on data measured in the period 1950-2004) (MWE, 2018). The monthly rainfall patterns in the catchment portray two wet seasons that occur from March to May, and September to December. The maximum rainfall is recorded during April and October- November, while the driest months are observed during July-August and January-February. Based on CHIRPS data, there has been unpredictable annual rainfall trends in the catchment in past 20 years (Figure 1). The rainfall patterns are variable in both time and spatial distribution. As heavy precipitation events are anticipated to increase, the risk of disasters such as floods is expected to escalate.
11. The Katonga population thus lives in uncertain weather circumstances, which sometimes cause extremities leading to economic losses of crops and animals, depriving communities of a better livelihood due to variabilities in temporal and spatial distribution of rainfall over the catchment (Figure 1)[7].

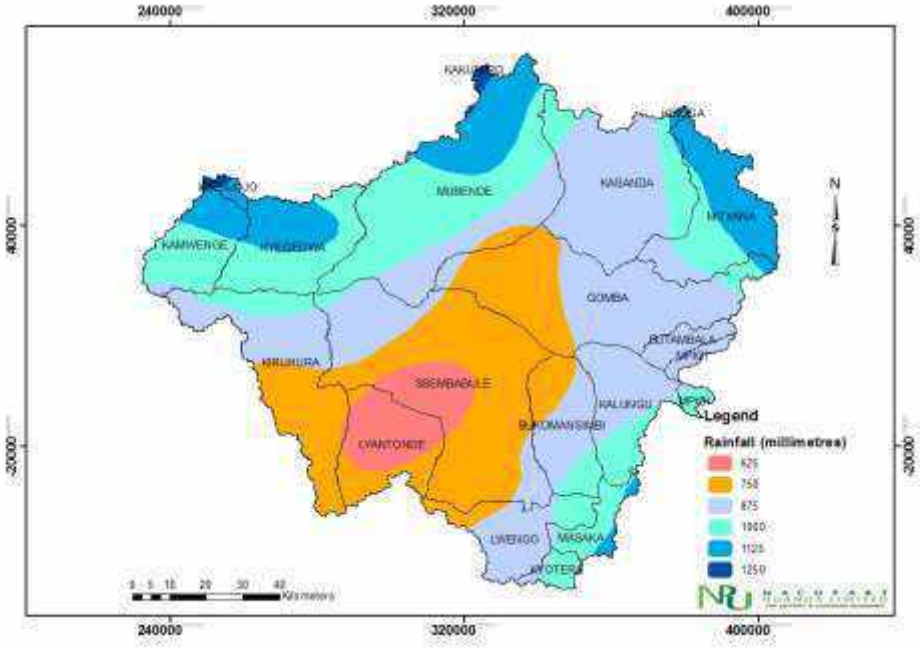

Figure 1: Amount of rainfall in Katonga Catchment

12. Within the Victoria Water Management Zone (VWMZ), the mean annual minimum temperature is projected to substantially increase by 1.3 – 4.5ºC and warming in the colder season (June to September) by 1.7 – 2.9ºC under RCP 4.5, and 4.9ºC and RCP 8.5 by 2085. Based on temperature data sourced from the USGS FEWSNET for general, projects, the mean annual maximum temperature is projected to increase throughout the Lake Victoria Basin (LVB) from 1.0 –1.5ºC by 2030, and 1.2–1.8ºC by the year 2050. Similarly, the mean annual minimum temperature is projected to increase over the basin from 1.2–1.9ºC by the 2030s, and 1.5 – 2.4ºC by the year 2050 (Lydia et al. 2019).
13. Specifically, Katonga catchment temperature data (MODIS) retrieved for the period 2000-2020 conforms to the warming trend described (Figure 2). Within this period, the variance in mean annual temperatures was unpredictable. Due to the warming trend, there is a potential for an increase in the frequency of extreme events (e.g. heavy rainstorms, flooding, droughts, etc.).

[6] Ministry of Water and Environment, (2018). Katonga Catchment Water Resources Development and Management Plan
[7] ICPAC, 2015. Climate Prediction and Applications Centre.

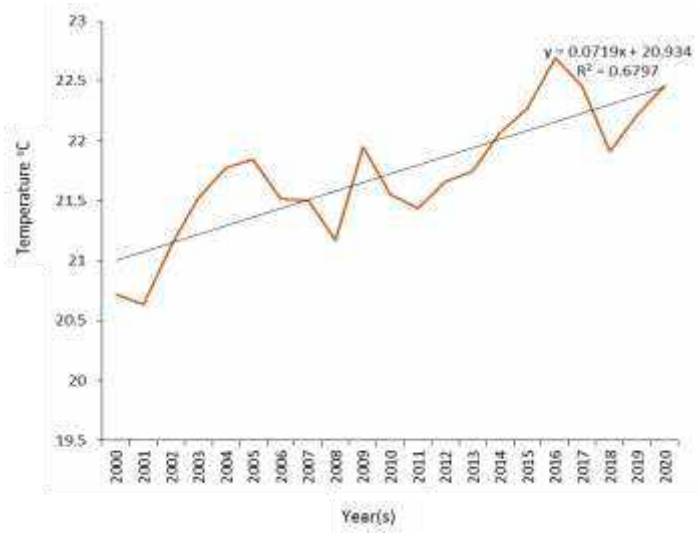

Figure 2: Katonga Catchment mean annual temperature over time

14. At a broad scale, Uganda is facing drastic reduction in woodland and tropical high forests at an alarming rate, due to deforestation, forest degradation and unsustainable agricultural farming practices. For instance, pitsawing/logging, burning to access high value timber, and to create more land for agriculture, industrial development and settlements are the most common human activities that contribute to ecosystems degradation[8].
15. Uncertainties in crop production for humans and forage production for livestock have put water at the intersection of most issues in the catchment, and pushed the desperate population further into wetlands and forest reserves for crop production and livestock grazing, thereby exacerbating the complexity of the problems. Stakeholders have since observe that the timing and duration of crop growing seasons have changed which has reduced the reliability and yields of food production (MWE, 2018).
16. With such a plethora of issues, admittedly, water ~~lays at the intersection~~is at the centre of all the challenges in Katonga catchment. Paradoxically, while improved agricultural productivity implies improvement in the quality of life, the current climate change related challenges demonstrate an increased strain on the environment and already scarce water resources especially considering that agriculture is the economic mainstay in the catchment.
17. Water stress is widespread in the catchment, although the extent of severity differs between and within sub-catchments. For instance, stakeholders in Bubanda Parish, Kigando Sub-County reported having spent 3 years without rain. According to the Water Supply Atlas, only 45% (18,798) of the population of 41,943 in Madudu Sub-County, Mubende district have access to safe water. What is clear is that the catchment faces severe climate change effects, associated with declining agricultural production and severely scarce water and environmental resources that either individually or collectively undermine prospects of long-term stability and sustainable growth.
18. Climate change continues to exacerbate the impacts of existing threats on the catchment's communities and ecosystems with water stress mostly rooted in prolonged droughts. Results from water resource assessment revealed that the wet months (March–June) have well sustaining water flows to averagely meet the domestic and Industrial water requirements (MWE,2018). Furthermore, over 80% of the domestic water demand is met for most of the sub-catchments most of the time in a year except during the dry season. The situation in sub-catchment hotspots also shows that the current domestic water demand deficit is widespread. Most crucially, agriculture water demand is the most severely affected by water stress.

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[8] MWE, IUCN. 2016. Forest Landscape Restoration Opportunity Assessment Report for Uganda. Xi+ 41pp.

1.2 Socio-economic context

19. Uganda faces several developmental constraints, including high population growth (3.3%), post-conflict conditions in the north, soil erosion and degradation, among others. Population growth projections reveal the highest population growth (946,483) in areas of Mubende and lowest population growth (26,159) estimated for areas within Kyenjojo District. These trends suggest that the population could even double by 2040 with more than half of the population below the age of 14 years[9]. Increasing variability in rainfall and rising temperature will present an additional stress on development in the country, especially with its high dependency on rain-fed agriculture[10].
20. In addition, the rising living standards, together with rapid population growth, are creating new trans-boundary challenges to the catchment in terms of water and river basin management, livelihood options and sub-national migration flows. There are currently major initiatives being implemented and planned throughout the Katonga Catchment to promote further regional economic growth and employment. Such initiatives include the development of more roads, railways, dams (mainly for hydropower) and other infrastructure, particularly in areas previously dominated by natural resources and agriculture-based livelihoods.
21. The increase in the population and upcoming developments is triggering pressure on natural resources reflected in deforestation and ecosystems degradation such as degradation of wetlands for food and water. With a young population, pressure on water and related resources is likely to escalate. The effects of agricultural expansion coupled with intensive land fragmentation, unsustainable crop farming practices, overexploitation of natural resources in Katonga catchment, has led to: i) increased competition and costs for resources and land; and ii) a growing number of ecological constraints. Consequently, agricultural livelihoods and food security in the Katonga catchment are threatened.
22. Similarly, the amount of water required for food and energy production, as well as for domestic and industrial use, is increasing exponentially. The overexploitation and degradation of ground and surface water sources are also common. Such transformations in the food-water-energy relationships worsen the livelihood challenges for the agrarian communities throughout the catchment.
23. In addition, about 25.5% of the Katonga catchment population live in poverty, majority of which are small-scale farmers with land holdings ranging between 0.5ha and 1ha. Annual crops grown include mainly millet, maize, beans and sweet potatoes. Land fragmentation is common due to high population density especially in hilly areas thus, leading to severe degradation of shallow soil areas.
24. Overall, the catchment population depends on the natural environment for their livelihoods and most especially for food and biomass energy. Communities have also drained wetlands in some areas for cultivation and thickets especially in drier areas for charcoal burning. Some activities in the catchment have directly impacted on the availability and sustainability of water resources especially land use change for agricultural production through deforestation and forest degradation, and reclamation of wetlands.

1.3 Environmental context

25. Although there is rapid development that reflects socio-economic and political stability occurs within the catchment, widespread environmental changes are evidently noticeable in the Katonga catchment. The environmental changes are ~~influencing~~ heavily influencing ~~on~~ the people who rely on ecosystem goods and services for their livelihoods. Since agriculture is the economic mainstay in the catchment, crop farming is widely practiced and subsistence farming is the most predominant. Commercial agriculture also exists with crops such as maize planted on a large-scale in some areas. However, increasing agriculture over other land uses is impacting heavily on the ecosystems in the catchment. The major issues related to environmental change in the Katonga catchment include among others;
    - *Deforestation and forest degradation*; excessive loss of forest cover evidenced by the reduction in the spatial extent of the forested area from 63% (8,739km^2) in 1999 to 5% (734.3km^2) in 2017, of the total land area in the catchment.
    - *Wetland reclamation*; excessive drainage of wetlands, riverbanks and lakeshores in the catchment through agriculture, mechanized industrial scale sand mining, plantation of eucalyptus, and brick making among others.
    - *Soil erosion;* rampant soil erosion especially in hilly parts of the catchment such as Kalungu, Lyantonde, Mubende, etc., from lack of soil and water management infrastructure.
    - *Water Stress*; Severe water stress characterized by domestic and agricultural water demand deficit.

[9] UBOS 2014. Uganda Bureau of Statistics, Kampala, Uganda
[10] Climate Change Profile Uganda, 2018. Ministry of Foreign Affairs, Kampala.

Water stress underlined by prolonged droughts that lead to drying up of surface and ground water sources such as boreholes, valley tanks, valley dams, streams, etc., leaving people and livestock desperate.

- *Prolonged droughts*; as part of the cattle-corridor, the catchment is characterized by droughts. Droughts are reportedly becoming severe due to climatic change effects, excessive deforestation, and forest degradation. They are associated with severe water scarcity, reduced pastures and overgrazing, school dropouts, wetland encroachment and wildfires.
- *Food insecurity*; due to poor agricultural harvests leading to decline in yields of staple foods, or even total crop failure. Major drivers of food insecurity are animal and crop pests and diseases, prolonged droughts, and human diseases.

26. In response to the environmental change, socio-economic and climate change related challenges highlighted, Uganda has made important and visible strides in bringing environment into the development agenda. Thus, subscribing to the principles of sustainable development as illustrated in the National Development Plan II and III (NDP II & NDP III) and the National Environment Management Policy. In addition, notable of Uganda's efforts, is the overall devolution of power by the center to the lower levels of government including decentralization of environmental and natural resources management to the districts and lower levels of local government. Subsequently, the Ministry of Local Government through the local Government Development Programme and other natural resource sectors have made various efforts towards improved Environment and Natural Resources Management (ENRM). Furthermore, for communities' benefit from water and environment related interventions, the Ministry of Water and Environment (MWE) has a clear management structure from the MWE Headquarters to Water Management Zones (WMZ) that are made up of catchment and sub-catchment management Committees. This structure is comprehensive to the extent that the stakeholders at the lowest units benefit from government and other project interventions in their localities.
27. However, despite these ~~government~~ innovative government initiatives, progress on the ground remains deficient, visibly patchy and generally weak as well as lacking in many aspects. The populations and ecosystems in Katonga catchment have largely remained vulnerable to the impacts of environmental change, socio-economic and climate change related challenges.
28. Communities and ecosystems have remained at risk from the effects of the increasing frequency and intensity of extreme weather events of droughts and flash floods in recent years due to variabilities in precipitation timing that alters crop production cycle, food insecurity and increased water scarcity among communities in the catchment. With the predicted escalation of the risk of disasters including floods and landslides, the Katonga catchment population continues to live in uncertain weather circumstances, which sometimes cause extremities leading to enormous economic losses of crops and livestock depriving the populations of a better livelihood.
29. Unfortunately, even when faced with such climate change related risks and disasters, the capacity of the most vulnerable community members among grass root communities remains extremely limited due to inadequate interventional resources from Government as well as limited livelihood options at grass roots. The proposed project seeks to improve the resilience of communities and fragile ecosystems to climate change impacts through promoting appropriate water infrastructure investments, nature- based solutions and knowledge management for experiential learning and information sharing.
30. The proposed project fits within the scope and aspirations of Uganda's Vision 2040, NDP II and NDIII and the Climate Change Policy, 2015. The country aspirations enshrined in such policy and planning frameworks focus among others on reducing the degradation of environment and natural resources and ensuring improved ecosystem services delivery as means of enhancing the resilience of vulnerable populations especially in fragile ecosystems. Globally, the project contributes to attainment of the Sustainable Development Goals (SDGs), specifically SDG 6 and 17 that aim at providing access to clean water and sanitation, and promoting partnerships for developing the knowledge base, and effective capacity development.

1.4 Description of Katonga catchment project sites

1.4.1 Geographical location and area coverage

31. The project will be implemented in Ruyonza, Lwemiyaga (Kyera) and Rwabenge Sub-Counties in Kyegegwa, Sembabule and Kalungu districts respectively that are located in the Catchment. The Sub-Counties selected lie in the upper, middle and lower sub-catchments in the Katonga Catchment is found within the dry belt of Uganda commonly referred as the cattle corridor. Specifically, the project sites have been considered for project implementation because of their vulnerability to high rainfall variability, water

stress, drought, flash floods and environmental change related challenges. Overall, the following criteria were used in selecting the sites:

- ~~The sites fall~~Location within the cattle corridor which is prone to drought and impacts of climate change particularly high rainfall variability
- ~~The~~ Presence of highly degraded fragile ecosystems including forests, wetlands, river banks and other ecosystems ~~therein have a high level of degradation~~
- ~~There is~~Presence of a high influx of people that exert pressure on the limited and degraded natural resources thereby increasing the vulnerability of populations therein to climate change.
- ~~There are~~Existence of gazetted refugee settlements that need interventions for managing the impacts of their settlements and climate change.
- ~~The sites have minimally~~Limited (if any) benefit~~ted~~ from ~~any~~ other environment related projects to enhance communities' and ecosystems' resilience to climate change impacts.

32. Katonga catchment lies in the south-central part of Uganda, about 0°13'N 30°39'E near the Katonga wildlife reserve. The catchment is surrounded by a multitude of ecosystems, ranging from lakes, rivers, swamps, wetlands, among others (Figure 3). These ecosystems comprise the fragile ecosystems in the catchment. Katonga River acts as a channel connecting Lake Victoria and Lake George, reflecting that its catchment previously drained into Lake George. However, the regional uplifting events between the two lakes (the Albertine rift) caused the swampy region to southwest of Lake Wamala.
33. Katonga catchment has eight delineated sub-catchments (Table 1). The primary purpose of delineating the catchment into smaller sub catchments was to ease basic understanding of its complexity from a hydrological perspective. Administratively, Katonga catchment is composed of 16 districts. Table 1 shows the sub-catchments in Katonga Catchment.

Table 1: The Sub-Catchments of Katonga Catchment

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

Source: Ministry of Water and Environment, Kampala-Uganda

Figure 3: Location of project sites in the Katonga Catchment in Uganda

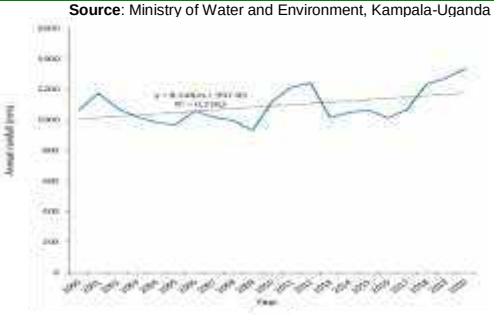

Figure 4: Katonga Catchment annual rainfall over a twenty-year period

1.4.2 Climate

34. The Katonga catchment that falls within Uganda's cattle corridor exhibits semi-arid characteristics. These include: i) high rainfall variability; ii) periodic late onset rains/droughts; and iii) historical reliance on mobile pastoralism as coping strategy to resource variability. The mean annual rainfall based on data measured in the period 1950-2004 ranges between 800mm-1300mm (MWE, 2018). Monthly rainfall patterns in the

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catchment portray two wet seasons that occur from March to May, and September to December. Maximum rainfall is recorded during April and October- November, while the driest months are observed during July-August and January-February. Based on CHIRPS data over, there has been unpredictable annual rainfall trend in the catchment in past 20 years (Figure 4). The rainfall patterns are variable in both time and spatial distribution. Heavy precipitation events are anticipated to increase, which would escalate the risk of disasters such as floods (ICPAC[11], 2015). The Katonga population thus lives in uncertain weather circumstances, which sometimes cause extremities leading to economic losses of crops and animals, depriving communities of a better livelihood.

35. The mean annual maximum temperature is projected to increase throughout the Lake Victoria Basin (LVB) by about 1.0–1.5ºC by 2030, and 1.2–1.8ºC by year 2050, while the mean annual minimum temperature is projected to increase over the basin by 1.2–1.9ºC by the 2030s, and 1.5 –2.4ºC by year 2050 (Lydia et al., 2019). Within the period 2000-2020, the variance in mean annual temperatures was unpredictable. As a result of the warming trend, there is a potential for an increase in the frequency of extreme events (e.g. heavy rainstorms, flooding, droughts, etc.).

1.4.3 Topography

36. The landscape is generally rocky with various rocky outcrops (Figure 5) 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. Owing to the flat flooding areas, the catchment has satellite wetlands that cover an area of about 2,478km^2. The principal mouth of the Katonga River enters L. Victoria near Lukaya in Kalungu district (coordinates: 0°07.3'S 31°54.8'E).

Figure 5: Rocky outcrops within the Katonga Catchment in Kyegegwa area

1.4.4 Geology and soils

37. Following the FOA soil classification, the predominant soil type in Katonga catchment is Acric Ferralsols, followed by Luvisols, Gleyic Arenosols occupying mostly wetlands, Planosols and Dystric Regosols (Figure 6). Parent rock for most of the catchment is comprised of Toro and Basement complex granites, quartz mica schists, Toro arkose, Toro gneisses and granites. Other parent rock material include Toro quartzites, sandstones, schists and phyllites; Phyllites and quartz and schists (Figure 7). The soils in the catchment 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

[11] IGAD Climate Prediction and Applications Centre

loose, and unstable. Such soils are thus vulnerable to erosion, especially where land management measures are not appropriate for soil and water conservation.

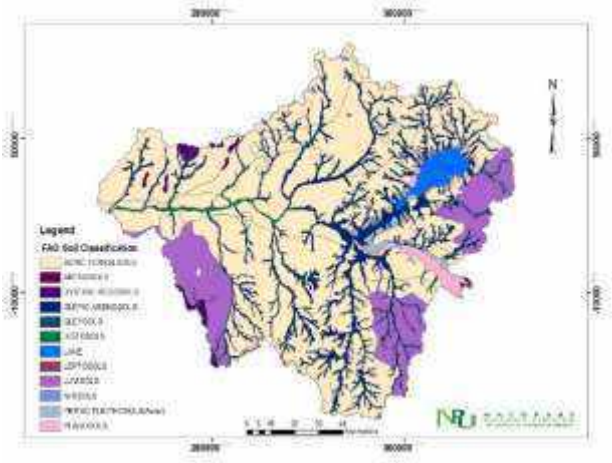

Figure 6: Katonga soil classification

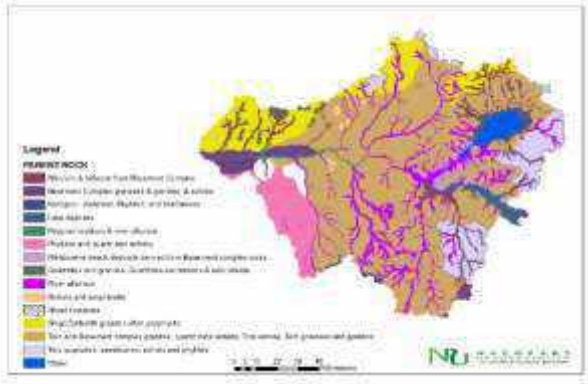

Figure 7: Geology of Katonga Catchment

1.4.5 Vegetation/ land use/land cover

38. River Katonga and its basin traverse different remnants of vegetation types identified and classified according to Langdale-Brown (1964). The northern part is mostly dry *Combretum* savannah, whereas the southern part is mostly Forest/Savannah mosaic. On lower elevations are Papyrus/*Miscanthidium* swamps, and *Sorghastrum*/*Echinochloa* grasslands. These now isolated vegetation types in farmlands are highly degraded, or occurring in smaller fairly intact patches. The key land cover types include rain fed farmland, isolated central and local forest reserves, a wildlife reserve, wetlands, forest plantations and irrigated farmland (Figure 8). Based on spatially aggregated multipurpose land cover database for Uganda AFRICOVER (2015).

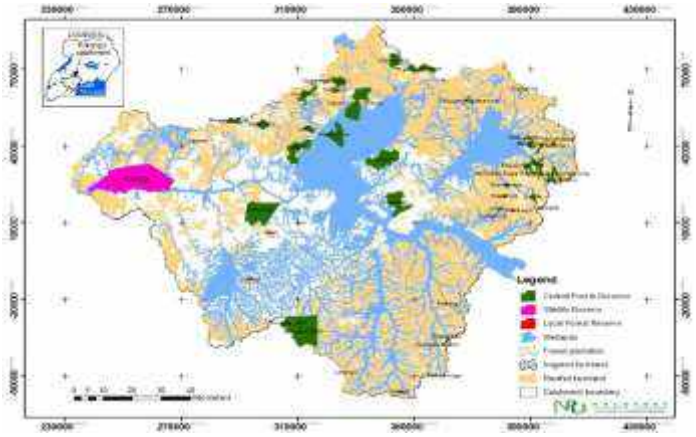

Figure 8: Land use/land cover in Katonga Catchment

1.4.6 Biodiversity

39. Katonga catchment ~~is known to have~~has a viable Sitatunga (*Tragelaphus spekei*) population inhabiting the Katonga Wetland System. The IUCN Global Red List categorizes *Tragelaphus spekei* as a species of Least Concern, but at National Level, it is categorized as a vulnerable species as a result of habitat loss (wetland reclamation), hunting and unsustainable harvesting of the plant species that constitute its food (MTWA, 2018)[12]. The species has low resilience to these threats and this partly explains the declining populations of Sitatungas in Uganda. Within the catchment is the Katonga Wildlife Reserve that habours high population of waterbucks, Hippos, Elephant, buffalo, bushbuck, reedbuck and birds. In 2015, about 60 Impalas and 5 Zebras were successfully translocated to the reserve in order to restock and boost animal populations for tourism. The population of impalas now stands at 300 individuals. The current bird checklist is over 150 including species specific to wetlands, savannah and forests. Other mammals include Black and White Colobus Monkey, the River Otter, and Olive Baboon, Uganda Kob, Leopard, and duiker and chevrotain. The Katonga Wildlife reserve is in addition, home to various reptiles, amphibians and butterflies (UWA, 2019).

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1.4.7 Population

40. The population of the Katonga catchment is estimated at 3,020,638, of which 1,524,887 (50.5%) are female, and 1,495,751 (49.5%) males (UBOS, 2014). Whilst the total number of households in the catchment are estimated to be 678,076. The highest population growth (946,483) is in areas of Mubende, while the lowest population growth (26,159) is estimated for areas within Kyenjojo District. The trend suggests that the population could even double by 2040 with more than half of the population below the age of 14 years. The population demographic for the districts indicates an increasing population with a prediction of about 4,156,774 people expected in 2040 (UBOS, 2014). The total population in the project sites of Lwabenge[13], Lwemiyaga (Kyeera Sub-County)[14] and Ruyonza Sub-County[15] in Kalungu, Sembabule and Kyegegwa districts respectively is 139,011 people (Table 2).

Table 2: The population segregated by sex in the targeted project sites

Sub-catchment strata	Districts	Sub-Counties	Population (No. of People)		
			Males	Females	Total
Upper stream Katonga	Kyegegwa	Ruyonza	23,000	21,100	44,100
Mid-stream Katonga	Sembabule	Lwemiyaga (Kyera)	30,977	29,664	60,641
Downstream Katonga	Kalungu	R~~L~~wabenge	17,001	17,269	34,270
Total			**70,978**	**68,033**	**139,011**

[12] Ministry of Tourism, Wildlife and Antiquities (MTWA), (2018). Red List of threatened species in Uganda.
[13] UBOS, 2017. The National Population and Housing Census 2014 – Area Specific Profile Series, Kampala, Uganda
[14] https://www.ugandainvest.go.ug/wp-content/uploads/2019/06/UNDPUg1720-DistrictProfile_Kyegegwa.pdf
[15] https://www.citypopulation.de/en/uganda/western/admin/kyegegwa/SC1022__ruyonza/

1.4.8 Livelihoods

41. The Katonga catchment communities are dependent on rain-fed subsistence farming, livestock rearing, fishing and to a lesser extent Tourism for their livelihoods. Crops grown in the catchment include Maize, Bananas, Beans and coffee (Figure 9). Other economic activities include bee keeping (apiary management), mushroom growing, physical settlements, woodlots and quarrying/mining activities (i.e. sand, stones and phosphate/vermiculite). Katonga Wildlife Reserve and Bigobyamugenyi stand out as the key tourist attraction, in addition to the Sitatunga populations that are much easily seen in the Katonga wetland system than in any other wetland ecosystems in Uganda.

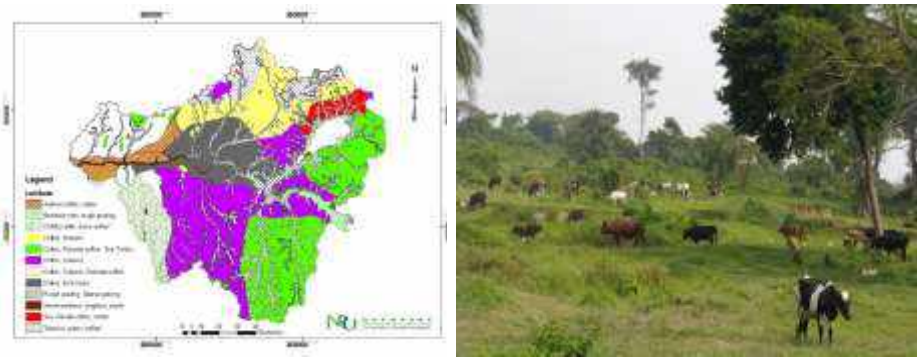

Figure 9: Main livelihood sources in the Katonga Catchment

1.4.9 Climate change vulnerability and threats

42. The Katonga catchment is considered as one of the most climate-vulnerable regions of Uganda. The communities experienced a range of climate change risks including drought, flooding and soil erosion. Most of the communities experience drought as the main climate risk they are exposed to. The drought is however, more severely experienced in the upper catchment. During periods of drought, the amount of water flowing through the River Katonga downstream decreases leading to reduced water volumes for the sources, hence affecting the agricultural and domestic activities adversely. Actually, during drought, human and livestock populations and ecosystems are faced with inadequate water resources due to climate change aggravated water stress. There is scarcity of water for domestic use (Figure 10).

Figure 10: Children lining up to fetch water at a borehole in Ruyonza, Kyegegwa district

Figure 11: Broken bridge due to flooding

43. 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 are destructive, sometimes cutting off travel between localities (Figure 11). Communities are affected when floods sweep away access routes to development activities in the region. 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 is generally perceived as high.

44. Changes in rainfall patterns, followed by drought occurrence, high prevalence of strong winds and general increase in temperatures among others noticed are currently the most experienced and reported impacts of climate change. Such changes negatively affect communities. The most commonly reported effects are low crop yields, inadequate food/food insecurity, and loss of farmlands. Several economic activities undertaken by the households are also 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.
45. The communities believe that with eminent prevalence of climate related risks affecting their sources of livelihoods, they are most likely prone (likely to be affected) to climate change related hazards. There are a number of factors that render the Katonga Catchment sensitive to changing climate conditions as perceived by the communities. For instance, the landscape is generally rocky with various rocky outcrops (Figure 5) 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.
46. The soils are also 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.
47. The Katonga 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.
48. Within the Katonga Catchment, deforestation is 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.
49. The value attached to natural resources and or ecosystems in general influences the sensitivity to climate change. People who care less about the natural resources like forests and wetlands are more insensitive to climate change hazards. In some parts of the Katonga 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.
50. Wild fires are a common phenomenon, 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. In adapting to the changes, a number of capacities and resources are necessary to enhance resilient communities and ecosystems to climate change through adaptation.
51. The key actions taken to deal with climate change occur at the individual, household and community levels. 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. 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. Some of the actions undertaken by the communities are quite innovative such as the ‘Roof Top Gardens’ (Figures 12 and 13).

Figure 12: "Roof Top Gardens" a 3 in climate change adaptation measure *Figure 13: Solar Panel as an alternative energy source*

52. In addition, institutions (government and non-governmental) also play vital roles in providing policy, technical and financial resources to adapt to climate change. However, the technical and financial resources from government and NGOs are largely inadequate. Therefore, the capacity of individuals and communities to adapt to climate change impacts remains low posing great challenges to sustainable management of the fragile ecosystems and peoples' livelihoods. Based on this background, it is clear that populations and ecosystems are vulnerable to climate change in the Katonga Catchment leading to impacts such as soil erosion, disease outbreaks, flooding and drought. It is evident that efforts aimed at improving the resilience of communities and ecosystems in Katonga are needed.

2. Project / Programme Objectives:

53. The overall goal of the project is strengthening the resilience of communities and fragile ecosystems to climate change impacts through promoting appropriate water infrastructure investments and nature-based solutions.
54. The specific objectives of the project are to:

(i) Strengthen the capacity of key grass root stakeholders for climate change adaptation
(ii) Promote appropriate water storage technologies for increased water and food security
(iii) Support establishment of nature-based enterprises for improved community livelihoods
(iv) Support knowledge management and information sharing

3. Project / Programme Components and Financing:

55. The project has four components that target to strengthen the resilience of communities and fragile ecosystems. The four components are:

i. Strengthening capacity of key grass root stakeholders for climate change adaptation
ii. Promoting appropriate water storage technologies for increased water and food security
iii. Supporting nature-based enterprises for improved community livelihoods ~~sustainable socio-economic development~~
iv. Supporting knowledge management and information sharing

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Table 3: Budget summary for components, outcomes and outputs for the project

Project / Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
Strengthening capacity of key grass root stakeholders	1.1.1Capacity building program for key grass root stakeholders in climate change adaptation	1.1 Capacity of key grass root stakeholders in implementing climate resilient development	118,000

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for climate change adaptation	established	initiatives strengthened	
	1.2.1 Community resource use group leaders orientated in leadership and management	1.2 Governance of natural resources strengthened	165,000
Promoting appropriate water storage technologies for increased water and food security	2.1.1 Innovative and agreed upon multi-stakeholder water storage technologies adopted	2.1 Increased water and food security	479,000
Supporting nature-based enterprises for improved community livelihoods ~~for sustainable socio-economic development~~	3.1.1 Nature-based enterprises promoted	3.1 Increased income for improved stakeholder livelihoods	420,500
	3.1.2 Market linkages of products from nature-based enterprises established		128,000
	3.1.3 Entrepreneur skills of stakeholders enhanced		88,000
	3.2.1 Fragile ecosystems conserved	3.2 Enhanced ecosystem health	288,500
4. Supporting knowledge management and information sharing	4.1.1 Knowledge management and information sharing system developed	4.1 Lessons and good practices shared and adopted	238,000
Total activity budget			**1,925,000**
6. Project Execution cost			181,000
7. Total Project Cost			2,106,000
8. Project Cycle Management Fee charged by the Implementing Entity (8.5%)- (This includes project monitoring and management, furniture, computer and its accessories) and one project vehicle to support in coordination of field activities)			143,000
Amount of Financing Requested			**2,249,000**

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4. Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	October 2023 ~~October 2021~~
Mid-term Review	April 2025 ~~April 2023~~
Project/Programme Closing	October 2026 ~~October 2024~~
Terminal Evaluation	December 2026 ~~December 2024~~

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project components and concrete adaptation activities

~~56.~~ The proposed project "Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda (RECOFE ~~project~~) has four components with corresponding adaptation measures that will contribute to resilience to climate change of communities and fragile ecosystems in the Katonga catchment. The components and adaptation measures are presented. This will be achieved by strengthening the capacity of key grass root stakeholders (including women and other marginalised groups) for climate change adaptation specifically by promoting appropriate water storage technologies for increased water and food security, supporting nature-based enterprises for improved community livelihoods, and strengthening knowledge management and information sharing to scale out the lessons and practices ~~building the capacity grass root stakeholders in implementing climate resilient development initiatives, strengthening governance of natural resources (including the involvement of women and other marginalised groups), promoting water storage technologies for increased water and food security, promoting nature-based enterprises, and strengthening knowledge management and information sharing to scale out the lessons and practices~~

Component 1:
Strengthening the capacity of key grass root stakeholders for climate change adaptation

Baseline situation

~~57.~~56. Climate change affects the people and ecosystems, ~~through its impacts~~ and ~~therefore,~~ requires a concerted effort~~s~~ by all stakeholders including the grass root communities ~~stakeholders~~. ~~It~~ Climate change disrupts ecological systems (forest landscapes, wetlands, riverbanks) and has ~~serious~~ negative consequences on agricultural production and productivity ~~forest landscapes, wetlands, riverbanks~~, water supply, health systems and ~~overall~~ human development. ~~The objective of s~~Strengthening the capacity of ~~key grass root~~ stakeholders for climate change adaptation ~~is to~~will ensure that they can address climate change causes and impacts through appropriate adaptation measures ~~while promoting sustainable development~~. Human-induced global warming, ~~is~~ caused primarily by the increase in CO_2, is of major concern because it is linked to widespread human activities (primarily burning fossil fuels and deforestation) ~~an increase in the atmospheric concentration of Green House Gases (GHGs), including water vapour, carbon dioxide (CO_2), methane, and nitrous oxide. Of these, the increase in CO_2 is of major concern because it is linked to widespread human activities, primarily fossil fuel burning and deforestation.~~

~~58.~~57. Grass-root communities are dependent on natural resources for their livelihoods, and this is impacting on the ~~invaluable~~ natural resources ~~hence~~ creating a ~~n increasingly~~ complex ~~task~~ need of incorporating climate change adaptation into the~~ir~~ socio-economic activities. The limited capacity of grass root stakeholders affects their ability to anticipate, prepare for, detect, and respond to climate change impacts ~~in their respective areas~~. ~~Component one of this project therefore focuses on capacity development by encompassing actions that increase grass root stakeholders' ability to effectively enact climate change adaptation measures.~~ Hence, the ommunities and ecosystems have remained at risk from the effects of climate change, specifically droughts, and floods soil erosion. Unfortunately, even when faced with such climate change related risks and disasters, the capacity of the most vulnerable community members among grass roots remains extremely limited. They insufficient or inadequate knowledge on climate Change and their capacity to cope with its impacts is limited. Moreover, they have inadequate resources for intervention, have limited livelihood options and have limited knowledge of implementing desirable interventions. The proposed project seeks to enhance the resilience of communities and fragile ecosystems to climate change impacts. Component one ~~of this project therefore~~ focuses o~~n~~n addressing the gaps in capacities regarding climate change adaptation and capacity development by ~~encompassing~~implementing actions that increase grass root stakeholders' ability to effectively ~~enact~~implement climate change adaptation measures.

Proposed interventions

~~59.~~58. In response to the capacity gaps, the project will raise and institutionalize awareness at community-level and build capacities of sub-national, national and regional structures. Primarily, c~~C~~omponent one is expected to strengthen the capacity of key grass root stakeholders to adapt to climate change in the Katonga catchment. ~~In addition, s~~Strengthening the capacity of the stakeholders will be geared to enhancing good natural resources governance to secure resilience of ecosystems. The key grass root stakeholders targeted

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include: grass-root (lower level-communities), duty bearers (Catchment and sub-catchment management committees, Sub County extension staff, LL-ocal Ceouncil Ssecretaries of Environment, and Representatives from the Environment committees), Civil Society Organisations (CSOs) and the private sector in the ~~three~~ hot spot districts and sub-counties ~~within the Katonga catchment~~ (i.e. Ruyonza ~~Sub County~~, Upper Katonga sub-catchment, Kyegegwa district), Lwemiyaga, Kyera, Mid Katonga sub-catchment ~~(Kyeera sub county~~, Sembabule district), and Lwabenge, Kalungu district, Lower Katonga sub-catchment ~~(Lwabenge Sub County, Kalungu district)~~. ~~Although r~~Related interventions have been done in the project entitled "Enhancing Resilience of Communities to Climate Change through Catchment Based Integrated Management of Water and related resources in Uganda" (EURECCCA/OSS) project, so it will be important that the lessons learned in the EURECCCA/OSS project are considered critically to ensure successful implementation of interventions in the currently proposed RECOFE project in Katonga catchment.

~~60.~~59. The project will benefit from the guidelines developed under EURECCCA/OSS project for building capacity~~ating~~ of duty bearers to mainstream climate change into the catchment management plans including the Katonga CMP. Furthermore, the EURECCCA/OSS project is the first of its kind to operationalize the catchment management structures that start from the catchment, sub-catchment to micro-catchment levels, an approach that will be adopted during the implementation of this project. This approach will also help to manage the cost-effectiveness of interventions, as it will eliminate re-inventing the wheel. The catchment approach through which catchment management committees were formed to follow up project activities, enhanced efficiency and ownership of initiatives and ensured that resilience of ecosystems was enhanced across the landscape rather than 'portions' of the landscape. In addition, conducting a baseline at the start, enabled the team to understand the area better, confirm selection of the most degraded sites for implementation with stakeholders, and established standard information to measure achievements among others. The specific aspects proposed for addressing the capacity development needs of the grass root stakeholders will be achieved through outcomes 1.1 and 1.2 and the outputs 1.1.1 and 1.2.1 presented below. The specific activities for the respective outcome and outputs are also presented accordingly.

Outcome 1.1: Capacity of key grass root stakeholders in implementing climate resilient development initiatives strengthened

Output 1.1.1: Capacity-building program for key grass root stakeholders established/undertaken

The capacity building program for key grass root stakeholders will be undertaken to ~~will~~ cover Katonga sub catchment management committee members; relevant staff from target project ~~targeted~~ districts of Kyegegwa, Sembabule, and Kulungu; and key technical staff from the target project ~~targeted~~ sub counties of Ruyonza, Lwemiyaga and Lwabenge.

Activities

- **Activity 1.1.1.1** Undertakinge capacity needs assessment in relation to climate change for key grassroots stakeholders.
  During the first two quarters of implementation, the project will conduct a baseline survey and detailed capacity needs' assessments of all actors in the project, including grass-root (lower level-communities), duty bearers (Catchment and sub-catchment management committees, Sub County extension staff, Local Council Secretaries of Environment, and Representatives from the Environment committees), Civil Society Organisations (CSOs) and the private sector in the hot spot districts and sub-counties. The data gathered hereby, will inform activities all throughout the project, and will allow for measuring change at the end of the project. This activity will be led and managed by the IE experts of the project, who will collect, process and analyse data, to equally inform the M&E framework that is established at the start of the project.
  - The assessment will support to collect the needs, priorities and challenges of the stakeholders to focus the interventions.
- **Activity 1.1.1.2** Induct and empower grass root-duty bearers with knowledge in climate change.
  This will help in preparing them for actual activity implementation.
  ~~Induction will contribute to preparing the stakeholders to the project activities before actual interventions start.~~ E~~While, e~~mpowering stakeholders will contribute to skilling them with the necessary knowledge. This will ensure ownership and hence, contribute to sustainability.
  - They will gain skills in lobbying and advocacy, group dynamics, conflict management and information management.

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- **Activity 1.1.1.3** Training in roles and responsibilities of the duty bearers at the grassroots.
  - This is aimed at capacitating the targeted stakeholders to improve their management capability in addressing climate change issues.
- **Activity 1.1.1.4** Facilitate tool kit development for mainstreaming climate interventions in development initiatives and integration of CC issues in Katonga CMP.
  - The tool kit, based on guidelines under EURECCA/OSS, will ~~provide~~ be used as a reference ~~and~~ to guide the climate change interventions.

Outcome 1.2: Governance of natural resources strengthened

Output 1.2.1: Community group leadership structure orientated in leadership and management

The Katonga Catchment Management Committees from the Region up to the micro-catchment level and other relevant community leaders will be orientated in leadership and management. In addition, governance and leadership frameworks shall be developed and strengthened through development of bylaws, ordinances, guidelines as well as training of selected groups in group dynamics, cross cutting issues like gender, business management as well as information management. ~~The Katonga Sub Catchment Management committee structure, and micro-catchment management committee structures within which Ruyonza, Lwemiyaga and Lwabenge sub-counties fall, will be orientated in leadership and management.~~

Activities

- **Activity 1.2.1.1** Facilitate the mainstreaming of Human Rights Based Approaches in climate change initiatives.
  - This activity will involve reviewing climate change initiatives. to identify the needs for mainstreaming of Human Rights Based Approaches. Thereafter, recommendations will be made for improvements then project support.
- **Activity 1.2.1.2** Facilitate ~~communiti~~community leaders to undertake~~s~~ training in advocacy, lobbying and public relations ~~through creation of~~by organizing dialogue platforms and conducting of climate change campaigns~~/dialogues~~.
  - This task will aim at building the capacity of ~~the targeted~~ stakeholders to communicate and advocate for their concerns to be addressed by the responsible ~~bodies~~ agencies on a regular basis. For example, engaging with National Forestry Authority (NFA), Wetlands M~~m~~anagement personnel and officials from the National environment Authority (NEMA) among others to streamline adaptation actions.
- **Activity 1.2.1.3** Facilitate resource use negotiations and development of Wetland Management plans, Memorandum of Understanding (MoUs) between the communities and duty bearers of the natural resources.
  - This task will concentrate on facilitating negotiations with communities and MWE, National Forestry Authority as well as wetlands personnel. Consultative meetings to initiate the application process to access resources and lodging their application to access the resources
- **Activity 1.2.1.4** Developing and strengthening the governance and leadership frameworks (including by-laws, ordinances and guidelines).
  - This activity will focus on training new and existing groups on:
    - General roles and~~&~~ responsibilities, gender and~~&~~ conflict ~~sensitivity~~management; -
    - s~~S~~takeholder relationships to improve resource use management
  - Integration of cross-cutting issues for example, gender equality and HIV/AIDS
  - Internal governance of existing resource use committees ~~(where they exist)~~ to ensure equity and accountability in their operations
  - Accountability, managerial skills, group dynamics, conflict management, managing information, forest policies and policies governing other natural resources.

Component 2:
Promoting appropriate water harvesting and storage technologies for increased water and food security

Baseline situation

~~61.~~60. The water stress is widespread in the Katonga Catchment, with extent and severity differing between

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and within sub-catchments. The catchment faces severe drought, associated with declining agricultural production undermining prospects of long-term stability and sustainable growth. Results from water resource assessment revealed that the current domestic water demand deficit is widespread. Most crucially, agriculture water demand is the most severely affected by water stress. Hence, t~~T~~he Government of Uganda through the Ministry of Water and Environment (MWE) has ~~been establishing~~established water supply schemes across the country ~~to provide water~~ for multipurpose use but~~. The water has been majorly serving domestic, industrial, institutional and commercial demands, and~~ to only a small~~er~~ extent for agricultur~~eal demand. Water supply has mainly been done due to~~There is still over reliance of communities' on rain fed agriculture that ~~has become~~is unsustainable due to escalating climate change effects. ~~Government, through t~~The Water for Production Programme, has ~~been able to~~ created a total storage volume of 38.865 million cubic meters through construction of surface reservoirs ~~(in the form of~~ valley tanks and earth dams) to store rainwater harvested for use especially during the dry seasons. However, the Katonga catchment lacks these initiatives.

~~62.~~61. A number of feasibility studies and detailed designs have been developed for ~~potential~~ medium and large sized irrigation ~~scheme~~ projects, some of them are also being carried out across the country. The aim is~~,~~ to enable ~~the~~ establishment of irrigation ~~infrastructure in a bid~~systems to boost agricultural production, food security and climate resilience. The project will focus on ~~water demand for the different users within the Katonga catchment shows that three main categories of water users are considered, including; domestic, industrial, and agricultural water use.~~ Agricultural water use, as a broad category, that includes water ~~demands~~ for livestock and~~,~~ irrigation~~, and fish~~.

~~63.~~62. ~~During~~ The stakeholder engagements for developing the Katonga CMP~~, among the issues~~ identified, water stress ~~w~~as top o~~f~~n the list for ~~most of~~ the ~~sub-c~~Catchment~~s delineated~~. Water demand expressed as a ~~percentage~~ % of the total demand, showed that domestic water use drew more water than ~~all the other three categories~~agriculture, primarily because the current farming practices are reliant on rain and the irrigation requirements are minimal~~, , only supplemental in nature. Industrial water demand in the Katonga catchment only demands a very small percentage (0.21%) of the total water demand. Water demand for fisheries is seen to be much more than for other demands aggregated under agriculture water demand, and~~with irrigation demanding only 0.2% of the total agricultural requirement. The current combined water demand in the Katonga Catchment ~~was~~ is estimated to be 53.71MCM with domestic, agriculture, and industry demanding 41.9%, 57.9%, and 0.2% of the total demand respectively. The projected combined water demand for the year 2030 is 80.64MCM, an increment of about 50% from the baseline, while that of the year 2040 is 110.16MCM, an increment of about 105% from the baseline.

Proposed interventions

~~64.~~63. The project ~~intends to~~will establish and promote water ~~storage~~ harvesting technologies through the Integrated Water Resources Management approach to enable both the conservation of the fragile ecosystems and communities to access adequate and sufficient water to ably engage in productive agricultural activities, consequently contributing to improved ecosystems' health and food security situation in the catchment. Environment and Social Safeguards Impact Assessments will be conducted prior to construction of storage facilities like the ~~Valley~~ earth Dams, and establishment of the Micro-irrigation schemes, to ~~ascertain~~ ensure that ~~such innovations~~the interventions do not compromise, but rather enhance resilience of the ~~project~~ target~~ed~~ landscapes. The ESMP was done at this proposal stage to identify the risks, suggest mitigation measures and identify the responsible agency to implement the ESMP, However, the specific locations for construction of water storage facilities (earth dams) will be determined after the beneficiaries have voluntary offered land as promised during the stakeholder consultations.

The specific aspects proposed for this component include promoting water security storage technologies for ~~control of~~ flood~~s~~ control, ensuring sustained natural flows; enhancement of soil productivity through soil and water conservation measures contributing to recharge of aquifers, and building the capacity of community groups and institutions to undertake climate smart agriculture for agricultural development and growth in a changing climate. This will be achieved through implementation of activities under output 2.1.1 as presented below~~.~~.

Outcome 2.1: Increased water and food security

Output 2.1.1 Innovative multi-stakeholder water ~~storage~~harvesting, conservation and food security technologies adopted

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~~65.~~64. Under this output, the project will promote technologies that improve the availability and conservation of water, promote ground water recharge, and address the challenge of water scarcity during drought. The technologies include the following: earth dams for harvesting and storing water, trenches and soak pits for flood control, and mini- irrigation schemes to enable agricultural production during the dry season, minimizing incidences of crop failure and reduced animal production. Others include promoting drought resistant crops and pastures as well as improved livestock management. The interventions will consider changes in water use rights practices, improving the understanding of groundwater dynamics and recharge, improving technologies and policies for water use efficiency improvements. ~~The Key policy frameworks to safely guide in delivery of this output include: National Irrigation Policy (2017) promotes sustainable irrigation development to enhance food and livelihood security and reduction of poverty. It serves as an overarching instrument for regulation of irrigation development in the country. Its mission is to promote irrigation development and management to enhance water use efficiency for increased and sustainable agricultural production and productivity and profitability to ensure food security and wealth creation. Section 2.6 of the policy provides the guiding principles to be followed amongst which is supporting Integrated Water Resources Management (IWRM). In addition, the water resources regulations (1998) provide for application of a water permit by someone who wishes to construct, own, occupy or control any works on or adjacent areas whereby there is a motorized pump that pumps water from a borehole or water way. There is a w~~Water dams, tanks ~~or~~ and others capable of ~~diverting or impounding~~capturing ~~an~~ inflows of more than 400 cubic meters in any period of 24 hours will be consided. ~~–~~There are works for non-consumptive uses; and other related regulatory frameworks to address aspects of water scarcity/stress in a sustainable way. Such regulations and policies will ~~be the~~ guid~~e~~ing ~~documents in~~ promoti~~o~~n~~g~~ of innovative multi-stakeholder water storage technologies. The technologies promote availability and conservation of water, ground water recharge, and address the challenge of water scarcity during extreme weather conditions, by capturing and storing water through construction of dams, trenches, soak pits, in addition to promoting drought resistant crops and improved livestock management. Innovations in detail will consider changes in water rights practices, improving the understanding of groundwater dynamics and recharge, improving technologies and policies for water use efficiency improvements.

~~66.~~65. Maladaptation will be avoided by following relevant national policies and guidelines outlined in Tables 6 and 7. Specific activities that will be undertaken to promote adoption of innovative multi-stakeholder water storage and conservation technologies are:

Activities

- **Activity 2.1.1.1 Construct five ~~(5)~~ earth dams to ~~capture~~ harvest and store rain water and run off as follows:**
- One earth dam in Kamwenge district along Kasayumba stream that forms a natural boundary between Ruyonza and Kiregani villages in Kiremba parish, Ruyonza subcounty; Two earth dams in Kalungu district as follows: One along Ngalagazzi stream that forms a natural boundary between Kasambu and Birongo villages in Kiraaga parish; and the other along Lwakibuba stream that forms a natural boundary between Kagongero and Kikoota villages in Bugomola parish, all in Lwabenge sub county; Two earth dams in Sembabule district as follows: along Kagasa stream in Nkonge village, Makoole parish; and along kiwuila stream in Njalwe village, Kakoma parish both in Lwemiyaga sub county.
- The dams built along streams in eco-agricultural farmlands will support recharge of aquifers, enhance soil moisture, control floods, and sustain natural flow regimes.
- The dams will also provide water for the micro-irrigation schemes ~~learning centers~~(Activity 2.1.1.3) that are key in enhancing crop and livestock production for food security; and contribute to the resilience of water stressed agro-ecological ecosystems (~~namely as~~ farmlands and grazing lands). In addition, the dams will contribute to resilience of river banks through controlling run off that would have otherwise eroded the river banks.
- ~~Five micro-irrigation schemes each with an average coverage of up to ten acres using dammed run-off rain water in respective areas of Ruyonza, Birongo, Kikoota, Nkonge, and Njalwe villages, where dams are located, will be established as learning centres for sustainable use of water resources in line with the national water policy (1999).~~
- **Activity 2.1.1.2 Facilitate establishment of ~~f~~Five low cost drip micro-irrigation schemes**
- ~~E~~each irrigation system will have ~~with~~ an average coverage of up to ~~ten~~5 hectares~~acres~~ using dammed run-off rain water in respective areas of Ruyonza, Birongo, Kikoota, Nkonge, and Njalwe villages, where dams are located, will be established as ~~learning~~demonstration centres for sustainable use of water

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resources in line with the national water policy (1999).

- ~~Facilitate development of simple biophysical water harvesting technologies namely trenches, check dams, and percolation pits for soil and water conservation to restore the biophysical soil environments in the degraded agro-ecological landscapes, as well as increasing the ground water recharge that impacts the river Katonga flow. Five soil and water conservation learning centers in selected parishes will established as follows; one in Birongo village, Kiraga parish Lwabenge sub county in Kalungu district; two in Lwemiyaga sub county in Lumegera village, Lwemibu parish, and Kiribedda village, Kakoma parish, in Sembabule district;, and two in Ruyonza sub county in Kyanangoma village, Karwenyi parish; and Katarubata village in Katiirwe parish. The contribution of groundwater in Uganda is particularly important in the low-relief wetlands along the Katonga River and in the semi-arid Karamoja Region. Soil erosion will be checked resulting in conserving both the soil nutrients and the soil moisture to ably provide ecological and socio-economic functions thus the resilience.~~
- **Activity 2.1.1.3 ~~,~~ Facilitate establishment of five soil and water conservation demonstration sites**
- One demonstration site will be established for each of the five target sites, and will be designed and developed by the farmers, with guidance from instructors, extension workers, specialized staff and local experts. The demonstration sites will be managed by the farmers and the yields produced on the plots will be shared equally among members. Demonstration sites will be suggested by communities.
- They will be established in parishes as follows; one in Birongo village, Kiraga parish Lwabenge sub county in Kalungu district; two in Lwemiyaga sub county in Lumegera village, Lwemibu parish, and Kiribedda village, Kakoma parish, in Sembabule district; and two in Ruyonza sub county in Kyanangoma village, Karwenyi parish; and Katarubata village in Katiirwe parish.
- Facilitate development of simple biophysical water harvesting technologies namely trenches, check dams, and percolation pits for soil and water conservation to restore the biophysical soil environments in the degraded agro-ecological landscapes, as well as increasing the ground water recharge that impacts the river Katonga flow.
- The contribution of groundwater in Uganda is particularly important in the low-relief wetlands along the Katonga River and in the semi-arid Karamoja Region. Soil erosion will be checked resulting in conserving both the soil nutrients and the soil moisture to ably provide ecological and socio-economic functions thus the resilience. ~~Promote climate smart agriculture (CSA) focusing on mulching, crop rotations, intercropping, minimum tillage, permanent planting basins and climate smart livestock management (growing of improved pastures and promoting improved fodder), sustainably increasing agricultural production without compromising the functionality of different ecosystems within the landscapes. The targeted agro-ecological farmland areas where three respective CSA learning centres will be established are Kireemba parish in Ruyonza Sub County, Lubaale parish in Kyeera Sub County, and Kiraaga parish in Lwabenge Sub County.~~
- **Activity 2.1.1.4 Train farmers in climate smart agricultural practices and improved livestock management.**
- Climate Smart Agriculture combines profitable agricultural production with environmental concerns. The guiding principles involve minimum (or zero) mechanical disturbance of the soil: keeping the soil covered at all times, either by a growing crop or a dead mulch of crop residues; and diversified crop rotation.
- The soil and water conservation ~~learning~~demonstration centres will be used to train farmers in climate smart agricultural practices~~es as well~~. Selected model farmers in the same villages will be used to demonstrate improved livestock management. Promoting~~e~~ climate smart agriculture (CSA) will focus~~ing~~ on mulching, crop rotations, intercropping, minimum tillage, permanent planting basins and climate smart livestock management (growing of improved pastures and promoting improved fodder), sustainably increasing agricultural production without compromising the functionality of different ecosystems within the landscapes. The targeted agro-ecological farmland areas where three respective CSA learning centres will be established are Kireemba parish in Ruyonza Sub County, Lubaale parish in Kyeera Sub County, and Kiraaga parish in Lwabenge Sub County. ~~Train farmers in smart agricultural practices and improved livestock management. The soil and water conservation learning centres will be used to train farmers in smart agricultural practices as well. Selected model farmers in the same villages will be used to demonstrate improved livestock management.~~
- Climate Smart Agriculture is effective in reducing land degradation and increases the water use efficiency and soil nutrients. Contour cropping practices can reduce water erosion while cultivation on

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the banks of streams and rivers will be reduced through sensitisation on environmental impacts. Benefits of climate smart agriculture over conventional farming include the following: minimizing soil disturbance and keeping soil covered at all times, allows the increase in soil moisture retention for longer periods, increases soil fertility, improves soil texture and facilitates deeper rooting of crops. This lowers crop vulnerability to drought by reducing water requirements. Climate smart agriculture also facilitates rain water infiltration, reducing erosion of top fertile soils and downstream flooding – thereby enhancing the resilience of key ecosystems: farmlands, natural forests and wetlands.

- **Activity 2.1.1.5 Provide tools and improved planting materials to communities selected to demonstrate good agricultural practices in soil and water conservation, and improved livestock management.**
- The project will promote packages of improved drought and extreme weather tolerant varieties for farmers. Mainly short season, adapted varieties of cereals and legumes will be considered. Introduction of improved and adapted seeds and crops will enhance the adaptation of communities to climate change and ensure food security. Appropriate and adapted crop varieties will be multiplied at community level after their evaluation by farmers at the demonstration centres. Seasonal vegetable crops of suitable variety tolerant to the prevailing climate and production environment will be identified and promoted. Improved livestock management including zero grazing and drought resistant pastures will be considered. Improved breeds of livestock will be encouraged.
- **Activity 2.1.1.6 Train farmers ~~in project targeted villages with learning centers~~ in improved post-harvest handling technologies**
- The farmers will receive trainings in improved post-harvest handling technologies (wet processing of coffee, proper drying of coffee, and legumes, cereals; harvesting, processing, storage and packaging of honey, that are introduced by the project to reduce food losses, addressing the increased risk of food insecurity induced by Climate Change impacts. Trainings will be provided by the EE staff and partners from agencies such as Ministry of Agriculture and specific expertise may be recruited as appropriate.
- **Activity 2.1.1.7 ~~Facilitate~~ Support farmer groups to establish improved post-harvest handling and storage facilities for crop and livestock products~~community groups in the model learning villages/centers to establish improved post-harvest handling and storage facilities for crop and livestock products.~~**
- The project staff in cooperation with the agriculture departments, and local governments, will facilitate the process of formation of five farmer/resource use groups (per irrigation system) and will facilitate the acceptance and recognition of their status. The project staff will be the central bodies to facilitate group activities.
- Each farmer group consist of 25 to 30 members, recruited on the criteria of (i) willingness to participate in the project and learn new practices and methods and (ii) having access to arable land.
- The farmer groups will then be supported with inputs and technical supported to establish improved post-harvest handling and storage facilities for crop and livestock products.

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Component 3:
Supporting nature-based enterprises for sustainable socio-economic development

Baseline situation

~~67.~~66. Although the main sources of livelihood in Katonga catchment is rain-fed subsistence crop farming with livestock production in the drier areas of the catchment, the overwhelming majority (76.2%) of households directly derive their livelihood from rain-fed subsistence crop farming in the catchment. Based on the 2014 National Population and Housing Census (UBOS, 2014), access to remittances from people working outside the catchment is also one of the primary alternative sources of livelihood available for the households. Most of the farmers in the catchment are small-scale farmers with land holding ranging between 0.5 and 1 ha and with 25% of them living below the poverty line. The annual crops grown include mainly coffee, bananas, millet, maize, beans and sweet potatoes. Land fragmentation is common due to high population density especially in hilly areas thus, severe degradation of areas with shallow soils. The catchment population depends on the natural environment for their livelihoods most especially for food and biomass energy.

~~68.~~67. Communities have also drained wetlands in some areas for cultivation and others have cleared shrubs and thickets especially in drier areas for charcoal production. These activities have directly affected the

availability and sustainability of water resources especially land use change for agricultural production through deforestation and forest degradation, and reclamation of wetlands. This unsuitable utilization of natural resources mainly through indiscriminate cutting of forests and woodlands for both domestic and commercial uses and agriculture expansion as well as wetland degradation have reduced the resilience of these ecosystems, or their ability to withstand the adverse effects of climate change.

~~69.~~68. Land and livestock productivity have reduced resulting in low crop yields and reduced livestock products leaving the farmers with little to eat and sell. Consequently, the communities' coping capacity to the impacts of climate change have remained low and inadequate. There is therefore, a need to support the communities to undertake climate smart agriculture for improved yields and products from crops and livestock, incomes and enhanced livelihoods thereby alleviating authority.

~~70.~~69. Although the communities have been practicing, the small-scale enterprises in the catchment there are a range of challenges. For example, they are susceptible to fluctuations in market conditions. They also face the risk of insecure markets due to low incomes, seasonality of production, poor market information, lack of access to urban markets, and external competition, lack of access to appropriate technology in the form of suitable tools and equipment with which to improve productivity as well as managerial weaknesses, that aggravate the situation.

Proposed interventions

~~71.~~70. The project proposes to promote and strengthen nature-based enterprises as one of the ways to reduce the rampant degradation of the forest and other natural resources, by addressing and linking the three pillars of sustainability i.e., environmental, social and economic development. Integration of Nature Based Solutions (NBS) into social–ecological vulnerability framework is paramount amidst prevailing climatic challenges. Nature based solutions if implemented properly and equitably, can decrease social–ecological vulnerability.

~~72.~~71. The project will support establishment of resource user groups. Each resource user group will be facilitated to develop a business plan as part of a capacity building strategy aimed at enhancing their sustainability. In addition, the project will support the implementation of the proposed plans. The project, therefore, intends to build the capacity of the organized stakeholders (resource user groups) by providing incentives to manage nature-based enterprises, enhancing access to markets and establishing quality control mechanisms. Good governance through fostering good leadership skills with clear accountability and transparency will be promoted. By acquiring good leadership skills, the targeted groups will have the ability to get an income from their nature-based enterprises leading to less pressure on the fragile ecosystems. This approach is essential for ensuring that community groups will effectively participate in their activities and manage natural resources sustainably.

~~73.~~72. To ensure equity amongst the groups, there will be deliberate effort to integrate vulnerable groups of women, youth (boys and girls), Peoples with Disability (PWD) as well as the absolute poor that live on less than 1$ a day) to directly benefit from project activities. Although none of the nature-based enterprises such as bee keeping, commercial nurseries for fruits and trees, mushroom growing, incense sticks, bamboo and agri-waste biomass have significant effects on the environment, environmental briefs will be prepared were need arises.

~~74.~~73. The project will promote value chain analysis to ensure resource efficiency by undertaking selection of the right quality of affordable materials and applying the correct silvicultural and agro-economic activities to produce the desired products that fetch high premiums for the stakeholders including the vulnerable groups. Such activities will help the groups in identifying complementarities, synergies and opportunities that will increase their effectiveness in managing forest/wetland/water resources sustainably while benefiting from them thereby enhancing people's livelihoods. Emphasis will focus on increasing the incomes from the established businesses through quality control and massive production. These activities will be linked to conservation, improved group performance, operational effectiveness and long-term sustainability of interventions.

~~75.~~74. The enterprises are expected to reduce pressure (in form of degradation and less pollution) being exerted to the natural resources in the catchment and provide financial rewards to communities. The enterprises will ensure resilience of fragile ecosystems to impacts of climate change is achieved by promoting conservation of wetlands, river banks and forest landscapes through approaches such as Integrated Water Resources Management, while ensuring implementation of all planned project activities complies with set national and international conservation related standards. The project will further encourage innovations such as eco-labelling of naturally produced honey. The project will link the honey producers to the market. It

is in the interest of the project to promote the whole value chain (including production, handling processing and marketing) amongst the communities to meet the required standards and be able to access high premiums. These enterprises also play key role in acting as substitutes or complements to some of the community needs e.g., fuel wood and poles.

Beneficiaries for the nature-based enterprises

~~76.~~75. The project activities and target beneficiaries were selected based on the information from the Katonga Catchment Management Plan (CMP) and stakeholder consultative process undertaken during the proposal development. The Katonga CMP was developed through a highly stakeholder consultative process that is informed by data on natural resources in the area. The stages followed to develop the CMP include catchment situational analysis; water resources analysis; stakeholders' engagement; strategic social and environmental assessment; development of vision, objectives and strategies; scenarios and options analysis; and preparation of the CMP. During these stages, detailed assessments and resource mapping are carried out including hydrological and water balance assessment and the results are presented in form of maps showing locations where key issues occur. Thus, a lot of hydrological modelling work and mapping of highly vulnerable or degraded areas requiring interventions is undertaken as part of developing the CMP.

~~77.~~76. Maps showing vulnerable or degraded areas that require restoration interventions are prepared and presented in the CMP. Information on key issues affecting the catchment is synthesized and presented in the CMP. The CMP also consists of several agreed investments in infrastructure and other interventions, and various water management interventions and actions meant to resolve conflicts, conserve and protect the catchment and its natural resources, and ensure equitable access and use of water resources.

~~78.~~77. Reconnaissance visits are undertaken by the various stakeholders namely, Catchment Management and environment committees and other stakeholders. This ensures that the actual interventions that are required are confirmed. Based on the vulnerability, proximity to the fragile ecosystems, resource users and gender considerations the following beneficiaries were selected.

Criterion 1: Vulnerability

Refugees (in Kyaka II refugee settlement in Kyegegwa district), women, youth (e.g., Botifa youth empowerment group) and Peoples with Disability (PWD) and People living with HIV/AIDS are the most vulnerable groups selected for project interventions. These vulnerable groups among the communities are struggling to survive and therefore, they often seek for the closest option. Natural resources are considered as an open option, as such, they are culprits.

Criterion 2: Proximity to the fragile ecosystems

People in the most degraded hot spot areas have been targeted for this project because these are frontline people that interact with the fragile ecosystems daily. The degraded hot spots are Ruyonza, Ky~~e~~era and Lwabenge sub-counties in Kyegegwa, Sembabule and Kalungu districts respectively. Within these sub counties, the fragile ecosystems targeted under this project are River Katonga wetland system and banks that cut across the three sub-counties, the highly degraded Katooba Central Forest Reserve that is partly in Kyeera sub-county as well as the hilly, bare and open landscapes in Ruyonza in Kyegegwa district. Although flat, Lwabenge has also been selected for having open flood plains with strong winds and is highly susceptible to floods. Other hot spot fragile ecosystems considered for the project are deforested and flood prone areas in Lwabenge in Kalungu district. Similarly, farmlands in the three sub-counties are highly degraded having been depleted of the tree cover and soil nutrients. In addition, wetlands in Ruyonza, Ky~~e~~era and Lwabenge have been degraded due to excessive drainage agricultural crop farming, sand mining, eucalyptus planting and brick making are targeted. Furthermore, riverbanks currently degraded by agriculture and tree cutting have been selected for stabilization with bamboo planting. Communities living in proximity to such degraded hot spot fragile ecosystems own the land or are most responsible for the observed degradation. For this case, community members have been selected to participate in interventions for sustainable management of the fragile ecosystems such as tree planting across deforested areas, wetlands demarcation and stabilization of riverbanks using bamboo but also serve as a source of handcraft materials for income for this approach will help in enhancing the resilience of the natural resources.

Criterion 3: Resource users

The resource user groups selected for the project are the community groups in hotspot areas with demonstrated interests in respective interventions and include cultivators, coffee farmers, cattle keepers, charcoal burners, brick makers, sand miners, grazers, tree nursery operators and bee keepers.

Criterion 4: Gender

Deliberate effort was made to ensure that at least 50% of the targeted RECOFE project beneficiaries are

women. Such gender consideration was done in consultation with local leaders and sub-catchment management committees. About 80% of women and women groups have been targeted by engaging women in bee keeping and coffee agroforestry enterprise chain development activities during project implementation. Similarly, women are targeted in group leadership and decision making in resource use and management.

Outcome 3.1 Increased resilience of ecosystems and incomes for sustainable stakeholder livelihoods

Output 3.1.1 Nature-based enterprises promoted

~~79.~~78. To implement Output 3.1.1, two nature-based enterprises will be promoted among the community in the Katonga catchment. The two nature-based enterprises are **bee keeping (Apiculture)** and **Coffee based agroforestry**. These nature-based enterprises provide a sure way of enabling climate change impacts vulnerable communities to earn income and improve their capacity to deal with the impacts. With increased incomes, community members become more resilient to climate change risks. In posterity, they will participate more in conserving the ecosystems other than engaging in degradation activities.

(i) Bee keeping:

~~80.~~79. The Uganda government has two statutory instruments (SIs) on Apiculture namely: the Animal Diseases (Declaration of Bees as Animals) Instrument, 2004. No.72; and the Animal Diseases (Control of Bee Diseases) Instrument, 2004 No. 73 which provides rules and guidelines to be adhered to in bee keeping. The National Residue Monitoring Plan (NRMP) for honey and other bee products inspection and quality assurance was developed in 2005 and is reviewed and implemented every year as an additional framework to be followed in promoting bee farming. In the proposed project, promotion of bee keeping will be towing the line of the highlighted frameworks. In Uganda, apiculture is adapted under the department of Livestock Health and Entomology (DLH&E), directorate of Animal Resources (DAR) in the Ministry of Agriculture, Animal Industry. Through conservation of bee habitats and promotion appropriate healthy forage plants that provide nectar and pollen, reduced degradation of habitats for bees, bee keeping will contribute to enhancement and maintenance of environment and ecosystems especially forest, wetland and agricultural ecosystems as well as biodiversity hence ecosystem and community resilience.

~~81.~~80. The locations for bee keeping will be in Kajumbura village, Karwenyi parish, Ruyonza Sub County, Kyegegwa district adjacent to Katonga Wildlife reserve; Makoole village, Makoole parish Lwemiyaga Sub County in Sembabule adjacent to Katooba Central Reserve, and in Luzira village, Bugonzi parish, Bukulula sub county, Kalungu district adjacent to Bugonzi Central Forest Reserve. The entry point will be to undertake general sensitisation of communities in bee keeping through community groups and mass media and thereafter target persons already exhibiting interest in bee keeping, who will be encouraged to form groups for effective and efficient mobilization and provision of the much-needed extension services. Twenty community bee keeping groups in the target sub counties will be trained. Under this project bee keeping will be supported by undertaking the following specific activities.

Activities

Activity 3.1.1.1 Sensitize communities on bee keeping in the target villages

- Regular sensitisation meetings will be conducted for at each target village on bee keeping. Sensitisations will be provided by Partners and extension workers within the Local Governments and project staff. Based on the sensitisation, farmers are likely to adopt the bee keeping practices as they they will be convinced of the benefits in terms of productivity and potential for alternative income generation. Development of non-agricultural sources of income such as beekeeping is one of aspects of diversification, Aspects of processing and profitability will be emphasized.
- **Activity 3.1.1.2** Conduct hands-on training of at least 8 bee keeping community groups (of 25-30 members) to develop business plans, setting up of bee keeping enterprises, post-harvest handling, value addition and marketing for implementing bee keeping.
- The bee keeping community groups will receive training in production and business plan development, understanding of bee productl markets, marketing, and negotiation skills. They will be taught "bee keeping as a business" and promote the use of basic business plans for various bee products. Project staff will facilitate this together with Local Government extension workers including the Commercial Officers and Community Development Officers. Simultaneously the project will facilitate linkages between the beekeepers and private sector actors, including input distributors as well as potential

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buyers of raw and/or processed bee products.

- **Activity 3.1.1.3** Provide equipment for setting up bee keeping business, post-harvest handling/storage and value addition to community beekeeping groups—
- The project will equip the bee keeping community groups and processors with adequate equipment and materials to setting up bee keeping business, post-harvest handling/storage and value addition.
- The project will support bee product processing in a sustainable way using appropriate bee keeping equipment. The focus will be on improving the quality of traditional harvesting and processing methods through the dissemination of improved and modern methods.
- **Activity 3.1.1.4** Support community bee keeping groups to add value to bee keeping products–
- The community groups will be trained to add value to the bee products using equipment procured under 3.1.1.3. Trainers will be identified from the key project stakeholders at the IE and private sector.
- **Activity 3.1.1.5** Support the community groups to set up points of sale and market the products from bee keeping.–
- The IE will engage the District Commercial Officers **and other players in the private sector to help farmers set up** up points of sale and market the products to set up points of sale and market the products. These may be based in the local markets and other centres.

(ii) Coffee based agroforestry enterprise (banana and fruit trees and fodder)

~~82.~~81. Uganda has several legislative frameworks that support the development and management of Agroforestry systems. The most important of these, is the National Forestry and Tree Planting Act (8/2003). The focus of the Coffee based agroforestry enterprise is to halt the decline in soil fertility caused by climate related effects such as soil erosion. The Coffee based agroforestry system will improve the incomes of households through the sale of Coffee as well ~~as providing~~as providing agroforestry products such as fruits, fuelwood, and fodder among others. This is in line with the national development agenda and international obligations to which Uganda is a party. The careful choice of agroforestry tree species (mainly indigenous trees (e.g. *Markhamia lutea*, *Ficus natalensis*, *Albizzia coriaria* and *Cordia africana* – including the legumes that are Nitrogen fixing) will not exacerbate the described existing land problems because they will be integrated with the crops. Coffee based agroforestry is particularly suited for landscape restoration and control of soil erosion. It can thus contribute to the resilience of landscapes to extreme weather conditions. This enterprise will be promoted in Kasabwera village, Kiraaga parish, Lwabenge Sub County in Kalungu district in cotton-Robusta coffee-Tea-Timber farming system, and in Nkonge village, Makoole parish, Lwemiyaga Sub County in Sembabule district. In the Coffee-Tobacco farming system. –Coffee Based Agroforestry will thus contribute to the resilience of landscapes to extreme weather conditions, by increasing vegetation coverage, soil ecosystems, and productivity of the farmlands. The agroforestry trees will help to reduce erosion and silting of the Katonga River and associated wetlands ultimately enhancing resilience. Increasing soil productivity will help to address the problem of agricultural encroachment on the vulnerable ecosystems in target sub counties. At 10 months, clonal Robusta coffee starts flowering, implying that by one and half to two years, a farmer would start earning from his coffee plantation. The Coffee can be harvested every year from two – three years after planting, enhancing community livelihoods. Moreover, the trees planted on farm alongside the Coffee will provide tree products such as fruits, firewood, poles, herbal medicine, among others. The specific activities are:

Activities

Activity 3.1.1.6 Sensitize communities on the ~~coffee based~~coffee-based agroforestry systems in the target sub counties—

-Develop sensitization materials for communities based on the needs assessments

-Identify venues and mobilize communities for the sensitisation

-Budget and conduct the sensitisations

- **Activity 3.1.1.7** Conduct hands-on training of at least 8 community groups to develop business plans, setting up of ~~coffee based~~coffee-based agroforestry enterprises, post-harvest handling, value addition and marketing for implementing the agroforestry enterprises-

-Develop training modules for hands on training of community groups

-Identify venues and mobilize community groups for the training

-Budget and conduct the training of community groups

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- **Activity 3.1.1.8** Provide planting materials including coffee seedlings, tree seedlings, crops (or livestock) for setting up the enterprises~~, post-harvest handling and value addition to community members~~
  - Ascertain the needs/quantities of planting materials including coffee seedlings, tree seedlings, crops (or livestock) following the desired acrearages
  - Develop Bills of Quantities, identify suppliesr through standard procurement procedures, then procure the materials based on the cropping calender
- **Activity 3.1.1.9** Support community groups engaged in ~~coffee based~~coffee-based agroforestry enterprises to add value to different products
  - The project will engage trainers to support community groups engaged in coffee-based agroforestry enterprises to add value to different products
- **Activity 3.1.1.10** Support the community groups to set up points of sale and market the products from agroforestry enterprises.
- **Activity 3.1.1.11** Support community groups to set up points of sale and market the products from agroforestry enterprises.
  - The PO will engage the District Commercial Officers and other players in the private sector to help farmers to set up points of sale and market the products. These may be based in the local markets and other centres

Output 3.1.2 Market linkages of products from nature-based enterprises established

~~83.~~82. The activities under output 3.1.2 will focus on aiding the stakeholders involved in implementation of nature-based enterprises to obtain market linkages for products from the nature-based enterprises. The nature-based innovations groups will be targeted for exposure and participation in business forums, trade fairs and exhibitions. The beneficiary groups of nature-based enterprises will 8 groups from Kakoma, Makoole and Lubale parishes in Kyeera; 6 groups from Rwensambya CFR and parishes of Karwenyi and Katiirwe parishes in Kayonza Sub County, and 6 groups from Bwesa, Kikaaga and Bugolola parishes in Lwabenge Sub County. This will directly lead to the establishment and sustainable management of economically viable nature-based enterprises. As a result of the profitable ventures, enterprises will reduce pressure (in form of degradation and pollution) exerted to the natural resources in the catchment, whilst providing financial rewards to communities. The enterprises will thus ensure resilience of fragile ecosystems to impacts of climate change, achieved through promoting conservation of valuable habitats in support of the economically viable nature based ~~enterprises.~~ enterprises. The specific activities are:

Activities

- **Activity 3.1.2.1** Facilitate nature-based beneficiary groups to participate in business forums, trade fairs and~~&~~ exhibitions.
  - The PO will identify appropriate business forums, trade fairs and exhibitions for the groupd to attend
  - They will plan the trips and support the groups to prepare and participate
- **Activity 3.1.2.2** Facilitate community groups to establish formal market linkages for their products
  - The District Commercial Officers and Community Development Officers will support community groups to identify potential market linkages for their products
  - The District Commercial Officers and Community Development Officers will then provide technical backstopping to enable community groups negotiate and establish formal market linkages for their products
- **Activity 3.1.2.3** Facilitate establishment and operation of a market information system
  - The PO will engage competent staff tor specialists to design a Simple market information system
  - Simple market information systems will be established at the Sub County or District Commercial Offices with supervision of the relevant officers
- **Activity 3.1.2.4** Develop promotional materials for marketing of products
- The Project Office will generate the content for promotional materials for marketing the products
- Through appropriate procureent processes, the the promotional materials for marketing the products will be produced

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Output 3.1.3 Entrepreneur skills of stakeholders enhanced

Activities

- **Activity 3.1.3.1** Facilitate registration of small-scale businesses

-The project will facilitate the District Commercial Officers and Community Development Officers to enable the groups register their small-scale businesses

- -The project will facilitate registration of small-scale businesses

- **Activity 3.1.3.2** Conduct refresher training courses for entrepreneurs in management of ~~nature based~~nature-based enterprises

-Develop training modules for refresher training courses for entrepreneurs in management of nature-based enterprises

-Identify venues and mobilize community groups for the training

- -Budget and conduct the refresher training of community groups

- **Activity 3.1.3.3** Review the functioning ~~nature based~~nature-based businesses

-Develop a proposal to carry out a review the functioning nature-based businesses

-Carry out a participatory evaluation to review the functioning nature-based businesses

Outcome 3.2 Enhanced ecosystem health

Output 3.2.1 Fragile ecosystems conserved

~~84.~~83. The main fragile ecosystems that will be conserved are wetlands, riverbanks and forest landscapes. These ecosystems are majorly degraded by encroachment of communities for agricultural crop farming, eucalyptus growing and brick laying and charcoal burning etc. The proposed project seeks to restore such degraded fragile ecosystems to enhance their resilience to climate change. The project will increase the resilience of both the communities and fragile ecosystems to the impacts of climate change. The project is expected to contribute towards addressing the critical challenges related to natural resources management and sustainable socio-economic development without destroying the environment which is the major source of income for many livelihoods. It will increase the resilience of ecosystems by supporting sustainable management of forests, wetlands and riverbanks. It will also increase resilience of other community livelihood systems by supporting income generating activities with credit and market access. The project will assure that ecosystems can continue to provide ecosystem services important for adaptation and resilience against the impact of climate change, while alternative income generating opportunities for livelihoods do not only provide additional incomes for vulnerable communities in the catchment, but also reduce pressure on natural resources. In this component, activities that focus on assisting vulnerable communities to adapt climate resilient ecosystem management measures, as well as investing in alternative income generating activities will be implemented. The component will support the development and implementation of catchment based and community driven actions for sustainable management of ecosystems such as forests, wetlands and riverbanks in the catchment. Resilience of ecosystems will be enhanced through providing inputs for afforestation, wetland and river banks demarcation as well as for implementation of wetland and river bank action plans and implementation of plans to restore degraded river banks and protect buffer zones, support selected communities to prepare and implement wetland restoration and management plans. The degraded wetlands and river banks that will be restored have been selected and agreed on by the stakeholders.

(i) Wetlands restoration and management

In light of the mandate emanating from the constitution of Uganda, the National Environment Act (2019) authorizes the Ministry of Water and Environment (MWE) in collaboration with National Environment Management Authority (NEMA), to ensure that wetlands are conserved for the common good of the people of Uganda. The Environment Act outlines principles that management of wetlands has to comply with. In addition, specifically part II of the National Environment Act (wetlands, riverbanks and lakeshores management) regulations, principles that have to be observed in the management of all wetlands are set out. These will closely be adhered to in the course of restoration and management of wetlands to avoid maladaptation. The restoration and management of degraded wetlands will culminate into rejuvenation of the many different essential functions including prevention of flooding by soaking up excess rain; acting as natural filters removing silt, pollutants and toxic substances thereby improving wetlands health hence their resilience to climate change impacts. The degraded Katonga wetland hotspots in the parishes of Karwenyi and Katiirwe in Ruyonza Sub County, Kiraaga parish in Lwabenge sub-county, and Kakoma, Makoole and Lubaale parishes, Kyeera Sub County will be the key areas of focus for the wetland restoration. The intervention will be implemented through an Integrated Water Resources Management approach, which aims

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to ensure a process that promotes coordinated development and management of water, land, and related resources in a drainage basin, to maximise economic and social welfare equitably, without compromising the sustainability of vital ecosystems. In addition to the principles that are clearly explained in the outlined regulations and will be adhered to, lessons of wetlands management including demarcation will be drawn from the ongoing government initiatives such as in the "*Enhancing Resilience of Communities to Climate Change through Catchment Based Integrated Management of Water and Related Resources in Uganda*" (EURECCCA-SOS) project, to avoid maladaptation. The specific activities are:

Activities

- **Activity 3.2.1.1** Sensitize communities and catchment management committees in the outlined parishes on wetland ecosystems management
  - -Identify/define target audience
  - -Developing the key messages
  - -Select and Train Community
  - -Establish effective approaches and carry out sensitization
- **Activity 3.2.1.2** Train duty bearers (as outlined in Table 4) in sustainable management and/or utilization of wetlands
  - -Develop training modules for training of duty bearers
  - -Identify venues and mobilize duty bearers for the training
  - -Budget and conduct the training of duty bearers
- **Activity 3.2.1.3** Support communities and catchment management committees in the target parishes to develop and implement wetlands management action plans, including activities such as demarcating degraded wetlands with pillars and live markers. Such demarcation serves to discourage wetland encroachment and discern specific areas to pursue and allow regeneration and rehabilitation to take place thereby increasing their resilience. When wetlands are not demarcated, wetland use becomes extensive. Encroachment for agricultural crop farming, eucalyptus growing and establishment of settlements escalate.
  - -Define planning areas and set objectives
  - -Gather necessary information through consultations with key stakeholders & fill gaps
  - -Draft plan and revise draft after review
- **Activity 3.2.1.4** Support communities and catchment management committees to establish wetland management measures that will include development and implementation of wetlands management plan, and development and enforcement of district ordinances and Sub County ~~byelaws..~~byelaws.
  - -Disseminate wetlands management plan amongst respective stakeholders
  - -Define roles and responsibilities of the respective stakeholders in implementation of the plan
  - -Implement plan and monitor progress

(ii) Riverbanks restoration and management

84. Part III of the National Environment Act (wetlands, riverbanks and lakeshores management) regulations provides for the management of River Bank and Lakeshores. The regulations detail principles to be observed, and probable actions in the management and conservation of riverbanks and lakeshores. Riverbanks support highly diverse habitats and wildlife despite their small area in landscapes. Their value if undisturbed or restored includes flood regulation under circumstances of heavy precipitation in extreme weather conditions, provision of amenity and water supply to communities. Restoration of the riverbanks therefore increases resilience of such ecosystems to extreme weather conditions as a result of climate change. The Katonga degraded riverbank hotspots in the parishes of Karwenyi and Katiirwe in Ruyonza sub county, Kiraaga parish in Lwabenge sub-county, and Kakoma, Makoole and Lubaale parishes, Kyeera sub county will be the key areas of ~~focus..~~focus. The degraded Katonga wetland hotspots. The intervention will be implemented through an IWRM approach, drawing lessons from EURECCCA (SOS) project, and in line with National Environment Act (wetlands, riverbanks and lakeshores management) regulations provides for the management of River Bank and Lakeshores to avoid ~~maladaptation..~~maladaptation. The planned activities are as follows

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Activities

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- **Activity 3.2.1.5** Sensitise communities and catchment management committees on river bank ecosystems management
  -Identify/define target audience
  -Developing the key messages
  -Select and Train Community
  -Establish effective approaches and carry out sensitization

- **Activity 3.2.1.6** Train stakeholders in sustainable management and/or utilization of river banks –
  -Develop training modules for training of stakeholders
  -Identify venues and mobilize stakeholders for the training
  -Budget and conduct the training of stakeholders

- **Activity 3.2.1.7** Support communities and catchment management committees to develop and implement restoration action plans, including demarcating and restoring degraded river banks with live markers such as Calliandra species (*Calliandra* ~~*calothyrsus*) Demarcation~~*calothyrsus*) Demarcation of river banks is provided for in the National Environment management Act, 2019. Demarcation serves to discourage agricultural encroachment such as through cultivation close to the river banks Demarcation shows the fragile areas beyond which unsustainable activities should not take place or should be stopped.
  -Develop river bank restoration plans
  -Share and popularize the river bank restoration plans amongst respective stakeholders
  -Define roles and responsibilities of the respective stakeholders in implementation of restoration plans
  -Implement restoration plans and monitor progress-

(iii) Forest landscapes restoration

~~86.~~85. Restoration of forest landscapes will lead to restoration of provisioning, regulatory, cultural and supporting functions of the forest landscape such as amelioration of micro-climate, water recycling (rainfall formation) and reduction of runoff and therefore recharge of underground water in addition to controlling soil erosion, increased solid productivity, all of which contribute to increased resilience of both the ecosystems and beneficiaries to the impacts of climate change. The proposed tree nurseries save considerable time for raising of quality seedlings of indigenous and naturalised drought resistant tree species to enhance restoration of degraded forest ecosystems and landscapes by local communities. The locations for forest landscape restoration will be in Kyeera sub county, Makoole parish to relieve pressure on the highly degraded Katoba CFR, the hilly deforested areas in Ruyonza sub county, in the parishes of Karwenyi and Katiirwe, in addition of the degraded Rwensambya Central Forest Reserve, as well as in Lwabenge sub county in the parishes of Bwesa, Kiraaga, Bugomola, and also Kalungu Local Forest Reserve in Kalungu sub county.. Forest landscape restoration approach promoting indigenous tree growing through enrichment planting, farm managed natural regeneration, woodlot establishments, boundary tree planting and agroforestry will be used. The aspect of indigenous trees will enormously contribute to restoration biodiversity Tree Nurseries establishments will save considerable time for raising of quality seedlings to enhance restoration of degraded ecosystems and landscapes by local communities. The proposed activities to restore degraded forest landscapes are:

Activities

- **Activity 3.2.1.8** Train selected farmers/CBOs in tree nursery establishment and management-
  -Identify interested stakeholders and their respective capacity gaps in tree nursery establishment
  -Develop training module and concept to conduct the training
  -Conduct training using appropriate approaches for target stakeholders in tree nursery establishment

- **Activity 3.2.1.9** Provide nursery equipment and materials to establish three tree nurseries with a capacity of raising and delivering 100 seedlings each in Kyeera, Ruyonza and Lwabenge Sub Counties

- **Activity 3.2.1.10** Train selected farmers/CBOs on tree growing approaches and silvicultural practices
  -Assess capacity gaps of farmers/CBOs on tree growing
  -Develop training modules and concept

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-Conduct training on tree growing

- **Activity 3.2.1.11** Provide tree seedlings to farmers for planting

-Identify farmers and register those interested in tree planting
-Generate lists of tree species preferred by the farmers
-Support farmers in lining out and pitting
-Supply tree seedlings to farmers based on the number of pits
-Monitor tree seedling survival

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The training plan for stakeholders and entrepreneurs in business management skills, roles and responsibilities of the duty bearers at the grassroots, nature-based enterprises, smart agricultural practices and livestock management, value addition branding and blending, post-harvest handling, natural resources governance and restoration of fragile ecosystems is presented in Table 4. This is aimed at capacitating the targeted stakeholders to improve their climate change resilience and management capability.

Table 4: The training activity plan

Component	Specific Project Training Activity	Stakeholders	Training Methods	Responsible Persons	Timelines (Years)	
					1	2
Component 1: Strengthening capacity of key grass root stakeholders	**Activity 1.1.1.3** Training in roles and responsibilities of the duty bearers at the grassroots. This is aimed at capacitating the targeted stakeholders to improve their management capability.	• Sub-County Chiefs and Sub County Community Development Officers (CDO) who are members of the SC technical Planning Committee. • Elderly, youths chairperson, NRM party, sec info, • Parish Leaders as members of the Parish Development Committee (PDC) • LC I, LC II and LC III committee members • LC III Councilors • Women and Youth Group leaders • Local Entrepreneurs for various nature-based enterprises e.g. Bee keeping enterprise • Community leaders in Environment and natural resources committee leaders • Katonga Sub-Catchment Management Committee (SCMCs) • Representatives of the associations of Resource user groups e.g. fishermen/women, charcoal burners, brick makers, firewood seller, etc. • Uganda Police/CFPU-Child and Family Protection Unit.	• Training workshops • Presentations and discussions with group exercises	• DWRM, VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		
	Activity 1.2.1.4 Develop and strengthen the governance and leadership frameworks (including by-laws, ordinances and guidelines). This activity will focus on training new and existing groups on: Developing different natural resources management guidelines, community bylaws and district ordinances.	• Community groups supported by RECOFE • Katonga Sub-Catchment Management Committee (SCMCs) • Sub County Chiefs and Parish Leaders • LCI, LCII, and LC III representatives • Councilors at LCIII and District levels • District Technical staff from the department of Natural resources, Agriculture and Community services. • Representatives of Women and Youths • Environment and natural resources committee leaders at all levels of local Councils • Sub County Community Development Officers • Uganda Police/CFPU-Child and Family Protection Unit.	• Training workshops •	• DWRM and VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		

		• Local Entrepreneurs involved and interested in bee keeping and other NbS.				
Component 2: Promoting appropriate water storage technologies	**Activity 2.1.1.4** Train farmers in smart agricultural practices and improved livestock management.	• Community groups which express interest in RECOFE and are registered to participate in the project activities.	• Community group induction meetings • Field visits to model farmers supported by OWC, and Farmer Field Schools within the region Hands-on (practical) training	• DWRM, VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		
	Activity 2.1.1.6 Train farmers in improved post-harvest handling technologies	Community groups which express interest in RECOFE and are registered to participate in the project activities.	• Community group induction meetings/ • Field visits to model farmers supported by OWC, and Farmer Field Schools within the region Hands-on (practical) training	• DWRM, VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		
Component 3: Supporting nature-based enterprises for sustainable socio-economic development	**Activity 3.1.1.2** Conduct hands-on training at least 8 community groups to develop business plans, setting up of bee keeping enterprises, post-harvest handling, value addition and marketing for implementing bee keeping.	• Community groups which express interest in RECOFE and are registered to participate in the project activities.	• Community group induction meetings/ • Hands-on (practical) training	• DWRM, VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		
	Activity 3.1.1.7 Conduct hands-on training of at least 8 community groups to develop business plans, setting up of coffee based agroforestry enterprises, post-harvest handling, value addition and marketing for	• Community groups which express interest in RECOFE and are registered to participate in the project activities.	• Community group induction meetings/ Hands-on (practical) training	• DWRM, VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff		

	implementing the agroforestry enterprises			• Consultants		
	Activity 3.1.3.2 Conduct refresher training courses for entrepreneurs in management of nature based enterprises	• Community groups which express interest in RECOFE and are registered to participate in the project activities.	• Community group induction meetings/ • Field visits to model farmers supported by OWC, and Farmer Field Schools within the region Hands-on (practical) training	• DWRM and VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		
	Activity 3.2.1.2 Train stakeholders in sustainable management and/or utilization of wetlands	• Local Community within the project area/hotspot sub counties • Community groups which express interest in RECOFE and are registered to participate in the project activities • Sub-County Chiefs and Sub County Community Development Officers (CDO) who are members of the SC technical Planning Committee. • Elderly, youths chairperson, NRM party, sec info, • Parish Leaders as members of the Parish Development Committee (PDC) • LC I, LC II and LC III committee members • LC III Councilors • Women and Youth Group leaders • Local Entrepreneurs for various nature-based enterprises e.g Bee keeping enterprise • Community leaders in Environment and natural resources committee leaders • Katonga Sub-Catchment Management Committee (SCMCs) • Representatives of the associations of Resource user groups e.g fishermen/women, charcoal burners, brick makers, firewood seller, etc • Uganda Police/CFPU-Child and Family Protection Unit. •	• Community group induction meetings. • Field excursion/Field visits to model farmers and Tree Nurseries managed by NFA within the western region • Hands-on (practical)	• DWRM and VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		
	Activity 3.2.1.6 Train stakeholders in sustainable management and/or utilization of river banks	• Community groups which express interest in RECOFE and are registered to participate in the project activities.	•	•		
	Activity 3.2.1.8 Train selected farmers/CBOs in tree nursery establishment and management	• Community groups which express interest in RECOFE and are registered to participate in the project activities.	• Community group induction meetings/	• DWRM, VWMZ as the Focal Executing entities • GWPEA,		

			• Field visits to model farmers and Tree Nurseries managed by NFA within the western region •	• Focal District Technical Staff • Consultants		
	Activity 3.2.1.10 Train selected farmers/CBOs on tree growing approaches and silvicultural practices	• Community groups which express interest in RECOFE and are registered to participate in the project activities.	• Community group induction meetings/ • Field visits to model farmers and Tree Nurseries managed by NFA within the western region • Hands-on (practical) training	• DWRM, VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		
Component 4: Supporting knowledge management and information sharing	**Activity 4.1.1.1** Organise exchange visits to areas with successful innovative climate change adaptation interventions to enable experience sharing and cross-learning	• Community groups which express interest in RECOFE and are registered to participate in the project activities.	• Community group induction meetings/ • Field visits to model farmers supported by OWC, and Farmer Field Schools within the region • Hands-on (practical) training	• DWRM, VWMZ as the Focal Executing entities • GWPEA, • Focal District Technical Staff • Consultants		

Component 4:
Knowledge management and information sharing

Baseline situation

~~87.~~86. Overall, documenting substantive lessons and good practices from program and or project implementation, including the projects focusing on resilience and adaptive capacity of communities and ecosystems towards climate change is very important in informing scalability, policy, programming and advocacy. However, the documented evidence is sometimes adequately disseminated and read by intended recipients. Learning and adopting climate change solutions by the most vulnerable communities can be enhanced by cross-exchange of information, study tours and/or visiting as well as learning from successful innovate adaptation projects. However, the limited financial resources to execute such ventures impedes efforts of taking forward such meaningful planned activities.

Proposed interventions

~~88.~~87. The project seeks to take steps to strengthen the knowledge management and information sharing through engaging key stakeholders in the catchment with the aim of ensuring that a large mass receives the message/information through various channels ranging from electronic to print media. Direct stakeholder engagements and production of documentaries, signposts, and leaflets will be done. Such will be achieved successfully through localizing the information to aid the understanding of stakeholders especially the local communities. The community radios/loud speakers and talk shows on local FM radio stations having high listenership/coverage in the district/region will be used. The Project will also support and coordinate different stakeholder's needs and capacities in collecting, generating, analyzing and disseminating relevant project information on implementing the local adaptation actions. The project will endeavor to reach out to a wider audience for purposes of creating impact and ownership. The targeted group for the project interventions will include Catchment and sub-catchment management committees, environmental committees, CSOs/NGOs, private sector and communities including the vulnerable groups of men and women including the youth and PWDs and among the populations in the catchment. It is expected that the proposed project will contribute to addressing climate resilience needs, which are priority in the catchment.

Outcome 4.1 Lessons and good practices shared and adopted

Output 4.1.1 Knowledge management and information sharing system developed

~~89.~~88. A knowledge management framework will be developed to guide documentation of lessons and experiences, plan the delivery and dissemination of information in support of up scaling successful stories in building resilience of ecosystems not only in Katonga catchment, but also in all catchments in other water management zones in Uganda. The framework will make sure that all the elements of knowledge management are in place and connected with each other.

Activities

- **Activity 4.1.1.1** Organise Study tours/visits, for existing Women and Youth Groups, ~~and New~~and New Women and Youth Groups community groups benefiting from the RECOFE project interventions, to areas with successful innovative climate change adaptation interventions to enable experience sharing and cross-learning
- **Activity 4.1.1.2** Organize learning events in climate change adaptation for duty bearers (local government technical staff in the departments of Production and natural resources, respective Community leaders on Environment and natural resources committees; Sub-County and Parish Leaders, Local council II & III leaders including councilors, and community development officers)
- **Activity 4.1.1.3** Document lessons, good practices from project interventions and disseminate them to stakeholders at the community level, local government level, and National level (Key Ministries, Agencies and Departments) for possible replication and up-scaling **Activity 4.1.1.4** Prepare/develop popular versions of successes and lessons learnt and a policy brief from RECOFE for duty bearers (Local government technical staff in the departments of Production and Natural Resources, respective Community leaders on Environment and natural resources committees; Sub-County and Parish Leaders, Local council II & III leaders including councilors, and community development officers

B. Economic, Social and Environmental benefits and mitigation of negative impacts

~~90.~~89. The interventions of the proposed project are designed to provide the economic, social and environmental benefits to vulnerable communities and vulnerable groups among the targeted populations within the context of the Environmental and Social Policy and Gender Policy 2016 of the Adaptation Fund. Overall, this project targets to provide benefits directly to 20, 852 people (and up to 139,011 people indirectly – 118,159 through establishment of community groups for the management of micro-irrigation projects and nature-based solutions/enterprises, community groups for the management of productive components, and networks related to enhancement of resilience to climate change. The community members and other stakeholders involved in water, food, agriculture, livestock, environment and natural resources management at grassroots; including the personnel from National Forestry Authority (NFA), Wetlands Management Department, Water and Sanitation Development Facility (WSDF-West) and Western Umbrella for Water and Sanitation (WUWS) and National Environment Authority (NEMA) that engage and interact with grass root communities among others will derive social, economic and environmental benefits as highlighted below.

Economic benefits

~~91.~~90. From the design, the project will provide economic benefits by directly contributing to improving the alternative livelihoods and incomes of the community members. This is possible especially considering that one of the key interventions focuses on establishing nature-based enterprises such as bee keeping, and Coffee based agroforestry (Activity 3.1.1.1 and Activity 3.1.1.6). Economically, it is expected that community members especially the women that engage in such alternative livelihood options will in posterity manage to obtain additional incomes that will be utilized to enhance their production at household and community levels. In addition, through the proposed training in roles and responsibilities of the duty bearers at the grassroots (Activity 1.1.1.3) contributes to economic benefits by capacitating the targeted stakeholders to improve their management capability especially of the production initiatives they are or will be engaged in. such improved capacity serves to reduce investment costs thereby increasing profits and benefits.

~~92.~~91. Furthermore, as the project supports construction and/or rehabilitates low cost and appropriate water dams to capture and store water to address the challenges of water scarcity in support of micro-irrigation schemes and livestock management most especially in extreme weather conditions (Activity 2.1.1.1), more economic benefits will be realized by beneficiaries considering that more water harvesting and storage facilities for community members or households will be available to support production at community and household levels. In such a situation, it is expected that with knowledge, information and skills acquired people will have adequate water resources to continue engaging in productive /income generating activities. In facilitating the development of simple biophysical water harvesting technologies for crop and livestock production, constructing micro-irrigation demonstrations for stakeholders to learn innovative irrigation techniques in water harvesting, storage and use (water use efficiency) will be realized and climate smart agriculture and improved livestock management for increased crop and livestock production will be promoted (Activity 2.1.1.3).

~~93.~~92. Community members especially women and youth whose control and access to big and productive chunks of land will be supported to manage land in a better way using improved crop husbandry practices, climate smart practices (mulching, minimum tillage etc.), irrigation, use of improved breeds, and improved post-harvest handing technologies (Activities 2.1.1.4, 2.1.1.5 and 2.1.1.6). Such interventions among others will increase the productivity of the land per unit thereby maximizing land utilization without necessary expansion of the land. Generally, other interventions such as establishing value chains for bee keeping and Coffee based agroforestry as key nature-based enterprises (including production, processing, handling/storage, packaging/ eco-labelling (Activity 3.1.1.4 and Activity 3.1.1.10) and stakeholders' participation in business forums, trade fairs & exhibitions (Activity 3.1.2.1) that will be facilitated by the project are aimed at capacitating the community members with knowledge, information and skills to enable them derive greater economic benefits. Overall, apart from the direct investments in alternative livelihood options from nature-based enterprises that trigger direct improvements in incomes for the most vulnerable members (women, youth and PWDs) in the targeted sites, the proposed project activities indirectly provide economic benefits to beneficiaries through improving water security, sustainable land management for better crop and livestock production, marketing and value chain management to reduce the would be economic losses, hence maximizing incomes.

Social benefits

~~94.~~93. Socially, the project interventions are geared towards improving the capacity of resource poor women, youth and PWDs for establishing, managing, developing and benefiting from nature-based enterprises and water infrastructural investments. The project is designed to promote rights of the most vulnerable groups within communities and households by supporting them to engage in livelihood options that do not discriminate against cultural norms. The project is designed to promote governance and improved management of natural resources including land and water at grassroots by proposing to capacitate the grass root resource management leadership frameworks and engagement of key stakeholders.

~~95.~~94. The project also supports the most vulnerable by facilitating resource use negotiations and development of management plans, Memorandum of Understanding (MoUs) between the communities and duty bearers of the natural resources (Activity 1.2.1.3). Such negotiations especially with communities and MWE, National Forestry Authority as well as wetlands personnel improves relationships and minimizes conflicts. Through organised training for new and existing groups of women and other community members, improved decision making and community relationships will be enhanced as well as social cohesion to undertake mutually beneficial productive activities will be a strong social benefit achievement. Such highlighted benefits are possible through trainings on gender roles and responsibilities, gender and conflict sensitivity, accountability, managerial skills, group dynamics, conflict management, managing information, originating and developing natural resources guidelines, byelaws, ordinances and contributing to revision and/or developing policies governing natural resources. Therefore, the main social benefits from this project are improved decision making, social cohesion, reduced conflicts, strengthened governance and leadership for natural resources and people relationships. Harmony and social inclusion are other social benefits that will be promoted by the proposed project.

Environmental benefits

~~96.~~95. The project supports construction of facilities for water harvesting and storage and low-cost micro-irrigation schemes in addition to promoting simple climate smart technologies for crop and livestock production. These are technologies that do not lead to land expansion hence may not encroach on the natural capital by increasing production per unit area. Under this project, fragile ecosystem restoration activities for wetlands, riverbanks and reforestation of degraded forest landscape areas will be supported. Furthermore, key nature-based enterprises of bee keeping and coffee agroforestry will be promoted. Such interventions aimed at managing land in a better way using improved crop husbandry practices, climate smart agricultural practices such as (mulching, minimum tillage etc.), micro-irrigation will also be promoted. Such water, and land management measures proposed under this project will provide environmental benefits in terms of enhancing the ecosystem goods and services on which vulnerable community members and nature thrive and survive.

~~97.~~96. This implies that project ~~beneficiaries~~ will support provision of~~have~~ adequate ~~quantity and quality~~ water for ~~domestic use~~production, flood~~s~~ control ~~is~~ will be improved, soil erosion control (especially on steep slop~~es)ing areas is~~will be reduced through climate – smart agriculture practices as replenishment of ground and surface water sources is achieved thereby enhancing the resilience of target drought prone ecosystems. In posterity, community members are able to realise benefits in form of improved land productivity for crop and livestock production leading to higher income and improved food security. Therefore, such interventions will not only ensure water and food secure communities but will also increase the resilience of the ecosystems, support biodiversity and human populations against floods, erosion and pollution as well as contamination of water and soil resources in the Katonga catchment. The key assumption is that during implementation of proposed interventions community members and mainly the vulnerable groups will derive other associated social-economic and environmental co-benefits accruing to them as presented below.

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Outcomes	Social benefits	Economic benefits	Environmental benefits
Outcome 1.1: Capacity of key grass root stakeholders in implementing climate resilient development initiatives strengthened	Enhanced capacity of 100 people of which at least 50% are women. The 100 people will make better decisions, maintain social cohesion, manage conflicts and strengthen governance and leadership for natural resources	Enhanced capacity and decision making will enable at least 100 people and other stakeholders the major benefit of increased income.	Capacity enhancement of stakeholders is beneficial in popularizing the climate resilient initiatives to restore 60% of degraded wetlands, riverbanks and forest landscapes
Outcome 1.2 Governance of natural resources strengthened	Socially, there is enhanced coordination among stakeholders with 30% leadership roles led by women, hence reaching out to more people with climate	Improved governance of natural resources contributes to increases in ecosystem goods and services for at least 50% of vulnerable community members.	Improved governance of natural resources contributes to sustainable management of 60% of restored ecosystems.

	resilient development actions		
Outcome 2.1: Increased water and food security	Socially, there will be reduction in conflicts and unrest over water use and hunger among at least 50% women and other vulnerable groups among at least 30% of population in the catchment.	At least 30% households will have enhanced crop and livestock production leading to increases in incomes.	Land will be better managed and productivity increased. The improved land management through climate resilient husbandry practices, irrigation, use of improved breeds, and improved post-harvest handing technologies enhances ecosystem goods and services on which at least 50% vulnerable community members and nature thrive and survive.
Outcome 3.1 Increased income for improved stakeholder livelihoods	Enhanced team work, group cohesion and cross learning leads to improved productivity by at least 50 HHs taking up new bee keeping and interventions	Income for project beneficiaries increased by at least 30% Enhanced incomes and capital from group organisations and saving	With increased income and alternative livelihoods, sustainable management of natural resources will be achieved.
Outcome 3.2 Enhanced ecosystem health	At least 30% of the population with at least 50% of women will access the increasing ecosystem goods and services for livelihoods. Access to goods and services will be all inclusive because the restored resources will be adequately available.	Healthy ecosystems will support economic activities, and/or production and livelihoods of at least 30% of the population and 50% of women in the catchment.	At least 100 households will not suffer adverse effects of floods. At least 100 households will derive adequate quantity and quality water for domestic use, and replenishment of ground and surface water sources from the 60% of restored wetlands, riverbanks and forest landscapes.
Outcome 4.1 Lessons and good practices shared and adopted	Enhanced awareness and knowledge will lead to improved decision making and rationalization of resources.	Enhanced awareness and knowledge will lead to improved decisions on alternative Income generating activities for at least 30%of the population. Income will improve among at 30% population and 50% women and other vulnerable groups.	At least 50% of the district development plans incorporate CC resilience issues Two policy briefs produced by end of the project

Avoiding or mitigating the negative impacts to project benefits

~~98.~~97. 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. Negative impacts likely to impede vulnerable groups from enjoying the economic, social and environmental benefits, mitigation measures will be undertaken.

~~99.~~98. 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 2.1.1.1, 2.1.1.2, 2.1.1.3 and 2.1.1.7 under component two that will involve construction of appropriate physical water storage facilities, micro-irrigation schemes, crop and livestock management structures and points of sale for market products, activities under component 3 involving undertaking Income Generating Activities (IGAs), e.g. bee keeping and Coffee-based agroforestry as well as establishment of value chains for such nature-based enterprises (including production, processing, handling/ storage, packaging/ labelling) will lead to very minimal negative impacts. Whenever, other impacts arise, compliance with national and international standards, laws and regulations will be ensured.

~~100.~~99. For instance, for the fully identified project activities there is no need for mitigation measures since they generate no risks. 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 agriculturally based activities and those that need reasonable amounts of money to start up like IGAs, deliberate efforts to target such groups have ben 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.

~~101.~~100. 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 beekeeping and agroforestry. 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. 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.

~~102.~~101. 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.

~~103.~~102. Vegetation clearance arising from for water harvesting and storage sites and irrigation systems may result affect biodiversity and reduce the benefits to individuals and populations in those sites. The opening up of new lands for agriculture may also lead to vegetation loss. It is also possible that seeds and improved pastures for increased crop and livestock production may turn out to be invasive. As water storage facilities are constructed, water contamination in the storage reservoirs or irrigation systems 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 and irrigation systems is done thereby reducing changes in 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.

~~104.~~103. 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 is limited benefits access due to limited participation of vulnerable groups such as women and youth groups may negatively impact on provision of benefits by the project. To mitigate such impacts, 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 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 agriculture practices and development of business plans, undertaking of nature-based enterprises will deliberately target women and other vulnerable groups.

~~105.~~104. Overall, to mitigate negative impacts of the interventions highlighted among others in compliance with AF ESP, 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 RECOFE full proposal document. 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-segregated data.

C. Project cost-effectiveness

Determination of project cost effectiveness

105. The total population in target project sites in the Katonga Catchment is 139,011 people (UBOS 2014). Considering a target of 15% of the total population as direct project beneficiaries, this means that 20,852 people are expected to directly benefit from the RECOFE project within the three years of implementation of RECOFE. Based on the total investment cost (USD 2,249,000) of the project, it has been estimated that the unit cost per beneficiary will be USD 108 which is less than the unit discounted total revenue of USD 185 per beneficiary.

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Considering the ex-ante economic analysis of the components 1-4 and Project Co-ordination and Management and the key assumptions the cost effectiveness analysis of the project is presented as follows and demonstrated in Table 5:

- *Cost effectiveness of Component 1 (i.e. strengthening the capacity of grassroot stakeholders).* This combines outcome 1.1 and outcome 1.2 under component 1 of RECOFE. The Third National Development Plan 2020/21-2024/25 released in January 2022 by the National Planning Authority of

Uganda, asserted that human capital development (i.e. training and capacity building) contributes 38% on the labour productivity in Uganda. Therefore, using 38% as a proxy factor to estimate the returns on investment from the training and capacity building activities under component 1 of the proposed projectthe estimated NPV was USD 103,911 with an economic/Internal rate of return (IRR) of 15.6% over the RECOFE project period of three years at 5% discount rate (Table 5). The benefit cost ratio of tree nursery management was 1.4 which shows that it is a viable/feasible intervention/investment.

- Cost effectiveness of Component 2 (*i.e. promoting establishment of appropriate water harvesting and storage technologies*). Table 5 shows the cost effectiveness of outcome 2.1.1, that is, Innovative multi-stakeholder water harvesting and storage technologies (Earth dams and low-cost trickle irrigation systems) under component 2 of RECOFE. According to UBOS (2015), the agricultural sector contribute about 24.6% of the GDP and provides livelihoods (employment) to 80% of the economically active population. Therefore, this 24.6% was used as a proxy factor to estimate the returns on investment from activities under component 2 of RECOFE. The estimated NPV was USD 114,175 with an economic/Internal rate of return (IRR) of 17.9% over three years of RECOFE at 5% discount rate (Table 5). The benefit cost ratio of component 2 was 1.25 which shows that it is a viable/feasible intervention/investment.

- *Cost effectiveness of component 3 (i.e. Supporting nature-based enterprises for sustainable socio-economic development):*
  The total revenue will be generated from harvesting and selling four bee products (honey, propolis, wax and bee venom) by 20 community groups each managing 20 KTB hives colonized 100% within the first year. The success rate for bee keeping as an NBE was determined taking into consideration three scenarios based on the colonisation rates of 90% and 100% of the modern Kenya Top Bar (KTB) modern bee hive which has a high colonisation rate, productivity rate and the bees are not killed during harvesting process. Higher colonisation rate was assumed because of the training that will be provided to the bee keeping groups by model farmers and experts from the Zonal Agriculture Research and Development Institute (ZARDI) under NARO also working closely with the district agriculture extension and under MAAIF and productivity rates. Therefore, for the bee keeping as a Nature-based enterprise, the estimated NPV is USD 571,764 with an economic/Internal rate of return (IRR) of 11.3% over the RECOFE project period of three years at 5% discount rate (Table 5). The benefit cost ratio (BCR) of bee keeping is 2.8 which showed that this bee keeping as a nature-based enterprise is a viable/feasible intervention/investment.

- *Agroforestry system comprising the indigenous tree species planting,Clonal Robusta Coffee CWD-r and Beans*. For this to be a nature-based enterprise, only indigenous tree species will be promoted within the Katonga catchment. The proposed indigenous tree species are *Prunus africana*, *Milicia excelsa, Khaya anthotheca, Cordia africana, Cordia milenii, Warbugia ugandensis, Albizia coriaria, Antiaris toxicaria and Ficus natalensis*. The estimated NPV is USD 507,525 with an economic/Internal rate of return (IRR) of 11.2% over the project period of three years at 5% discount rate (Table 5). The benefit cost ratio of agroforestry (CWD-r Clonal Robusta Coffee and Beans) system was 2.79 which showed that this proposed intervention is viable/feasible. The success rate is high (90% survival rate of seedlings) attributed to the use of high-quality seedlings from the National Forestry Authority (NFA) certified nurseries and the training in the best agronomic practices for coffee/agroforestry systems/model by the experts from NFA and National Agricultural Research Organisation (NARO). The coffee seedlings will also be procured from nurseries certified by Uganda Coffee Development Authority (UCDA) while the training in coffee agronomic practises will be provided to the beneficiary groups by the National Coffee Research Institute (NaCORI) and UCDA working closely with the district local government agricultural extension technical staff in order to increase the success rate (survival rate) of the coffee seedlings. Given that the economic returns from tree planting will take more than the 3-year life of RECOFE but also the economic return from the Hybrid Clonal Robusta Coffee will start in the second year of harvest, it was plausible that a short-term crop be introduced in the coffee-agroforestry system to generate some economic benefits in the first year of the project. Hence, during the feasibility studies, the local community members prioritized beans within the coffee-agroforestry system because the beans are grown twice a year (3 months crop) as a food security crop, commercial crop (1 Kg costs USD1 at farm gate) and also as a legume crop which enriches the soil nutrients by fixing nitrogen in the soils. The beans have a very

high demand in the local markets and also by tertiary institutions e.g. most school menu includes beans as the main sauce. Bean production will generate returns on investment in the first year. The alternative crop was maize as a cereal for food security and commercial purposes as well although it does not enrich the soils. Bananas were also an alternative to beans but they do not yield in the first year of RECOFE.

- *Tree nursery management*-The tree nursery will be mainly for production of indigenous tree seedlings for planting by the community groups and selling some to individuals and institutions engaged in tree planting. The estimated NPV was USD 278,336 with an economic/Internal rate of return (IRR) of 32% over the RECOFE project period of three years at 5% discount rate (Table 5). The benefit cost ratio of tree nursery management was 1.84 which shows that it is a viable/feasible intervention/investment. This enterprise has a high success rate (90% +) because of the standard practices that will be followed during the establishment and management of the tree nurseries. For example, seeds with high germination rate will be procured from NFA while the training will also be provided by technical staff from NFA, district natural resources and environment departments and Makarere University.

1. There is investment in the interventions proposed in terms of costs and it is expected these interventions will yield benefits (social, economic and environmental). As such, some of these benefits are not easily quantifiable. However, some benefits are not easily quantifiable. A feasibility analysis to further assess the cost-effectiveness of the overall project intervention can thus be done, on the basis of some assumptions. Given the following assumptions: (i) The project duration is 3 years and the costs are clearly known; (ii) Given the nature of proposed interventions, benefits will start accruing in an increasing manner from one onwards for some time; (iii) The costs of interventions will reduce to a minimum for majorly maintenance and or monitoring, after the third year and is estimated at 3.5% of the average yearly cost for years 1 to 3; (iv) Revenues will begin to accrue in the first and will continue for some time since these are majorly nature-based solutions. The interventions selected (e.g., nature-based enterprises) are expected to generate income thereby adding to the cost-effectiveness of the project. The project proposes an approach that utilises appropriate local adaptation practices within the following: rain water harvesting, catchment restoration, and river banks restoration as well as mini-irrigation schemes. Other adaptation measures that demonstrate cost-effectiveness include: incorporation of adaptation actions in bye-laws for implementation by the targeted communities. The overall estimated economic rate for the project is 18% with a Net Present Value (NPV)16 estimated at USD 1,641,775 and BCR of 2.5 all at 5% discount rate (Table C1) from component 3 (i.e. Supporting nature-based enterprises for sustainable socio-economic development) of RECOFE. Specifically, under component 3 if we only consider the ex-ante economic analysis for the following three interventions;
   - Bee keeping as a Nature-based- Solution, the estimated NPV is USD 571,764 with an economic/Internal rate of return (IRR) of 11.3% over the RECOFE project period of three years at 5% discount rate (Table 5). The benefit cost ratio (BCR) of bee keeping is 2.8 which showed that this bee keeping NbS is a viable/feasible intervention. The total revenue will be generated from harvesting and selling four bee products (honey, propolis, bee wax and bee venom) by 20 community groups each managing 20 KTB hives colonized 100% within the first year.
   - Agroforestry (i.e. agroforestry (Indigenous Tree planting-Clonal Coffee CWD-r and banana); for this to be an NbS, only indigenous tree species will be promoted within the Katonga catchment. The proposed indigenous tree species are *Prunus Africana*, *Milicia excelsa, Khaya anthotheca, Cordia africana, Cordia milenii, Warbugia ugandensis, Albizia coriaria, Antiaris toxicaria and Ficus natalensis*. The estimated NPV is USD 845,676 with an economic/Internal rate of return (IRR) of 10.6% over the project period of three years at 5% discount rate (Table C). The benefit cost ratio of agroforestry (Tree-Clonal Coffee CWD-r +banana) system was 2.74 which showed that this proposed intervention is viable/feasible.
   - Tree nursery management The tree nursery will be mainly for production of indigenous tree seedlings for planting by the community groups and selling some to individuals and institutions engaged in tree planting. The estimated NPV was USD 278,336 with an economic/Internal rate of return (IRR) of 32% over the RECOFE project period of three years at 5% discount rate (Table 5). The benefit cost ratio of tree nursery management was 1.84 which shows that it is a viable/feasible intervention/investment. It is estimated that a tree nursery of 200,000 seedlings will be established by each of the four community groups planned for under RECOFE.

[16] 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.

~~*Table 5: Demonstrating project cost effectiveness*~~

~~Enterprise under Component 3 of RECOFE~~	~~Estimated discounted Net Present Value Net-NPV (USD)~~	~~Internal Rate of Return-IRR (%)~~	~~Benefit Cost Ratio (BRC)3.1~~
~~Bee keeping~~	~~517,764~~	~~11.3~~	~~2.80~~
~~Agroforestry (indigenous Tree planting, Clonal Coffee CWD-r and banana system)~~	~~845,675~~	~~10.6~~	~~2.74~~
~~Tree nursery management~~	~~278,336~~	~~32.0~~	~~2.00~~
~~Total~~	~~1,641,775~~	~~18.0~~	~~2.51~~

~~Based on the positive Benefit cost ratios and Internal Rate of Return on the investments it is clear that the project is economically feasible and cost effective.~~

106. Cost effectiveness of Component 4 (i.e. supporting knowledge management and information sharing). The cost effectiveness of outcome 4.1 (Table 5), that is, lessons and good practices shared and adopted under component 4 of RECOFE. The assumption used here is that documenting and sharing lessons learnt also contributes to strengthening capacity of stakeholders and contribute to labour productivity by 38% (NPA 2020 NDP II 2020/21-2024/25) as in component 1 because the stakeholders will subsequently utilize the substantive lessons leant to improve tracking of project activities, measure performance, make informed decisions and scalability given that documenting lessons leant and good practices will take place along the entire project pathway throughout the life of RECOFE. Therefore, this 38% was used as a proxy factor to estimate the returns on investment from activities under component 4 of RECOFE. The estimated NPV was USD 84,456 with an economic/Internal rate of return (IRR) of 8.6% over the RECOFE project period of three years at 5% discount rate (Table 5). The benefit cost ratio of component 4 was 1.38 which shows that it is a viable/feasible intervention/investment.

Financial analysis

Table ~~5~~5: Demonstrating project cost effectiveness

Components of RECOFE	Enterprise under Component 3 of RECOFE	Discounted Total Cost (at 5% discount rate)	Discounted Total Revenue (at 5% discount rate)	Estimated discounted Net Present Value Net-NPV (USD)	Internal Rate of Return-IRR (%)	Benefit Cost Ratio (BRC)
Component 1: Strengthening the capacity of key grass root stakeholders for climate change adaptation	Training and capacity building of the beneficiary groups, resource users and duty bearers	273,449	377,360	103,911	15.6	1.38
Component 2: Promoting establishment of appropriate water harvesting and storage technologies	Innovative multi-stakeholder water harvesting and storage technologies (5 Earth dams and 5 low-cost trickle irrigation systems)	464,125	578,299	114,175	17.94	1.25
Component 3: Supporting nature-based enterprises for sustainable socio-economic development) of RECOFE	Bee keeping	287,436	805,200	517,764	11.3	2.8
	Coffee-agroforestry (i.e. Indigenous Tree planting+ Clonal Robusta Coffee CWD-r coffee and Beans)	282,937	790,462	507,525	11.2	2.79
	Tree nursery management	280,247	557,714	277,468	8.2	2
Component 4: Supporting knowledge management and	Documenting and sharing lessons learnt and good practices among stakeholders.	222,253	306,709	84,456	8.6	1.38

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information sharing						
Project Co-ordination and Management	Executing and Implementation (i.e management & coordination, monitoring, auditing, equipment, reporting, and operations)	313,311	432,369	119,058	16.3	1.38
RECOFE project	Total	2,123,758	3,848,113	1,724,357	12.73	1.85

106. The interventions selected (e.g., nature-based enterprises) are expected to generate income thereby adding to the cost-effectiveness of the project. The project proposes an approach that utilises appropriate local adaptation practices within the following: rain-water harvesting, catchment restoration, and river banks restoration as well as mini-irrigation schemes. Other adaptation measures that demonstrate cost-effectiveness include: incorporation of adaptation actions in by-laws for implementation by the targeted communities. Moreover, considering that the project targets about 20,852 beneficiaries with a total financial investment of USD 2,249,000 million, it is expected that the benefits will accrue socially, economically and environmentally from interventions, especially those that involve income generation. Such monetary benefits will inevitably lead to improvements or enhancements in peoples' resilience to climate change impacts, their wellbeing and improved ecosystems. Such benefits will lead positive benefit/cost ratios that reveal a profitable/cost-effective project investment. Thus, the project has adaptation components to be undertaken within a broader set of activities; hence, the cost effectiveness is based on the comparison made relative to a business-as-usual project without adaptation components. The construction of water storage structures, for example, without giving attention to the catchment, would compromise the hydrology of the catchment. Hence, there is an inherent subjectivity and we have used expert judgment in defining the hypothetical alternatives. The components of the project have adaptation co-benefits that will help facilitate autonomous adaptation or increase adaptive capacity as a by-product. The project thus aims to increase productivity through improved water efficiency in the Katonga Catchment that is already drought prone and water scarce. This is an element of cost-effectiveness. However, there is uncertainty regarding the economic value of the non-market benefits of the project. Climate variability and change, and responses to them, are aspects of uncertainty to the cost-effectiveness of the project, even over a medium-term particularly related to the underlying physical or ecological processes. Longer-term climate change impacts thus remain uncertain because some of them (e.g., greenhouse gas emissions) are unknown, as they depend on global efforts. Information for projecting the long-term scenario within the Katonga Catchment remains sparse regarding how climate changes and socioeconomic changes might interact, even though individual and institutional responses are critical determinants of climate change damages. Component 4, is designed to address to loop hole in the long run, in a cost-effective manner. Determining the damages avoided or mitigated through adaptation in the Katonga Catchment is certainly a major benefit of the project that adds to cost effectiveness. However, there is the challenge of tracing through the impacts of interventions, particularly those related to soft investments, for example, in Component 1) Strengthening capacity of key grass root stakeholders; and Component 4 whose benefits are realized by a range of changes in private behaviour. However, we have considered the value of changes in tangible resource availability, such as water, as aspects of cost effectiveness. The adaptation measures of the project (e.g., in Water Storage) are aimed at sustaining rural development in the context of risks from a changing climate. However, many, of the recommended project interventions (or investments and other activities) will also bring benefits, irrespective of how much the climate changes. Actions that we have identified as good risk management strategies for adaptation to climate change will be valuable parts of broader strategies that benefit livelihoods and mitigate other risks.

107. **Conclusion:** Based on the positive NPVs and IRRs on the investments it is clear that the project is economically feasible and cost effective and will be able to strengthen the adaptive capacity and resilience of the local community members and the ecosystem (forests, rivers, wetlands, soils) towards the climate change impacts within the Katonga catchmentThe interventions selected (e.g., nature-based enterprises) are expected to generate income adding to project cost-effectiveness. Such income will lead to livelihood improvements and reduced reliance on natural ecosystems. The project approach utilises generally nature-friendly practices in rain-water harvesting, wetlands restoration, and river banks restoration as well as mini-irrigation schemes. There is uncertainty regarding the economic value of non-market benefits of the project. Climate variability and change, and associated responses, are aspects of uncertainty to the cost-effectiveness of the project, even over a medium-term particularly related to underlying physical or ecological processes. Longer-term climate change impacts remain uncertain because some of them (e.g., greenhouse

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~~gas emissions) are unknown, as they depend on global efforts. Information for projecting the long-term scenario within the Katonga Catchment remains sparse regarding how changes in climate and socioeconomics might interact. Component 4, Supporting knowledge management and information sharing, will address the gap in the long run. Determining the damage avoided or mitigated is a major benefit of the project that adds to cost effectiveness.~~

~~107.~~

Alternative to the interventions proposed in RECOFE:

108. The alternative to the earth dams that will be constructed to trap flood water for production (micro irrigation) is digging channels to divert water from the wetland directly but this would exacerbate the already precarious situation of low water volumes of water in the wetland during the dry season. The alternative to coffee-agroforestry is the Banana-Coffee agroforestry because the area also grows bananas as a commercial and food security crop but also bananas grow well when inter cropped with the proposed hybrid clonal Robusta Coffee (CWD-r) promoted by UCDA. However, this was not prioritized because there would no yield/direct economic returns from the bananas, Coffee and trees within the first year of RECOFE. The alternative to bee keeping as a nature–based enterprise would be ecotourism. However, the local community members were interested in the bee keeping because it provides a double benefit in terms of bee products (i.e. honey, propolis, bee venom, wax) for nutritional values, medicinal use and sales to get income but also bees pollinate the crops on farm in the catchment. The time and investment costs required to setup the tourism facilities is also high as compared to bee keeping as a Nature-Based Enterprise. ~~RECOFE is in line with interventions, policies and strategic projects of Uganda because it aims to build the resilience of communities. The costs of the intervention target the highly vulnerable communities and are justified. They will have immediate effects as well as a long-term impact on people's lives, the environment and socio-economic development. Comparing with similar interventions in the region, the relevance of the project and its alignment with local needs is evident when it is compared with two other projects implemented in the area or in similar contexts.~~

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D. Consistence with national sustainable development strategies

109. The proposed project aligns and contributes to the objectives and aspirations of the existing national frameworks. RECOFE objectives are consistent with the national development strategies, development plans, poverty reduction strategies, national communications and national adaptation programs of action. It is also consistent with national socio-economic priorities and national climate change priorities. Particularly, the project is consistent with the Uganda Vision 2040 that recognizes that climate change affects all sectors of the economy and emphasizes capacity enhancement to respond to climate change related challenges through adaptation and mitigation strategies. The other national development strategies for which RECOFE is consistent are: the National Development Plan III (NDP III) that highlights climate change impacts as bottleneck to the country's economy and socio-economic transformation. The proposed project also complements and aligns with the Nationally Determined Contribution (NDC 2018), the National Adaptation framework that was launched in June 2016 that defined priority adaptation actions at sectoral level.

This project 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. The key national priorities, action plans and programs and these include: The Sustainable Development Goals (SDGs) to which the proposed project specifically contributes to the attainment of SDGs,1 on ending poverty, SDG 2 on ending hunger, SDG 6 on water and sanitation and SDG 13 on climate action among others. The detailed national sustainable strategies to which the proposed project is consistent are presented in Table 6.

Table 6: 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[17] . 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[18]. 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 2 on ending hunger, SDG 6 on water and sanitation and SDG 13 on climate action among others.

E. Alignment and relevance to national technical standards

110. Although it is important that during project implementation, the National Implementing Entity and the Executing Entities must comply with the Adaptation Funds standards for instance the Environmental and Social Policy and the Gender Policy, for purposes of project ownership and sustainability, the RECOFE project interventions must also comply with the country's standards. These standards include the technical guidelines, regulations and the laws and policies. Environmental sustainability is considered as core area of the RECOFE project. The RECOFE project is expected to have positive environment impacts because it will support interventions in water and other natural resources management that will enhance climate resilience and environmental rehabilitation.

111. However, the water infrastructure development will consider minimal environmental and social aspects. After identifying priority infrastructure, initial environmental and social ~~and environmental~~ impact screening will be carried out as part of pre-feasibility studies. This will help to identify potential adverse environmental impacts if any. Moreover, the participatory process will be able to address social and economic issues. To ensure compliance with environmental and social good practices, an analysis of the available standards has been made and presented in Tables 7 and 8.

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

Table 7: Alignment with national policies

Policy	Relevance to the project
The National Environment Management Policy 1995	The National Environment Management Policy 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[19]. 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, 3 and 4 are in line with the objectives of this overarching policy. In order to promote environmental sustainability, an ESMP has been developed to guide the implementation of the project and in addition, for activities under Component 2 that will involve construction of infrastructure such as earth dams and micro-irrigation schemes, environmental and social impact assessment will be conducted depending on the sizes of the proposed infrastructure and submitted to National Environment Management Authority (NEMA) for approval before implementation. The -responsible agency is the 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. Responsible: 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 water needs for domestic use, irrigation and livestock in the target communities. Activities under component 2 are in line with and will be guided by this Policy. Responsible: Ministry of Water and Environment
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[20]. All project components 1, 2, 3 and 4 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. Responsible Ministry, Department or Agency: Office of the Prime Minister - Uganda
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

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[19] https://climate-laws.org/geographies/uganda/policies/national-climate-change-policy
[20] https://climate-laws.org/geographies/uganda/policies/national-policy-for-disaster-preparedness-and-management

	environmental assessments and implementation of measures outlined in such assessment studies. It also ~~recognises~~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. Responsible: Ministry of Lands, Housing and Urban Development
National Policy for the ~~Conservation and~~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. Responsible Ministry, Department or Agency: Ministry of Water and Environment, 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[21]. 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.~~
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. Responsible agency/ministry: - 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 mini-irrigation schemes and other water related infrastructure. Responsible body: 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 Physical Cultural Resources that will be encountered during project implementation. In addition, the project will be implemented in areas adjacent to Katonga Wildlife Reserve. Therefore, extra care share be undertaken not to disturb or encroach on the Wildlife reserve during project implementation. Responsible body: 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[22]. 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. Responsible body: Ministry of Gender, Labor and Social Development
The National	Overall objective of the policy is to promote food and nutrition security and household incomes through coordinated interventions that focus on

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[21] ~~https://climate-laws.org/geographies/uganda/policies/the-renewable-energy-policy-for-uganda~~
[22] http://extwprlegs1.fao.org/docs/pdf/uga163564.pdf

Agriculture Policy 2013	enhancing sustainable agricultural productivity and value addition, providing employment opportunities, and promoting domestic and international trade[23]. The policy has six inter-related specific objective and corresponding strategies to be pursued in implementation of climate smart agriculture, improved livestock management, micro-irrigation and value chains development. Responsible body: Ministry of Agriculture, Animal Industry and Fisheries
National Irrigation Policy 2017	The overall policy objective of the draft irrigation policy is "Poverty Alleviation and Economic Growth as a result of the sustainable realization of the country's irrigation potential mitigating the effects of climate change and contributing to the transformation of Ugandan society from a peasant to a modern and prosperous country"[24]. Component 2 of the project contributes to this policy. Responsible body: Ministry of Agriculture, Animal Industry and Fisheries
Uganda Food and Nutrition Policy, 2003	The overall objective of the policy is to promote the nutritional status of the people of Uganda through multi-sectoral and coordinated interventions focusing on food security, improved nutrition, and increased incomes. Section 2.4 of the policy lays down strategies for achieving this overall objective amongst which is strategy 2.4.1 that focuses on creating a mechanism to ensure that the entire food chain from food production to consumption, is efficiently managed within the overall development strategy; through building capacities at all levels (Households, Communities, local councils, sub counties, district levels) for adequate action to improve household food security; 2.4.8 on enforcing environmental protection regulations that apply to the food chain; . Components 2 of the project activities contribute this objective with their expected outcomes of increased water and food security, and increased income for improved stakeholder livelihoods respectively. Responsible body: Ministry of Agriculture, Animal Industry and Fisheries
The Uganda climate smart-agriculture country program[25] (2015-2025)	Recognizes drastic and innovative measures needed to help the project, and in particular farmers and consumers cope with the changes in emerging and projected weather patterns for activities falling under output 2.1.1. This framework identifies six strategic priorities as sources of Uganda's agricultural development and growth in a changing climate. The six strategic priorities include: Improved Productivity and incomes; Building resilience and associated mitigation co-benefits; Value Chain Integration; Research for Development and Innovations; Improving and sustaining agricultural advisory ~~Services;~~ Services; Responsible body: Ministry of Agriculture, Animal Industry and Fisheries
The National Coffee Policy (NCP), 2013	The National Coffee Policy (NCP) was to be formulated to guide and regulate activities of various stakeholders in the coffee industry so as to improve production, processing, marketing and roasting of coffee. Component 3 of the project particularly activities 3.1.1.6, 3.1.1.7, 3.1.1.8, 3.1.1.8, 3.1.1.9, 3.1.1.10 and 3.1.1.11 focus on promotion of coffee-based agro-forestry systems which contributes to the main objectives of the National Coffee Policy. Responsible body: Ministry of Agriculture, Animal Industry and Fisheries
The Uganda National Coffee Strategy 2015/16-2019/2020	The overall objective of this strategy is to operationalize the National Coffee Policy i.e, specifically, to: Provide a clear vision of where the coffee industry Plans to be in the short, medium and long term; elaborate the strategies that will be used to achieve the strategic objectives and policy actions stated in the NCP; assign institutions and organisations the roles and responsibilities they will play in the implementation of the strategy; provide indicative costing for the proposed strategic actions and define the implementation, monitoring, evaluation and reporting mechanisms. Component 3 of the project particularly activities 3.1.1.6, 3.1.1.7, 3.1.1.8, 3.1.1.8, 3.1.1.9, 3.1.1.10 and 3.1.1.11 focus on promotion of coffee-based agro-forestry systems which contributes to the objectives of the National coffee strategy. Uganda Coffee Development Authority (UCDA)

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Table 8: Alignment with regulations, Guidelines and Standards

Regulations	Relevance to the project
The National (Environmental and	The ESIA Regulations give a systematic ESIA 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.

[23] http://agriculture.go.ug/wp-content/uploads/2019/04/National-Agriculture-Policy.pdf
[24] https://www.mwe.go.ug/sites/default/files/library/Uganda%20National%20Irrigation%20Policy.pdf
[25] Ministry of agriculture animal industry and fisheries, Ministry of water and environment. 2015. Uganda climate smart-agriculture country program 2015-2025

Social Assessment) Regulations, 2020.	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. Responsible body: National Environment Management Authority (NEMA)
~~Conduct and Certification of Environmental Practitioners Regulations, 2003~~	~~Provides guidance on conduct and Registration and certification of EIA practitioners.~~
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[26]. 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.
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. Responsible body: National Environment Management Authority (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.~~
~~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.~~
~~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.~~
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[27]. Project activities under component 3 such as Activity 3.2.1.1, 3.2.1.2, 3.2.1.3, 3.2.1.4, 3.2.1.5, 3.2.1.6, 3.2.1.7, 3.2.1.8, 3.2.1.9, 3.2.1.10 and 3.2.1.11 will enhance the conservation of these ecosystems in the Project areas. Responsible body: National Environment Management Authority (NEMA)
The National Environment (Mountainous and Hilly Areas Management) Regulations,	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. Responsible body: National Environment Management Authority (NEMA).

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[26] https://nema.go.ug/sites/all/themes/nema/docs/Strategic%20Environmental%20Assessment%20(SEA)%20Guidelines%20Pdf%202020.pd
[27] https://nema.go.ug/sites/all/themes/nema/docs/wetlands_riverbanks.pdf

2000. 2000 No. 2	
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~~. such as Activity 2.1.1.1 and Activity 2.1.1.2. National Environment Management Authority (NEMA)
National Forestry and Tree planting regulations 2016.	Section 4 of the National Forestry and Tree planting regulations (2026) provides principles for sustainable forest management of which key to RECOFE project includes; a) conservation of ecosystems, habitats and biological diversity and their health and vitality; c) promoting participation of stakeholders in the planning and management of forests; Promoting participation of stakeholders in the planning and management of forests; d). promoting fair distribution of the economic, social and environmental benefits at the local, district and National levels; e) conservation of watersheds and other natural resources including soil and water; k) Improvement of livelihoods and reduction of poverty, m). Efficiency in forest management practices. The principles will be crucial in implementation of majorly component 3 of the project (Activities 3.2.1.8, 3.2.1.9, 3.2.1.10 and 3.2.1.11) ~~three of the project~~, that looks at supporting nature-based enterprises for sustainable socio-economic development including bee keeping and reforestation related initiatives by the project. Responsible body: National Forestry Authority (NFA)
Clonal Robusta Coffee Nursery Manual for Extension Workers, 2019	This manual is intended to guide Coffee nursery operators, extension workers and all institutions engaged in the business of propagating clonal Coffee planting materials. It explains the recommended practices for the successful raising of clonal Coffee plantlets and acts as a reference guide for best practices in clonal Coffee propagation and provides harmonized messages to all actors in the Coffee nursery business. It also provides an update on mitigation and adaptation practices of the effects of climate change on clonal Coffee nursery management. Component 3 of the project particularly activities 3.1.1.6, 3.1.1.7, 3.1.1.8, 3.1.1.8, 3.1.1.9, 3.1.1.10 and 3.1.1.11 focus on promotion of coffee-based agro-forestry systems and will require to comply with the standards stipulated in the Clonal Robusta Coffee Nursery Manual for Extension workers given that the same variety of coffee will be promoted under this project. Uganda Coffee Development Authority (UCDA)

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F. Project duplication with other funding sources

112. During the design of this project and especially at the time of conducting detailed stakeholder consultations, it was ensured that there is no duplication of project interventions by other partners in the catchment. Instead, the project complements and provides synergies with other projects implemented in the different areas within the catchment and other geographical areas. For instance, the different district local governments (sub-national) are implementing some initiatives but the funding levels are too low to realise meaningful impact. Therefore, this project is timely to complement and build synergies with such initiatives. Some of the particular projects and/or initiatives that the proposed project will complement and provide synergies in the Katonga catchment area are:

Lake Victoria Environment Management project (LVEMP II)

113. LVEMP is the one of the recent projects that has been operating in the catchment. It was funded by World Bank from 2010-2017. One of the major objectives of LVEMP was environmental management of targeted hotspots and selected degraded catchments. It is through this project that Katonga CMP was developed. The proposed project will be the first funding for the implementation of the Katonga CMP. In addition to LVEMP, there are other government sustainable development program initiatives geared towards alleviating poverty in collaboration with Civil Society Organizations (CSOs), and contributing to the resilience of targeted communities to climate change effects. Some of the other initiatives encountered during stakeholder consultations in the catchment are presented in Table 9.

Table 9: Other projects, initiatives and funding sources in Katonga Catchment

Institution	Existing project and focus	Remarks	Complementarity and synergies
Ministry of Water and Environment, National Forest Authority (NFA) and Uganda Wildlife Authority (UWA)	UGANDA Investing in Forests and Protected Areas for Climate Smart Development (IFPA-CD) Project	Financed by WB, GCF, and GoU. Project is at inception phase and supports the development and implementation of a resilient landscapes program in the Albert Water Management Zone and West Nile (part of the Upper Nile WMZ).	RECOFE project complements and synergies are occurring in outcome 3.2 on ecosystem health restoration.
Ministry of Water and Environment (MWE) in the Water for Production department	Improving livelihoods through water for production: small scale irrigation systems	Targets about 215 acres under small-scale irrigation systems.	The RECOFE project provides synergies under component 2, Activity 2.1.1.1 Construct five valley dams to trap/ dams to capture and store rain water and run off to address the challenges of water scarcity in support of micro irrigation schemes and livestock management most especially in extreme weather conditions as learning centres
Mubende, Sembabule, Kalungu, Gomba, Lyantonde district farmers association and Lutheran World Federation.	Global Climate Change Alliance Plus (GCCA+)- Uganda: Agricultural Adaptation to Climate Change project Implementing partners: Ministry of Water and Environment; Ministry of Agriculture Animal Industry and Fisheries;	The Project is at inception phase and focuses on empowering rural communities in most vulnerable districts, to identify and adapt to climate change, through interventions that promote food security, income generation and sustainability of livelihoods.	The RECOFE project provides synergies under component 3: Income Generating Activities (IGAs) focusing on bee keeping, and Coffee based agroforestry.
MWE – Rural Water Supply and Sanitation Department (RWSSD) under the Directorate of Water Development	Lwemiyaga Rural Growth Centres (RGC) Piped Water Supply and Sanitation Scheme	Targets to provide the water supply system worth UGX 2,161,586,008	In component 2: synergies exist under Activity 2.1.1.2 Facilitate development of simple biophysical water harvesting technologies namely trenches, check dams, s for soil and water conservation to aid crop production.
Water for people Uganda	Institutional support and restoration of the wetlands	Wetlands restoration as part of an IWRM approach to ensuring sustainable supply of water resources – about 39.4 ha restored	In component 2: synergies exist under Activity 2.1.1.2 Facilitate development of simple biophysical water harvesting technologies for soil and water conservation to aid crop production.
Ministry of Water and Environment (Funding is from the adaptation fund through Sahara and Sahel Observatory as the executing agency for the on-going project	Enhancing Resilience of Communities to Climate Change through Catchment Based Integrated Management of Water and Related Resources in Uganda (EURECCCA)	Supporting restoration of wetlands, riverbanks, Tree planting, sustained ecosystems, agricultural landscapes	In component 3: RECOFE project complements restoration of wetlands among other ecosystems. Further synergies are reflected from Activity 3.2.1.1 to 3.2.1.12.
Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)	Agricultural Value Chain Development Project (AVCP).	The project objective is to improve household incomes, food security, and climate resilience through	Lessons learned from the OSS EURECCCA project, and field excursions will enhance implementation of the RECOFE Project. Three recommendations of the Mid Term Review are considered.

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Institution	Existing project and focus	Remarks	Complementarity and synergies
		commercial agricultural practices, sustainable natural resources management and agricultural enterprise development.	Refer to paragraph 144
Ministry of Water and Environment (MWE) with Funding from GCF	Building Resilient Communities, Wetland Ecosystems and Associated Catchments in Uganda.	This project supports the Government of Uganda to take climate change issues into account in the management of critical wetlands through restoration of wetlands and their ecosystem services, based on wise-use principles and guidelines as outlined by the Ramsar Convention on Wetlands. The components are: 1) Restoration and management of wetland hydrology and associated forests 2) Improve agricultural practices and alternative livelihood options in the wetland catchment; and 3) Strengthen access to climate and early warning information for farmers and other target communities.	Lessons from the project, mainly component 1 (Production and Productivity Enhancement) and 3 (Market Development and Trade Facilitation) will contribute to Component 3 of RECOFE by ensuring that the nature-based enterprises have identified value chains and defined market information system for ensuring that they are profitable and attractive to the communities
For Tetra Tech ARD, through USAID/Kenya and East Africa Contract	Planning for resilience in East Africa through policy, adaptation, research and economic development (PREPARED)	Community Climate Change Adaptation Assessments (C3A2) Assessor & Analyst Toolkit (component 1) has the objectives to compile evidence to answer three overarching sets of questions to inform climate change mitigation and adaptation advocacy and planning for the region	The project promotes a bottom-up participatory approach involving political and opinion leaders taking lead during community awareness and sensitization. National ownership of project implementation and associated results is a key result during the reporting period. This approach has been adopted within RECOFE right from proposal development.
The Lake Victoria Basin Commission (LVBC) - UNEP with AF funding	Adapting to Climate Change in Lake Victoria Basin Countries: Burundi, Kenya, Rwanda, Tanzania and Uganda. (Component 4).	The project anticipated, among others, the following outputs: 1) Strengthened institutional capacity to integrate climate resilience into transboundary water catchment management. 2). Improved delivery of accurate and timely climate information to regional and national policymakers, technical officers and local communities; 3). Climate change adaptation technologies	The 14 regional climate change adaptation tools developed, tested or adopted will be used in implementation of RECOFE project to enhance the resilience of the ecosystems and communities

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Institution	Existing project and focus	Remarks	Complementarity and synergies
		transferred to communities to reduce their vulnerability; 4. Regional resilience to climate change promoted through innovative, community-based projects; and 5). Improved knowledge frameworks for collection and maintenance of regional knowledge in transboundary management and climate change adaptation practices.	
Ministry of Water and Environment, National Forest Authority (NFA) and Uganda Wildlife Authority (UWA)	UGANDA Investing in Forests and Protected Areas for Climate Smart Development (IFPA-CD) Project	Financed by WB, GCF, and GoU. Project is at inception phase and supports the development and implementation of a resilient landscapes program in the Albert Water Management Zone and West Nile (part of the Upper Nile WMZ).	Lessons will be drawn to inform the implementation of component 2 and 3 of the RECOFE project by contributing to the improved delivery of timely climate information to regional and national policymakers, technical officers and local communities

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114. Furthermore, the RECOFE project complements other existing national initiatives of enhancing resilience to climate change. Lessons learned from the AF project "Enhancing resilience of communities to climate change through catchment-based integrated management of water and related resources in Uganda" under implementation by OSS and solely executed by MWE will be used in the RECOFE project to ensure efficient and effective implementation. For example, under the Adaptation Funded OSS EURECCCA project, it was a stakeholder driven project were active participation was encouraged. Right from project launches, that were presided over by local leaders and politicians, to the extent were communities developed the restoration plans that enhanced ownership of the plans, and any resolving emerging issues holistically with the involvement of the local leaders. Other lessons include approaches such as training of trainers that created a critical mass trained teams that spearhead the trainings within the communities, working with other Government institutions to support the implementation of the activities, use of local establishments to promote project activities. The RECOFE project will benefit from these successful lessons and experiences. In the refugee hosting districts such as Kyegegwa (also one of RECOFE project site), the World Bank project titled "Development Response for Displacement Impacts" has activities on restoration and improvement of livelihoods of communities. These are similar to what RECOFE is promoting in the Katonga catchment and as such will complement on the efforts of the new project.

G. Learning and knowledge management

115. The RECOFE project has considered knowledge and knowledge management under component four. Under this component lessons and best practices, arising from the major themes of this project will documented. Lessons and best practices on stakeholder capacity development especially at grass roots, those on constructing and maintenance of water infrastructure and nature-based enterprises will be documented. The project will then facilitate such knowledge generated by packaging the information and later popularizing it into forms that can easily be accessed and utilized by the different stakeholders. Also, best practices, other lessons and governance materials such as byelaws and ordinances, will be popularized and shared among stakeholders including grassroots. For instance, in popularizing the knowledge, knowledge materials will be packaged in five local languages and directs spoken in the catchment. The project will also facilitate knowledge sharing through cross learning of innovative climate change adaptation interventions as well as learning events for various stakeholders.
116. To further add value to joint learning and experiential sharing amongst stakeholders, the proposed project intends to establish demonstration sites within the within the Katonga sub catchments. This intervention will further aid learning and knowledge management. Demonstration sites will be established as learning centres for the critical mass of population. The demonstrations will comprise of the water harvesting and storage structures as well as the nature-based enterprises. The project has an opportunity to learn from other on-going small-scale community/individual interventions, for example, nature-based enterprises such as honey production is implemented in some places in the country but in a fragmented way. Despite that, there are good lessons also that can be captured from these fragmented establishments. Therefore, the project will identify model farmers practicing this intervention for the purposes of documenting lessons and best practices. Case studies in some of the enterprises exist and will be documented. This offers good learning avenues to promote and sustain the proposed interventions. For marketing of community products, there are significant gaps that require fixing. Documenting market processes and designing market approaches of specific products will be done. With such an approach designed for RECOFE project, knowledge will be generated, captured and managed and supported for sharing and sustaining the project interventions.

H. Consultative process

Targeted consultations for concept development

117. The development of RECOFE proposal has followed a highly participatory and consultative process. The consultations process of developing the proposed project involved three main stages. The first stage of consultations aimed at developing the RECOFE concept. The second stage consultations were held at catchment level and validated at national level aimed at developing the full proposal. Overall, the consultative process stated initially with a meeting between the DWRM and Victoria Water Management Zone staff and GWPEA authorities in October 2017 when the decision to write and submit a concept to the Adaptation Fund was reached. The concept ideas were then derived from the Katonga Catchment Management Plan (CMP) that was developed during the 2017/2018 period. The development of Katonga CMP was done through a

detailed participatory and consultative process at all levels from grass-root to Catchment as well as national level by a consultant. The Ministry of Water and Environment (MWE) later organized the final consultative workshop held on December 21st 2017 in which the consultant presented the final Draft Katonga CMP to stakeholders.

118. The participants that reviewed the draft CMP were: The Katonga Catchment Management Committee members (CMC); the leadership of the sixteen districts that constitute the Katonga catchment (i.e. Bukomansibi, Butambala, Gomba, Kamwenge,Kiboga, Kiruhura, Kyegegwa, Kyenjojo, Lwengo, Lyantonde, Masaka, Mityana, Mpigi, Mubende, Rakai and Sembabule); and stakeholders from the public institutions at the national and district levels including Lead Agencies such the National Forest Authority (NFA), National Environmental Management Authority (NEMA) and Non-Governmental Organizations (NGOs) among others. The basis of stakeholder consultations and review was to ensure that the views of all stakeholders are captured, considered and integrated into the CMP.

119. The development of RECOFE proposal has followed a highly participatory and consultative process. The consultations process of developing the proposed project involved three main stages. The first stage of consultations aimed at developing the RECOFE concept. The second stage consultations were held at catchment level and validated at national level aimed at developing the full proposal. Field level consultations in the districts involved the following levels a) District Level; b). Sub county level; and c). Village – Community level. Overall, the consultative process stated with a meeting between the DWRM and Victoria Water Management Zone staff and GWPEA authorities in October 2017 when the decision to write and submit a concept to the Adaptation Fund was reached. The concept ideas were derived from the Katonga Catchment Management Plan (CMP), developed in 2017/2018. The development of Katonga CMP was done through a detailed participatory and consultative process at all levels from grass-root to catchment as well as national level, carried out by a consultant. The Ministry of Water and Environment (MWE) later organized the final consultative workshop held on December 21st 2017 in which the consultant presented the final Draft Katonga CMP to stakeholders who reviewed the draft CMP. These included the Katonga Catchment Management Committee members (CMC).

    Considering that the consultations covered all the levels and adopted methods involving the marginalised and minority groups, there is no doubt that the process was comprehensive. It enabled the identification of vulnerable sites and communities. Other relevant information was obtained from the CMP that was equally developed through a comprehensive process involving the leadership of the sixteen districts that constitute the Katonga catchment (i.e. Bukomansibi, Butambala, Gomba, Kamwenge,Kiboga, Kiruhura,Kyegegwa, Kyenjojo, Lwengo, Lyantonde, Masaka, Mityana, Mpigi, Mubende, Rakai and Sembabule); and stakeholders from the public institutions at the national and district levels including Lead Agencies such the National Forest Authority (NFA), National Environmental Management Authority (NEMA) and Non-Governmental Organizations (NGOs) among others. These stakeholders have made their input into the current proposal during the national review.

Consultations for full proposal development

120. During formulation of the full project consultations were held at the national and sub national levels (this paragraph) and at the lower levels: districts, sub counties, community and household levels (paragraph 123). Field visits were conducted to identify project sites in the Katonga catchment and engage stakeholders. The national and sub national level consultations target staff of the Directorate of Water Resources Management (Ministry of Water and Environment), and Victoria Water Management Zone – Mbarara Zonal office. Grass-root level consultations were conducted in the catchment, at particular villages in the targeted sub-counties (**Annex 7**). The processes included interviews and Focused Group Discussions to guide selection of project sites and provide information on climate change and livelihood issues. Additional information was obtained from leaders unpublished literature at the local levels. Ultimately, hotspots prone to the most devastating climate change related impacts and environmental degradation activities were identified, and formed the basis for selecting project beneficiaries.

121. The consultations in the districts involved the following process: **a)** District Level: Entry into the districts with courtesy calls on the Political (LC5 and RDC) and Technical leadership including Forestry Officers, Agricultural Officers, Natural Resource Officers, and District Planners). This generated an overview of potential target sub counties considering the climate related risks and the most vulnerable community groups; **b).** Sub county level: At this level, the consultations targeted Sub-County Chiefs, Sub-County Chairpersons, Community Development Officers, Agricultural Officers, and Forestry Officers. These helped the consultations to focus on specific sites, and communities; **c)**. Village – Community level: Entry at was through

the Local Council 1 Chairpersons. These were requested to mobilise the communities to the meeting venues. They were asked to specifically mobilise, among others, the following vulnerable groups: women, youths (e.g., Botifa youth empowerment group in Lwabenge), the elderly, People with Disability (PWDs), widows, orphans and child headed families. **d)** During the community consultations, the participants worked in groups to document the climate related risks, the vulnerabilities (sites/ecosystems and communities, their adaptation strategies and desired project interventions). Ultimately the following findings were reported: **i)** The most degraded hot spot areas targeted are: Ruyonza, Kyeera and Lwabenge sub-counties in Kyegegwa, Sembabule and Kalungu districts**; ii)** Fragile ecosystems targeted by RECOFE within target sub counties: **a)** River Katonga wetland system and banks (degraded by agriculture and tree cutting) across the three sub-counties; b) The highly degraded Katooba Central Forest Reserve (partly in Kyeera sub-county); **c)** The hilly, bare and open landscapes in Ruyonza; **d)** Deforested/ open flood prone areas that are highly susceptible to strong winds in Lwabenge; **e)** Farmlands/agricultural lands that are highly degraded having been depleted of the tree cover and soil nutrients in the three sub-counties; and **f)** Degraded Wetlands (due to excessive drainage agricultural crop farming, sand mining, eucalyptus planting and brick making) in Ruyonza, Kyeera and Lwabenge; **g).** Communities: People targeted for the project are frontline communities that interact with the fragile ecosystems daily. Specifically, those living close to such degraded hot spot fragile ecosystems, own the land or are most responsible for the observed degradation; f). Resource user groups: cultivators, charcoal producers, brick makers, sand miners, grazers, and crafts makers. Gender: At least 50% of the target RECOFE project beneficiaries are women. About 80% of women and women groups are targeted to be engaged in bee keeping and Coffee based agroforestry enterprise. Similarly, women are targeted in group leadership and decision making in resource use and management.

122. The youths were engaged in the consultations through youth groups and youth council structures do exist, youths' where representatives (chairpersons, vice chairpersons, or secretaries) were selected to participate – articulating the views of their group members. Negotiations were carried and consensus reached regarding the target project sites and nature-based solutions.

Figure 14: Consultation community meeting in Ruyonza Sub-County, Kyegegwa district

Figure 15: Group work in a consultation community meeting at Mpumude Sub-County, Lyantonde district

Figure 16: Consultation community meeting in Lwemiyaga (Kyeera Sub-County), Sembabule district

Figure 17: Group work in a consultation community meeting in Lwabenge Sub-County, Kalungu district

123. Efforts were made to ensure detailed and representative consultations by reaching out to the critical mass of persons in the catchment. To further achieve consultations with a wider stakeholder base, a national stakeholder project development consultative and validation workshop was also held (Figure 18). The participants of this workshop consisted of representatives from the Catchment Management Committee, Civil Society Organisations (CSOs), private sector, resource users and women representatives, sub-county and District Technical staff representatives and the DWRM and MWE staff. Women and other disadvantaged groups were targeted for consultation because they interact more with the natural resources within the catchment. The project generated a detailed consultation report with all the key issues from stakeholder emanating from the Katonga catchment. The consultations were done in compliance with the Environmental and Social policy and Gender Policy of the Adaptation Fund.
124. Overall, a comprehensive consultations process has been ensured for the proposed project. The Selection of the Focal Districts and Sub-Counties was based on the Katonga Catchment Management Plan (CMP) in which the catchment is divided into eight sub-catchments with the most degraded districts per sub-catchment indicated. The districts have been selected as hot spots for IWRM considering degradation levels. One District was selected from each of the Upper, Mid, and Lower sub-catchments as well as the Eastern side of the catchment. Through field visits, the team consulted the identified vulnerable groups including refugees at Kyaka refugee settlement in Kyegegwa District. In addition, one consultative meeting was held at regional/catchment level, and another at national level enabling validating the findings and internalizing the bigger picture for the catchment. The process was comprehensive and relevant to the eventual project beneficiaries and stakeholders. Consultations, with the most vulnerable and marginalized stakeholders solicited for proposals and ideas to be fed into the main proposal. Most of the nature based proposed project activities were identified by stakeholders at grass root level. This level of involvement was intended to foster a sense of ownership of the proposed project among stakeholders at an early stage. Communities living

within and adjacent the degraded parts of the catchment were considered and special focus was put on women, youths, men and PWDs because they are particularly affected by impacts of climate change.

Figure 18: Consultative validation workshop in progress on 30th March 2021

Gender Considerations

125. In compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund, vulnerable groups and gender considerations were taken care of. Hence, the project consultation process was inclusive and appropriately considered gender as a major issue towards proposed interventions. For this case, deliberate efforts were made to ensure adequate representation of vulnerable members of communities such as women, youth and PWDs. Furthermore, to ensure adequate representation in implementation of the project components, detailed information was deliberately collected from men and women focusing especially on the elderly, disabled, children, youth and socio-economically disadvantaged groups. For this reason, deliberate efforts were made to ensure that the consulting teams endevoured to interact with the vulnerable among the women, men and youth at community level to ensure that the project interventions are gender sensitive and gender mainstreamed.
126. District women representatives were widely consulted and they facilitated during the meetings in some selected sites. They helped in the selection of consultation venues that were within the reach of the participants and allowed for easy and uninterrupted participations with all the participants. The district leadership in the selected project sites were instrumental in pointing out hotspots where climate change vulnerability, impacts and degradations of fragile ecosystems were most prevalent, and that formed the one of the criteria /bases of selecting beneficiaries of the project. The process of identifying stakeholders was aided by the use of the local government structures District, County, Sub- County, Parish and Villages in consultation with leaders at each level of governance. Information on the vulnerable group was made available by leaders at all levels via available documents such as District devilment plans and reports. Communities living within and communities adjacent the degraded parts of the catchment were considered

and special focus was put on women, youths, men and PWDs because they are particularly affected by impacts of climate change within the catchment.

127. A specific gender analysis and action plan was conducted (**Annex 6**). In addition, to promote gender equality, representation and empowerment, the project has been deliberately designed to ensure that women play a prominent part in the four components of the project i.e., capacity enhancement including governance, adaptation actions under water infrastructural development and nature-based enterprises and knowledge management by deliberately targeting 50% of the beneficiaries/participants being women. The Uganda Gender Policy 2007 will guide the implementation of the gender action plan. The ability of men and women, boys and girls to enjoy the same status and have equal opportunity to realize/ harness their potential to contribute to development agenda of the country at large will be of key focus. Therefore, Gender considerations will be made at every stage and intervention of the proposed project gender will be a major consideration such that women constitute at least 50% of each activity whether for training and capacity building, provision of support such as inputs, germplasm, seeds, business information, exchange visits etc. The specific activities in which 50% women participation will be targeted include.

- Facilitating development of simple biophysical water harvesting technologies for Agriculture and livestock production
- Provision of appropriate seed and improved pastures for increased agricultural and livestock production respectively
- Establishing Income Generating Activities (IGAs) of bee keeping and Coffee based agroforestry
- Provision of necessary tools to improve productivity of the nature-based enterprises
- Provision of viable high value germplasm
- Supporting for vulnerable communities (women, elderly, youth, PWDs) to scale -up nature-based enterprises
- Facilitating stakeholders to participate in business forums, trade fairs & exhibitions
- Facilitating business tours and pitches of business plans to the private sector
- Facilitating establishment and operation of a market information systems
- Facilitating registration of small-scale businesses
- Training entrepreneurs in business management skills
- Developing business plans for translation into functioning businesses
- Undertaking ecosystem restoration activities (wetlands and riverbank restoration, reforestation etc.)
- Sensitising stakeholders in sustainable utilisation of natural resources (e.g. appreciation and importance of the natural ecosystems
- Facilitating experience sharing and cross-learning of innovative climate change adaptation interventions
- Organizing and participating in learning events in climate change adaptation

128. In conclusion, for adequate Gender Considerations, consultation meetings were held in the afternoon to allow full participation of women and girls who engaged in household chores. Up to 50% women representation was targeted. The district women representatives were consulted on gender considerations and they facilitated some meetings with stakeholders. They helped in the selection of consultation venues that were within the reach of the participants and allowed for easy and uninterrupted discussions. During consultations a range of issues with gender concerns emerged including among others: limited access to and control of land by women and other vulnerable groups, resource use related conflicts, limited access to finance and credit, limited participation of women and girls in decision making processes, limited access to sources of livelihoods, human rights violations and impacts of climate change perturbations. The Gender Policy of 2017 that provides for the involvement of women guided the field activities and will guide implementation of the Gender Action Plan. The ability of men and women, boys and girls to enjoy the same status and have equal opportunity to realize/ harness their potential to contribute to development agenda of the country at large is key focus for the project

I. Funding justification with full cost of adaptation reasoning

Capacity of key grass root stakeholders in implementing climate resilient development initiatives strengthened USD 118,000

129. According to the adaptation Fund, the full-cost of adaptation is interpreted as "the costs associated with implementing concrete adaptation activities that address the adverse effects of climate change. "The grass root communities are dependent on natural resources and have inadequate capacity in their management. The grass root communities have been rendered more vulnerable to the impacts of climate change. Therefore, the project will focus on addressing the inadequate capacity for managing the natural resources. Accordingly, the project will facilitate the mainstreaming of human rights-based approaches in climate change initiatives, facilitating them in advocating, lobbying and establishing public relations through creation of dialogue platforms and conducting climate change campaigns. Furthermore, the project will address planning and negotiation challenges of grass root stakeholders in the process of natural resources governance. Natural resources governance at grassroots will be strengthened by facilitating grass root duty bearers to undertake and participate in resource use negotiations, develop management plans as well as develop and implement Memoranda of Understanding (MoUs) between the communities and duty bearers of the natural resources. In further strengthening governance of natural resources, the project will also support the development (where they are new) and strengthen existing governance and leadership frameworks such as byelaws, ordinances and guidelines. Therefore, improved governance of natural resources by the project leads to sustainable management of natural resources that increases the resilience of communities and ecosystems to climate change. ~~According to the adaptation Fund, the full-cost of adaptation is interpreted as "the costs associated with implementing concrete adaptation activities that address the adverse effects of climate change", Although highly dependent on natural resources, the capacity to ensure sustainable management of natural resources such as land water and resources therein. Natural resources are currently degraded. Degraded resources cannot provide adequate ecosystem goods and services. As such, grass root communities have been rendered more vulnerable to the impacts of climate change. Therefore, the project will focus on addressing the inadequate capacity for managing the natural resources. Accordingly, the project will facilitate the mainstreaming of human rights-based approaches in climate change initiatives. Communities will be facilitated in advocating, lobbying and establishing public relations through creation of dialogue platforms and conducting climate change campaigns. Furthermore, the project will address planning and negotiation challenges of grass root stakeholders in the process of natural resources governance. Natural resources governance at grassroots will be strengthened by facilitating grass root duty bearers to undertake and participate in resource use negotiations, develop management plans as well as develop and implement Memoranda of Understanding (MoUs) between the communities and duty bearers of the natural resources. In further strengthening governance of natural resources, the project will also support the development (where they are new) and strengthen existing governance and leadership frameworks such as byelaws, ordinances and guidelines. Therefore, improved governance of natural resources by the project leads to sustainable management of natural resources that increases the resilience of communities and ecosystems to climate change.~~

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Governance of natural resources strengthened: USD 165,000

130. There is inadequate governance of natural resources. This has contributed to its unsustainable use. This has resulted into dwindling supply of the ecosystem services and goods. To address the challenge associated with poor governance, the project will address planning and negotiation in natural resource use and management of key stakeholders (grass root communities and duty bearers). Accordingly, natural resources governance at grassroots will be strengthened by facilitating grass root duty bearers to undertake and participate in resource use negotiations, develop management plans as well as develop and implement Memoranda of Understanding (MoUs) between the communities and duty bearers of the natural resources. In addition, the project will also support the development (where they are new) and strengthen existing governance and leadership frameworks such as byelaws, ordinances and guidelines. Therefore, improved governance of natural resources by the project leads to sustainable management of natural resources that increases the resilience of communities and ecosystems to climate change. ~~Although highly dependent on natural resources, the capacity to ensure sustainable management of natural resources such as land, water and other resources therein is largely inadequate. Natural resources are currently degraded. Degraded resources cannot provide adequate ecosystem goods and services. As such, grass root communities have been rendered more vulnerable to the impacts of climate change. Therefore, the project will focus on~~

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addressing the inadequate capacity for managing the natural resources. Accordingly, the project will facilitate the mainstreaming of human rights-based approaches in climate change initiatives. Communities will be facilitated in advocating, lobbying and establishing public relations through creation of dialogue platforms and conducting climate change campaigns. Furthermore, the project will address planning and negotiation challenges of grass root stakeholders in the process of natural resources governance. Accordingly, natural resources governance at grassroots will be strengthened by facilitating grass root duty bearers to undertake and participate in resource use negotiations, develop management plans as well as develop and implement Memoranda of Understanding (MoUs) between the communities and duty bearers of the natural resources. In further strengthening governance of natural resources, the project will also support the development (where they are new) and strengthen existing governance and leadership frameworks such as byelaws, ordinances and guidelines. Therefore, improved governance of natural resources by the project leads to sustainable management of natural resources that increases the resilience of communities and ecosystems to climate change.

Increased water and food security: USD 479,000

131. Water demand for a specific purpose in the Katonga catchment (expressed as a percentage of the total demand) in the Katonga catchment, shows that that domestic water use draws more water than all the other categories, primarily because the current farming practices are rain fed. The domestic water use is high and yet the area is characterized by poor farming practices. The irrigation requirements are minimal and as such supplemental in nature. Under the climate change impacts of increasing rainfall variability, water is inadequate and scarce for domestic, agricultural and other needs. The communities within Katonga catchment face several challenges due to climate change impacts. They communities find it hard to cope with the adverse conditions due to poverty. As agriculture is the economic mainstay of the catchment any shocks to agricultural production bear a knock-on effect on the economic situation and general wellbeing of the catchment population. Agriculture is however undermined by prolonged droughts and water stress, which directly affect the people's incomes, and livelihoods and even education system. The challenges will be addressed by establishment of localized innovative adaptation actions. The proposed project is designed to respond to the community needs by establishment of localized innovative adaptation actions. For example the project will support These will include cConstruction of new low cost and appropriate physical water harvesting and storage facilities. These adaptation actions require more financing; however, the project will use appropriate technologies to enable easier replication to benefit the masses who are impacted most by climate change. The communities will be guided and capacitated in the choice of intervention based on suitability. The simple solutions include These will include water jars (made from local materials mixed with cement), simplified water tanks, water pans and locally constructed water earth dams). These will lengthen the period the communities will store water through the drought spells. The other adaptation structure includes development of simple biophysical water harvesting technologies for agriculture and livestock production e.g. Climate Smart Agriculture technologies, water harvesting facilities and micro-irrigation schemes; micro-irrigation schemes will be constructed as learning centres for grass root communities. Climate-smart agriculture (CSA) technologies are proven to address the interlinked challenges of food security and climate change, hence increase resilience of the communities to food scarcity challenges. The earth dams will contribute to control of flash floods, increase in ground water recharge, provision of water for livestock and irrigation, and therefore enormously reducing water stress challenges. The project will enhance the capacity of communities in selection of appropriate seed and improved pastures. This is aimed at increasing their agricultural and livestock production to enable them overcome the weather-related hard times. Subsequently, communities and ecosystems will become more resilient to climate change impacts underground water tanks). These are intended to extent the period the communities will store water especially to run through the drought spells. The other adaptation structure include development of simple biophysical water harvesting technologies for agriculture and livestock production e.g. rock and roadside water harvesting facilities; micro-irrigation schemes will be constructed as learning centres for grass root communities. The communities require to be guided better to become more resilient to climate change impacts, and since the majority of the vulnerable communities are farmers, they will be capacitated in selection of appropriate seed and improved pastures. This is aimed at increasing their agricultural and livestock production to enable them walk through the weather related hard times.

131.

Increased income for improved stakeholder livelihoods: USD 636,500

132. Poverty is one of the underlying drivers of deforestation and forest degradation, wetland reclamation (fragile

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ecosystems) and generally low standards of living among the local population within the Katonga catchment. The proposed project will address the current adaptation deficits of communities through the identification of appropriate adaptation activities including income generation through nature-based enterprises e.g. bee keeping and agroforestry. These are for Income Generating Activities (IGAs). These enterprises are an entry point to support the communities to adapt to climate change impacts. The project will support the establishment of Income Generating Activities (IGAs) focusing specifically on bee keeping, and agroforestry. These enterprises will provide financial returns to communities and reduce pressure on natural resources. This will reduce ecosystem degradation.

~~132.~~ To further reduce ecosystem degradation, the project will support innovations such as eco-labelling of naturally produced honey to sustain the nature-based enterprises. This will increase community incomes through the high premiums that they will get form the sales. The vulnerable communities (women, elderly, youth, PWDs) will be supported to scale -up nature-based enterprises through training support and facilitate the registration of such small-scale businesses, train entrepreneurs in business management skills and develop business plans for translation into functioning businesses. The actions are aimed at improving community livelihoods to reduce pressure on the natural capital. Increased sources of income will lead to increased adaptive capacity to respond to climate change impact or shocks such as drought and floods. Also, the increased adaptive capacity will increase the households' resilience to minimize or withstand the effects of the climatic shocks. ~~Poverty is one of the underlying drivers of deforestation and forest degradation, wetland reclamation (fragile ecosystems) and generally low standards of living among the local population within the Katonga catchment. The proposed project is targeting to address the current adaptation deficits of communities through the identification of appropriate adaptation activities including income generation through nature-based enterprises. These enterprises are an entry point to support the communities to adapt to climate change impacts. The project will support the establishment of Income Generating Activities (IGAs) focusing specifically on bee keeping, and agroforestry.~~ The tools that are vital for improving productivity of the nature-based enterprises will be procured and availed to support the established nature-based enterprises. ~~The enterprises are expected to provide financial rewards to communities and reduce pressure (in form of degradation and less pollution) being exerted to the natural resources in the catchment. The project will further encourage innovations such as eco-labelling of naturally produced honey.~~ The project will link the honey producers and coffee agroforestry farmers to the market. It is in the interest of the project to promote the whole value chain (including production, handling processing and marketing) amongst the communities to meet the required standards and be able to access high premiums. These enterprises also play key role in acting as substitutes or complements to some of the community needs e.g., fuel wood, timber, poles and construction materials in general. ~~In order to sustain the nature-based enterprises the project intends support vulnerable communities (women, elderly, youth, PWDs) to scale -up nature-based enterprises through training support and facilitate the registration of such small-scale businesses, train entrepreneurs in business management skills and develop business plans for translation into functioning businesses.~~

Enhanced ecosystem health: USD 288,500

133. The grass root communities in Katonga catchment have exerted a lot of pressure on natural resources. Consequently, ecosystem degradation is high. The ability of ecosystems to provide sufficient ecosystem goods and services is limited and requires restoration efforts. Supporting ecosystem restoration will provide numerous opportunities for natural solutions to manage the impacts of climate change. It will enhance climate change adaptation through creating a range of significant social, economic, and environmental co-benefits by reducing society's vulnerability to natural hazards, improving the availability of ecosystem services that are essential to supporting livelihoods and protecting biodiversity through sustainably managing ecosystems. The project will therefore focus on supporting stakeholders to undertake ecosystem restoration activities. These include wetlands and riverbank restoration, reforestation of degraded agricultural landscapes etc. Environmentally safe methods for protecting river-banks will be used such as natural biodegradable products (designed from materials that will naturally degrade over time). The products stabilize soil and reinforce areas until vegetation is able to take root. The project will also support use of soft(er) approaches or biophysical methods that are mainly live vegetation and woody material for bank stabilization. In some identified cases, gabions will be used. The restoration efforts will involve local institutions and stakeholders as key actors in the restoration efforts so as to enhance participation and compliance. ~~The grass root communities in Katonga catchment have exerted a lot of pressure on natural resources. Consequently, ecosystem degradation is high. The ability of ecosystems to provide sufficient ecosystem goods and services is limited and requires restoration efforts. Supporting ecosystem restoration will provide numerous opportunities for natural solutions~~

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to manage the impacts of climate change. It will enhance climate change adaptation through creating a range of significant social, economic, and environmental co-benefits by reducing society's vulnerability to natural hazards, improving the availability of ecosystem services that are essential to supporting livelihoods and protecting biodiversity through sustainably managing ecosystems. The project will therefore focus on supporting stakeholders to undertake ecosystem restoration activities. These include wetlands and riverbank restoration, reforestation of degraded agricultural landscapes etc.. Environmentally safe methods for protecting river banks will be used such as natural biodegradable products (designed from materials that will naturally degrade over time). The products stabilize soil and reinforce areas until vegetation is able to take root. The project will also support use of soft(er) approaches or biophysical methods that are mainly live vegetation and woody material for bank stabilization. In some identified cases, gabions will be used. The restoration efforts will involve local institutions and stakeholders as key actors in the restoration efforts so as to enhance participation and compliance. Restored ecosystems will result in functional ecosystem services such as plants cleaning air and filtering water, tree roots holding soil in place to prevent erosion, wetlands acting as sponges to store water and prevent floods just to mention but afew. Restoring ecosystems will thus essentially increase their resilience and adaptability to the impacts of climate change.

Lessons and good practices shared and adopted: USD 238,000

134. There is a general weakness in documenting lessons and good practices from projects, including the projects focusing on climate change. Besides, the little that is documented is not adequately disseminated and read by the recipients. Learning and adopting climate change solutions by the most vulnerable communities can be enhanced by cross-exchange of information and touring and/or visiting as well as learning from successful innovative adaptation projects. However, due to limited financial resources to execute such ventures impedes efforts of taking forward such well-meaning planned activities. The proposed project will focus on facilitating experience sharing and cross-learning through study tours/exchange visits to innovative climate change adaptation interventions. The project will also facilitate learning events in climate change adaptation. Efforts to document lessons, good practices, and climate related case studies and disseminate them for replication and up-scaling will also be facilitated by the project. Similarly, to aid wide access and reference to documents by various stakeholders, the project will support the efforts of popularizing the existing frameworks (i.e. policies, Ordinances and by-laws). For this case, popular versions of new and existing policies, Ordinances and by-laws will be prepared and distributed. There is a general weakness in documenting lessons and good practices from projects, including the projects focusing on climate change. Besides, the little that is documented is not adequately disseminated and read by the recipients. Learning and adopting climate change solutions by the most vulnerable communities can be enhanced by cross-exchange of information and touring and/or visiting as well as learning from successful innovative adaptation projects. However, due to limited financial resources to execute such ventures impedes efforts of taking forward such well-meaning planned activities. The proposed project will focus on facilitating experience sharing and cross-learning through study tours/exchange visits to innovative climate change adaptation interventions. The project will also facilitate learning events in climate change adaptation. Efforts to document lessons, good practices, and climate related case studies and disseminate them for replication and up-scaling will also be facilitated by the project. Similarly, to aid wide access and reference to documents by various stakeholders, the project will support the efforts of popularizing the existing frameworks (i.e. policies, Ordinances and by-laws). For this case, popular versions of new and existing policies, Ordinances and by-laws will be prepared and distributed.

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J. Sustainability of the project outcomes

135. The sustainability of the RECOFE project outcomes will benefit from the lessons learned from the OSS EURECCCA project. Under the OSS EURECCCA project, several sustainability approaches were used. These include collaboration with community groups for early learning and adoption of the project interventions, directly involving the key stakeholders (politically and technically-these include the Catchment Management Committees and the local government technical teams) for political commitment and provision of adequate technical support; appropriate technology transfer of the adaptation actions. These approaches contribute to project sustainability. However, during the RECOFE project feasibility, formulation and design, sustainability of the project outcomes will be achieved through various means. These include Socio-economically, environmentally, technologically, financially and institutionally. The sustainability of project outcomes will benefit from the lessons learned from the OSS EURECCCA project. Socio-economically, environmentally, technologically, financially and institutionally.

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Socio-economic sustainability

136. The RECOFE project will strengthen the capacity of community groups to enable them engage in socio-economic and livelihood activities. These include the nature -based enterprises such as bee keeping and coffee-based agroforestry. The community groups constitute women, youths and PWDs, with common interests. Capacitating the community groups will ensure that they acquire the required knowledge and skills to manage the intervention for the future. Furthermore, the approach minimizes the likely conflicts among stakeholders, promotes social cohesion and cross learning, which are vital, attributes for socio- economic sustainability. The community resource use group approach presents additional benefits like sharing economic information e.g. on prices of the produce. This information is vital for stakeholders making informed decisions on markets. The project also is designed to promote development of business plans for small-scale businesses, facilitate registration of the businesses, train entrepreneurs in business management skills as well as establishing and operating market information systems. These are strategies that will promote sustainability of stakeholders in the project. ~~Under the OSS EURECCCA project, the approach of collaborating with existing community groups provided an opportunity to mobilize for easy learning and adoption of adaptation interventions. The RECOFE project will adapt and customize similar approaches in project execution to undertake nature-based enterprises (bee keeping and Coffee based agroforestry). This will strengthen the capacity of community groups in knowledge and skills to enable them engage in socio-economic and livelihood activities. The community groups constitute women, youths and PWDs, with common interests, and capacitating them will solidify the intervention for the future. Furthermore, the approach minimizes the likely conflicts among stakeholders, promotes social cohesion and cross learning, which are vital, attributes for socio- economic sustainability. The community resource use group approach presents additional benefits like sharing economic information e.g. on prices. This specific information is vital for stakeholders making informed decisions on markets. The project also is designed to promote development of business plans for small-scale businesses, facilitate registration of the businesses, train entrepreneurs in business management skills as well as establishing and operating market information systems. These are strategies that will promote sustainability of the groups. The OSS EURECCCA project established training centres which is a good model to adapt~~.

Environmental sustainability

137. The project is designed to support sustainable environmental interventions including restoration of degraded areas through bee keeping, tree planting, coffee-based agroforestry and wetland restoration activities. A system involving periodic monitoring and evaluation will be done to prevent adverse impacts on the environment and ensure timely adaptation measures are implemented Monitoring and evaluation of the interventions will be participatory and ensure that a diversity of key stakeholders are involved in the process. Further to this, the government officials will oversee the M&E function, which is under the policy and planning department at MWE. The involvement of stakeholders in M&E is to create a sense of ownership and continuity of project activities to promote sustainability. The RECOFE project design has aligned the activities to the government development plans with aim for the government to take over the activities when the project exits. ~~The project is designed to support sustainable environmental interventions including restoration of degraded areas through bee keeping, tree planting, coffee based agroforestry and wetland restoration activities. Some of these activities have been supported during the execution of the OSS EURECCCA project. A system involving periodic monitoring and evaluation will be done to prevent adverse impacts on the environment and ensure timely adaptation measures are implemented. Moreover, monitoring and evaluation of the interventions will be will be participatory, done by key stakeholders in the project. 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 implementation. The government officials will oversee the M&E function, which is under the policy and planning department at MWE. The essence of involving stakeholders in M&E is to create a sense of ownership and continuity of project activities to promote sustainability. The activities are aligned to the government development plans and these will be taken over by government in the long run.~~

Technological sustainability

138. The project will capacitate extension staff with appropriate irrigation technologies, use of modern tools in enterprise development (bee keeping and agroforestry). This will ensure continuation and replication of the

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of the technologies for the longer term. ~~Appropriate technology transfer of adaptation actions has been one of the focus in the Adaptation Funded OSS EURECCCA project. The project will capacitate extension staff appropriate irrigation technologies, use of modern tools in enterprise development (bee keeping and agroforestry). This will ensure continuation of the technologies for the longer term.~~

Financial sustainability

139. ~~Financial resources for investment in water security and enterprise development are currently inadequate. The project will collaborate with various partners in Katonga and other catchments to mobilize resources, streamline project interventions into national and sub-national work plans and lobby the government (national and local) to allocate financial resources towards nature-based enterprises and investment in appropriate water technologies. To further ensure sustainability, the project will aim at matching country-defined priorities consistent with project interventions and the necessary funding and financing. This will include local funding sources, external donors and other funding agencies that have available financing for similar or related interventions. The project will also leverage political (as in the OSS EURECCCA project) and financial in-country support for the implementation and acceleration of actions in the coming years.~~ Financial resources for investment in water security and enterprise development are currently inadequate. The project will collaborate with various partners in Katonga and other catchments to mobilize resources, streamline project interventions into national and sub-national work plans and lobby the government (national and local) to allocate financial resources towards nature-based enterprises and investment in appropriate water technologies. The project will aim at matching project interventions with country-defined priorities which attract significant financing. This will include local funding sources, external donors and other funding agencies that have available financing for similar or related interventions. The project will also leverage on political and financial in-country support for the implementation and acceleration of actions in the coming years.

Institutional sustainability

140. ~~From the institutional perspective, the lessons learned from the OSS EURECCCA project of directly involving the key stakeholders (politically and technically) has paid off in terms of gaining commitment towards project interventions. Further, three recommendations of the mid-term of the Adaptation Funded OSS EURECCCA review are considered: i) More involvement of Ministries Departments and Agencies in project interventions to benefit from their capacity and experience; ii) Prioritize beneficiaries in degraded hotpots by marginalized groups (e.g. women) in project implementation; and iii) Involvement of catchment and sub catchment Management Committees in project activities; Peer- learning will enhance implementation of component 3 of RECOFE project most specifically Activities 2.1.1.2 (Development of simple biophysical water harvesting technologies for crop and animal production); 3.2.1.1 Undertaking ecosystem restoration activities and 3.2.1.2 (Sensitizing stakeholders in sustainable natural resources utilization). These recommendations hold true and since the execution structure of the RECOFE project is similar to the OSS EURECCCA project, they will enhance sustenance of the interventions.~~ From the mid-term review of the Adaptation Funded OSS EURECCCA project, three key recommendation were highlighted these are i) More involvement of Ministries Departments and Agencies in project interventions to benefit from their capacity and experience; ii) Prioritize beneficiaries in degraded hotpots by marginalized groups (e.g. women) in project implementation; and iii) Involvement of catchment and sub catchment Management Committees in project activities and Peer- learning. The RECOFE project will use similar approach and customize it in the project area.

In addition, to ensuring sustainability of the adaptation benefits and addressing inadequate funding beyond lobbying government, the project will at the inception phase develop a sustainability plan. The plan will ensure the efficient utilization of funds to realize maximum benefit and impact to the beneficiaries. The plan will be comprehensive on the financial, community and organization aspects. Developing the sustainability plan will be a consultative and participatory approach.

~~140.~~ The project will collaborate with key institutions such as the Climate Financing Unit (CFU). This is a new unit under the Ministry of Finance Planning and Economic Development (MoFPED). The project will take the opportunity of the innovative financing instruments that exist and coordinated by the CFU. For example, these go beyond the non-traditional modes of financing (ODA and government). This will include resources from internal, external, private or public source. This will increase resources availabity and diversity of resource base. Therefore, the project interventions can be supported beyond the project lifetime.

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K. Environmental and Social Impacts and Risks

141. Analysis of the checklist of the 15 environmental and social principles of ESP of AF with regards to the RECOFE 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 proposal stage, an Environment and Social Management Plan (ESMP) for the project has been developed through which we critically analysed all the RECOFE project activities with a view of ensuring that environmental and social good practices are enforced. Table 10 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. It should be noted that Environment Project Briefs will be conducted for storage infrastructure in component 2 after the beneficiaries have offered land as they promised during stakeholder consultations. This will be one of the measures that will promote sustainability of the project. ~~Analysis of the checklist of environmental and social principles with regards to the RECOFE project indicates that the project falls in category B, because the activities have no adverse environmental and social impacts. The anticipated project impacts are few, reversible and can easily be mitigated. At this stage, an Environment and Social Management Plan (ESMP) for the project has been developed. It critically analyses all the RECOFE project activities with a view of ensuring that environmental and social good practices are enforced. Table 9 indicates the screening of the E&S impacts and risks assessment 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. The results of the screening are summarised in Table 10. This is one of the measures that will promote sustainability of the project.~~

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Table 10: Environmental and social impacts and risk screening for RECOFE

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 Annex 5)	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. The proposed sizes for the activities such as valley dams and micro-irrigation schemes i.e., 50,000Liters capacity for valley dams and 10 acres for micro-irrigation schemes do not require EIA as per the National Environment Act 2019 and these will not be located in sensitive ecosystems, thus no need for EIA. The proposed sizes of infrastructure i.e., earth dams (50,000Liters capacity) and micro-irrigation schemes (10 acres) and since these will not be located in sensitive ecosystems will thus require Environment project brief as per the National Environment Act 2019
2. Access and Equity	**Yes.** The proposed project promotes fair and equitable access to benefits of the project including access to water for production, food security, livelihoods diversification and general ecosystems' health	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 livelihood improvement may not provide benefit for all, but target those livelihoods in need and livelihoods which are involved in restoration activities 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, improved crop and pasture varieties as well as Income generating activities and access to markets. The selection criteria for the beneficiary communities and groups ~~were~~ will be done in a transparent manner as indicated in Part II, section A. Notably, a grievance redress mechanism shall be 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.
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 livelihood improvement activities, bee keeping, coffee-based ~~banana-coffee based~~ agroforestry activities are targeting women, single headed households 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.
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 services and water for irrigated agriculture and capacity building as well as access to information	Risk: Low Potential Impact: Low Project activities involving construction and restoration will require additional labour and risks related to mistreatment of workers by project Contractors will need to be monitored closely during project execution to ensure no violation against 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 by men and women. The project promotes	Risk: Low Potential Impact: Low

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	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 (see Annex 6). 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.	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 (see Annex 5).
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, 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.
8. *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. Protected ~~No activities that will lead to involuntary resettlement. Conservation~~ areas particularly riverbanks, wetlands and forests have been gazetted as per the National Forestry and Tree Planting Act, 2003, Uganda Wildlife Act 2019 and Wetlands, River Banks and Lake Shores Management) Regulations, S.I., No. 3 /2000 and there are no settlements in such ecosystems and thus no resettlement will be required. For community members who have encroached on natural resources such as riverbanks, wetlands and forests will be given priority to be beneficiaries on income generating activities of component 3 of this project such as bee keeping etc.~~trained on sustainable use of the natural resources~~.	Risk: Low Potential Impact: Low The project will closely monitor particularly those people who have encroached on protected natural resources to ensure that are given priority to be beneficiaries on the livelihood improvement activities of component 3 of this project such as bee keeping etc~~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 3 of the project i.e., activities 3.2.1.1, 3.2.1.2, 3.2.1.3, 3.2.1.4, 3.2.1.5, 3.2.1.6, 3.2.1.7, 3.2.1.8, 3.2.1.9, 3.2.1.10 and 3.2.1.11 that focus on enhancing the ecosystem health	Risk: Medium Potential Impact: Medium There are risks of vegetation clearance from sites for ~~valley~~ earth dams and micro irrigation systems construction activities that may affect natural habitats, destruction of vegetation and compaction of soils by construction equipment and dangers of fires especially ~~those undertaking~~ beekeeping~~that~~ undertaking beekeeping. 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*	The protection of wetlands and its natural habitats and biological diversity is a core objective of component 3 of the	Risk: Medium Potential Impact: Medium

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Biological Diversity	project i.e., activities 3.2.1.1, 3.2.1.2, 3.2.1.3, 3.2.1.4, 3.2.1.5, 3.2.1.6, 3.2.1.7, 3.2.1.8, 3.2.1.9, 3.2.1.10 and 3.2.1.11 that focus on enhancing the ecosystem health.	The project risks in relation to conservation of biological diversity include Vegetation clearance for construction of earth dams and micro-irrigation ~~for water dam and irrigation~~ schemes construction 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.
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 agroforestry 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 efficient use of water, ~~prevention of~~ construction and use of climate-smart water harvesting technologies, restoration of wetlands that help in improving ~~water pollution and monitoring~~ water quality and enhancing ecosystem resilience	Risk: Low Potential Impact: Low There are potential risks of water contamination in the storage reservoirs or irrigation systems, 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 restoration initiatives. However, Water harvesting, storage and irrigation facilities may aggravate some diseases such as malaria	Risk: Low Potential Impact: Low The risks include, ~~valley~~ earth dams being 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, ~~concentration~~ influx of workers ~~at Water infrastructure construction sites during the~~during construction tactivities hat 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 earth 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	Risk: Low Potential Impact: Low The project will promote protection/ conservation of physical and cultural heritages such as protection of forests, wetlands and riverbanks
15.Lands and Soil Conservation	Soil conservation, reduction of land degradation through promotion of biophysical structures including afforestation and catchment management is a core objective of component 3 of the project i.e., activity 2.1.1.3 that focuses on facilitating establishment of simple biophysical water harvesting technologies namely trenches, check dams, and percolation pits for soil and water conservation to restore the biophysical soil environments in the degraded agro-ecological landscapes	Risk: Low Potential Impact: Low Potential risks include soil erosion due to exposure and compaction by machinery during construction of ~~valley~~ earth dams and micro-irrigation schemes 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

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

Principle 1: Compliance with the law

143. The project is consistent and complies with the relevant environmental and climate change policies strategies and plans. No further assessment and management are required for compliance. The project activities will comply with the relevant National and international laws, policies, standards and regulations f~~F~~or example, at national level, the project aligns with the national regulations, policies and standards as outlined in section D; 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. The proposed sizes for the infrastructure i.e., earth dams (50,000Liters capacity) and micro-irrigation schemes (10 acres) and since these will not be located in sensitive ecosystems will thus require Environment project brief as per the National Environment Act 2019. At~~Then, at~~ regional level the project complies with the East African Climate Change Policy 2010 that guide stakeholders to enhance adaptive capacity and build socioeconomic resilience of vulnerable populations and ecosystems; Globally, the Convention on Biological Diversity appealing for a reversal of biodiversity loss with action from all segments of the society. 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.

Principle 2: Access and equity

144. There is a potential risk if selection of beneficiaries is not fairly done. This could curtail access to benefits and marginalize other stakeholders. Hence, detailed stakeholder mapping, consultations and assessments were undertaken during proposal development. Special focus was 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 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 shall benefit from project interventions including capacity building in climate-smart agriculture provision of water harvesting bio-physical structures, earth dams, micro-irrigation schemes and nature-based livelihoods activities.

145. The following criteria have 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 searching for the closest option and as such end up resorting to exploiting the natural resources that are considered open.
- Criterion 2 - Proximity to the natural ecosystems along wetlands, riverbanks and forests: People in the most degraded areas will be targeted because these are frontline people that interact with the natural resources daily. They are affected and affect the natural 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 natural 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 project beneficiaries are women. This will be done in consultation with local leaders and 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 are considered, for example, women, youth (boys and girls), Peoples with Disability (PWD) as well as the absolute poor from the project.

In case where a 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

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of inequality and lack of access to project benefits.

144. There are risks associated with insufficient access of the project benefits by a segment of the population especially the Vulnerable groups including the elderly, youth and women likely to miss out of the project activities and accessing benefits due to elite capture or 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 especially agriculturally based activities and those that need reasonable amounts of money to start up.

The project has been designed to ensure equity in access and sharing of resources. This principle will be followed during the project execution. First and foremost, during project design care has been taken to ensure that stakeholder mapping is done to not leave anyone behind. This was followed by 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, improved crop and pasture varieties as well as Income generating activities and access to markets. The selection criteria for the beneficiary communities and groups were done in a transparent manner as indicated in Part II, section A. Notably, a grievance redress mechanism shall be developed to handle any reported/identified issues of inequality and lack of access to project benefits.

Principle 3: Marginalized and vulnerable groups

146. The risks to Marginalized and Vulnerable groups including the elderly, youth and women include missing 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 as well as limited knowledge and awareness about the project about the project.

147. The project will avoid and will not have any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, refugees, people living with disabilities, and people living with HIV/AIDS and instead it will promote their active involvement in project activities and associated benefits. However, there is a likely hood that some of these groups may be excluded from participating in the project activities and decision-making during project implementation either due to capacity limitations, bias, discrimination or lack of information among other. The females as one of the marginalized and vulnerable groups in the catchment are estimated to be 1,524,887 (50.5% of the total catchment population). The proportions of other marginalized and vulnerable groups in the catchment that include the youth, elderly, People With disabilities, as well as the absolute poor (live on less than USD 1 per day) shall be determined at the onset of the project. Key among the vulnerabilities of Women, youth and the elderly include low incomes, limited access to land and credit, cultural bias and discrimination, high levels of illiteracy, adverse weather events and crop diseases, exclusion from decision-making on access to and the use of land and resources and other economic activities. Special attention shall also be given to refugees living in a refugee settlement in Kyegegwa District to ensure that the refugees participate and benefit from Project activities. The total population of refugees in the target settlement of Kyaka is 123,086, of which females and children are 96,702 (79%), the elderly 3,061 (2%) and youth between 12 and 24 years 25934 (21%). The refugees participated in the community consultative meeting and most of the issues affecting them in line with the project were captured and incorporated in the proposal. The key vulnerabilities of refugees are; have no clear sources of income, no access to credit, extreme poverty, hunger, low levels of education and skills, poor health especially the elderly, no land or sufficient land for cultivation, adverse weather events and crop diseases, limited opportunities for wage income or self-employment as refugees face social, economic and procedural barriers such as lack of documentation showing education, language and social stigma among others.

148. To address this the project will emphasize and ensure that all categories of people shall participate in the planning and execution of activities especially at community level. At community level at least 50% of the project beneficiaries shall be representatives of the vulnerable and marginalized groups. Stakeholder mapping and consultations have also ensured that issues affecting marginalized and vulnerable groups in the project area have been identified and incorporated in the project design.

149. Capacity building activities shall in particular target the vulnerable and marginalized groups to enable them participate and benefit fully from project activities. Information about the project shall also be packaged and shared in simple and easily understandable formats and languages in different forums targeting all

stakeholders including the Vulnerable and marginalized groups to ensure that they have adequate information about the project to enable participation. ——

150. Under components 2—— the project will support water infrastructure development including ~~valley~~ earth~~and micro~~ dams and micro~~ni~~-irrigation schemes as well as improved crop, animal breeds and improved grass varieties. Under component 3 nature-based enterprises of bamboo and beekeeping will also be supported. As earlier stated, 50% or more of the target groups will be the vulnerable and marginalized groups, the women, youth elderly and refugees among others. The insistence on targeting of 50% or more of the marginalized and vulnerable groups will ensure that these groups are included in the project activities and the benefits derived from these activities will increase their production capacities, incomes, livelihoods and their resilience to the impacts of climate change. Monitoring system for the project will emphasize collection of data and information on participation of marginalized groups as well as sex segregated data such that any gaps are identified in the early stages of the project and rectified. Any project issues, regarding vulnerable and marginalized groups that will not be addressed by the above approaches will be handled using the Project grievance redress mechanism. –

Principle 4: Human rights

151. Most of the project activities do not generate risks related to human rights. However, for activities such construction, restoration and value chains that will require hiring of labour and there may be issues arising from treatment of workers by the project Contractors. There is also a risk of inequitable access of the segments of the population to the project's resources

152. To address these risks the project is designed to respect and adhere to the requirements of all relevant conventions on human rights. Activity 1.2.1.1 focuses on facilitating the mainstreaming of Human Rights Based Approaches in climate change initiatives. The project aims at promoting human rights for equitable access to services, water for irrigation, capacity building, and information. The proposed project will promote the basic human rights of access to food, water, and information.

Principle 5: Gender equality and women's empowerment

153. There are risks including limited participation of Women and youth groups in project activities due to low representation and lack of land and other resources and limited benefits accruing to Women, youth and disadvantaged groups among others.

154. To address these issues the project design emphasizes gender equity and women empowerment through equal participation of both men and women in project activities. Women and other vulnerable groups will be empowered in decision making through having a minimum of 50% representation on group management committees for the project investments and enterprises. Further the project will ensure a gender transformative approach which will ensure that the voices of especially women are heard and influence decision making. To promote visibility of gender integration in the project, key activities such as capacity building in climate smart agriculture practices and development of business plans as well as undertaking of nature -based enterprises (bee keeping and Coffee based agroforestry) will be dominated by vulnerable communities (women, elderly, youth, People with Disabilities-PWDs) to scale -up nature-based enterprises will deliberately target women and other vulnerable groups. The project monitoring plan will emphasize reporting basing on gender disaggregated data to ensure issues of gender inequality are addressed at every level and stage of the project and any gaps are quickly addressed. The project communication plan will be gender sensitive. All these are aimed at ensuring gender is equitably and equality considered at all levels within the project.

Principle 6: Core labour rights

155. To address these risks project will be implemented and managed in compliance with the international and national labour laws and regulations. Compliance with fundamental labor rights will be ensured in all the proposed project activities and especially the community-based ones. The project will ensure that the project activities will fully comply with relevant National labour laws and regulations as elaborated in section 2 as well as ILO labour standards and conventions to which Uganda is a signatory. For concrete adaptation actions especially under component 2 involving construction of dams and micro-irrigation schemes as well as crop and livestock production and activities under component 3 involving undertaking nature-based enterprises like bee keeping and Coffee based agroforestry and establishment of value chains for nature-based enterprises where communities will provide the local labor force, core labor rights compliance will be mandatory.

156. These activities shall involve the use of local labour especially during the construction Phases of the water dams and micro-irrigation schemes or while undertaking land preparation, planting, harvesting and processing for agricultural crops and livestock farm operations. Common violations include use of child labour, low pay, and working overtime without pay, working without contracts, delayed payments, working without appropriate PPE among others. In addition, accidents or occupational hazards could occur during activity implementation. All stakeholders including workers and populations shall be sensitized about the risks related to the activities to be undertaken activities. Also, during activity implementation, the Directorate of water resources management will follow-up and monitor the worksites including activities progress and the respect of the labor and safety rights of workers. Contracts under this project shall have clear clauses on compliance with both international and National labour laws and regulations. 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 undertaking project activities will be required to , sensitize workers and populations to the risks related to the undertaken activities, provide workers with protective clothing (nose and mouth masks, ear muffs, overalls, industrial boots and gloves) and helmets, design and implement safety measures and emergency plans to contain accidents risks and ensure the application of safety standards by companies (equipment, signs, training, etc.),remunerate their workers adequately and on time, put gender consideration during recruitment, ensure that no child labour is employed in undertaking the project activities and avoid over exploitation of workers as well as establishing a robust monitoring and evaluation system by the Directorate of water resources management to ensure that these provisions are being implemented. No further assessment required.

Principle 7: Indigenous people

157. Although there are different tribes in the project area, but no sharp distinction between indigenous and non-indigenous people can be made. The Project promotes the rights and responsibilities set forth in the United Nations Declaration on the Rights of Indigenous Peoples. 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 to ensure that traditional natural resource use and land use rights are not undermined.

Principle 8: Involuntary resettlement

158. There are 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. Protected areas particularly riverbanks, wetlands and forests have been gazetted as per the National Forestry and Tree Planting Act, 2003, Uganda Wildlife Act 2019 and Wetlands, River Banks and Lake Shores Management) Regulations, S.I., No. 3 /2000 and there are no settlements in such ecosystems and thus no involuntary resettlement will be required. For community members who have encroached on natural resources such as riverbanks, wetlands and forests will be given priority to be beneficiaries on income generating activities of component 3 of this project such as bee keeping etc. ~~Community members that have encroached on natural resources such as riverbanks, wetlands and forests will be asked to move out of the area. Such community members will lose their farmlands near river banks, wetlands or forests in such areas, even though such areas are public and supposed to be protected.~~ The construction ~~of~~ ~~valley~~ earth dams and ~~mini~~micro-irrigation schemes will need land and may affect private lands or related activities. Strict criteria will be followed in the selection of sites for these activities. Under these criteria there will be no communities or populations resettlement in favour of project activities. Priority will be given to government or community owned lands. No further assessment is required. The project will closely monitor particularly those people who have encroached on protected natural resources to ensure that such communities are involved in income generating activities.

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Principle 9: Protection of Natural Habitats

159. There are risks including clearance of vegetation from sites for water dams and irrigation systems development that may affect natural habitats, destruction of vegetation and compaction of soils by construction equipment ~~—~~as well as dangers of fires especially ~~those undertaking apiary/beekeeping~~to apiary/beekeeping. To address these risks efforts will be undertaken during the construction of the water dams and micro irrigation schemes to ensure minimum disturbance to the natural habitats as much as possible. These will include sensitization sessions to local populations, contractors and their workforce on

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good environmental practices and the protection of natural habitats such as selecting sites carefully to avoid sensitive ecosystems and focusing on those where minimum damage will occur ,the need and how to minimize damage to the habitats during excavation and construction, ensuring vegetation clearance is minimized as much as possible, and developing simple restoration plans for all the sites for restoring any exposed areas during excavations and construction with natural vegetation and robust monitoring during the construction phases to ensure these guidelines are adhered to among others Also most of the project activities mainly under components 2 and 3 will lead to restoration and protection of these natural habitats. These include: Activities on soil and water conservation measures; wetlands restoration and management, riverbanks restoration and management and forest landscape restoration.

Principle 10: Conservation of biological diversity

160. The project risks in relation to conservation of biological diversity include vegetation clearance for water dam and irrigation schemes construction 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. The Katonga catchment is very rich in biodiversity and is known to have viable Sitatunga (*Tragelaphus spekei*) population inhabiting in the Katonga wetland system. Within the catchment is also the Katonga Wildlife Reserves that harbors high populations of Waterbucks, Hippos, Elephant, Buffalo, Bushbuck, Reedbuck, impalas, Zebras among others and Birds. There are also a number of Forest and wetlands ecosystems in the catchment although they are threatened by high levels of degradation. The project will make all efforts to ensure that biodiversity in the target areas is conserved.

161. The project will be implemented in line with the National biodiversity strategy and Action plan II (NBSAPII) .The main goal of the National biodiversity strategy and Action plan II is to enhance biodiversity conservation, management and sustainable utilization and fair sharing of its benefits through putting in place measures to reduce and manage negative impacts on biodiversity, promoting sustainable use and equitable sharing of costs and benefits of biodiversity as well as enhancing awareness and education on biodiversity issues among the various stakeholders. Other relevant policies, laws and plans that are relevant to biodiversity conservation including the National Forestry Policy 2001 that will be followed during project implementation are outlined in Section C.

162. Project activities will positively impact the landscape and enhance biodiversity conservation mainly through building the capacity of communities in and promoting soil and water conservation measures, wetland restoration and management, riverbank restoration and management as well as restoration of degraded catchment areas. Therefore, the project will enhance the integrity of natural habitats as well as well as building the capacity of communities and other stakeholders in biodiversity conservation.

163. Also, steps shall be undertaken to minimize these risks including, creating awareness on biodiversity conservation for the local populations and contractors, avoiding sensitive habitats that have high biodiversity densities of plants, animals and birds, minimizing vegetation clearance as Low as possible, restoration of disturbed areas after construction works among others.

164. Restoration activities shall be led by the District Forest departments who are technically competent in this field and will help communities in identifying the most degraded areas, as well as the most suitable species for reforestation, with the main focus on indigenous species. Equally introduction of improved and drought resistant of crop and grass species shall be supervised by the District Agriculture and Veterinary departments respectively to ensure that no alien crop or grass varieties are introduced. This together with continuous monitoring of all restoration activities will ensure that no introduction of invasive species.

Principle 11: Climate change

165. The project activities do not generate risks related to climate change. A fully-fledged Climate Change vulnerability study has been conducted to inform the design and preparation of the project proposal. All the four project objectives are focused on addressing the negative impacts of climate change and enhancing the resilience of communities. In addition, project activities are in line with the National climate change policy and strategic plan, NDC and priorities defined in the NAPA. None of the activities is envisaged to result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change. Where

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there is need for pumping, use of Solar power or Hydro Electric Power (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 building the capacity of key stakeholders 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

166. The construction of water dams and associated micro-irrigation schemes Activity 2.1.1.1 will create water storage reservoirs or irrigation systems with potential risks for water contamination, over use or un regulated usage of the water resources and water and soil contamination especially during construction and use of agricultural fertilizers and chemical weed control. There is also risks associated vandalism of water infrastructure after construction and the wastage during processing of agricultural products and nature based enterprises, Activity 2.1.1.3 Promote climate smart agriculture and improved livestock management for increased crop and livestock production and Output 3.1.1 Nature-based enterprises promoted (Bee-keeping and Coffee based agroforestry).

167. To address these risks a number of steps will be undertaken. All sub-projects under the project including Water dams, micro-irrigation schemes, and soil and water demonstration centers among others shall have management committees to ensure that resources under each sub- project are efficiently utilized. The capacities of the committees and communities in general shall be built to ensure efficient resource utilization and to minimize or avoid pollution and wastage. The use of chemical fertilizers and pest control will not be encouraged or supported by the project. Alternative environmentally friendly organic manure, compost and organic pest control remedies will be promoted. Also, the project activities will prevent air, soil and water pollution through activities such as soil and water conservation, river- bank restoration and management, wetland restoration, forest landscape restoration as well as creating awareness and building capacities of different stakeholders to manage soil, wetlands, river- banks, degraded catchments and water resources for irrigation and other uses.

168. In addition, through the committees the communities and other project stakeholders shall be encouraged to conduct regular water quality monitoring and maintenance of the water supply systems, as well as ensure the monitoring of water quality by chemical analysis, improve the awareness on water resource management and conservation, separate the infrastructures for human and animal use and provide a specific installation for the watering of livestock near the tanks. Besides, limit levels of dust through good practice such as watering of access routes, construction sites, and other disturbed sites and cover trucks transporting construction materials. For issues of vandalism of water pipelines infrastructure, wastage of water and leakages at consumer points and over abstraction of water, the project will run awareness campaigns on water resource management and conservation and create regular monitoring of the irrigation system installed. Irrigation schedules will also be popularized.

Principle 13: Public Health

169. There are risks associated with activity the dams and micro-irrigation schemes to be constructed under Activity 2.1.1.1 being 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, air and water pollution due to construction activities, concentration of workers at construction sites during that will increase the risk of spread of sexually transmitted diseases. Furthermore, the process of handling agricultural waste as well as establishment of value chains for nature-based enterprises (including production, processing, handling/ storage, packaging as may result in public health issues especially as a result of pollution and food poisoning due to aflatoxins under components 2 and 3.
170. The project will address the issues through a number of measures including, sensitizing communities and other stakeholders on water treatment and control of water borne diseases, sensitizing workers and community members on HIV/AIDS prevention and control and providing condoms, giving priority to workers in the project sites to avoid migration of workers, ensuring that fencing is done around the Water tanks/dams to ensure safety of people and animals and that the workers and Local people constructing , maintaining/cleaning the tanks have appropriate PPE. Farmers shall also be trained in post-harvest handling technologies to ensure that agricultural waste is handled properly, Activity 2.1.1.6 Train farmers in improved

post-harvest handling technologies

171. In respect to the current prevailing COVID19 pandemic, the Project Management Unit shall work hand in hand with other stakeholders to ensure that the Standard Operating Procedures (SOPs) from the Ministry of Health are adhered to during implementation of project activities. To enforce these measures water infrastructure management committees shall be put in place.

Principle 14: Physical and cultural heritage

172. There are no risks associated with Physical and cultural sites as they are no known sites in the project target sub-counties. However, incidental findings can take place on non-suspected sites. The project will develop a chance finding procedure to handle incidental findings if they occur.

Principle 15: Land and soil conservation

173. During the construction of water dams and micro-irrigation schemes Activity 2.1.1.1 construct five water dams to capture and store water to address the challenges of water scarcity in support of micro-irrigation schemes and livestock management there are potential risks including soil erosion due to exposure and compaction by machinery during construction of dams and micro-irrigation schemes as well as soil pollution from agrochemicals and fertilizers.

174. Efforts shall be undertaken to ensure that dam sites are properly restored with appropriate grasses and trees to avoid exposed landscapes. Communities and contractors shall be sensitized and trained and provided with appropriate species to restore exposed degraded landscapes. Use of agrochemicals and fertilizers shall be discouraged to avoid pollution.

175. Also, project activities promote the conservation of land and soil resources activities under component 2 including training farmers in soil and water conservation measures, establishing soil and water conservation demonstration centers as well as those under component 3 wetlands and river restoration and management, and forest landscape restoration are all aiming at conservation of land and soil resources. Any residue impacts shall be addressed by these activities.

Compliance with Adaptation Fund policies

176. All activities implemented under the project will adhere to the Adaptation Fund Environmental and Social Policy (AF ESP), revised in March 2016, which sets out the requirements for Implementing Entities (IEs) to assess and manage environmental and social risks in project implementation. All project activities have been screened and assessed against the 15 principles of the Fund's Environment and social Policy. All environment and social risks and impact that cannot be avoided shall be managed as per the mitigation measures provided in the project ESMP and the project grievance redress mechanism.

~~***Adherence to National Policies, Laws and Technical standards***~~

~~176. Further to the compliance with the AF ESP and other international laws and policies, the RECOFE 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 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 management according to the Project ESMP and the grievance redress mechanism.~~

~~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.~~ ***Unidentified Sub-Projects (USPs) Impact Assessment and Risk Management***

177. The Procedures for identification and validation of USPs will involve Initial screening of the RECOFE Project according to AF Environment and social Policy as well as National laws standards and regulations has yielded areas and components with possible USPs in particular components 2 and 3. During implementation more assessments shall be conducted for these activities and if impacts or risks are determined to be significant, activity-wide these shall be designated as USPs and more detailed E&S assessment will be conducted to

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identify activity-specific E&S management measures that need to be incorporated into the specific projects. The process will be governed by the Risk Management Procedure of the AF, the National Environment Act 2019 and as well the National Environment (Environmental and Social Assessment) Regulations, 2020.

All activities implemented under the USPs modality will adhere to the Adaptation Fund Environmental and Social Policy (AF ESP), revised in March 2016, which sets out the requirements for Implementing Entities (IEs) to assess and manage environmental and social risks in project implementation. The AF ESP defines the E&S Principles that AF projects abide by. The AF ESP defines that IEs shall adopt measures to avoid, or where avoidance is impossible to minimize or mitigate those risks during implementation.

Any USP identified and implemented in the RECOFE project shall be screened according to the 15 Principles of the Environment and social policy of the adaptation fund for those that apply and covering all the USP projects' activities to ensure that appropriate mitigation measures are proposed for any negative.

Adherence to National Policies, Laws and Technical standards

178. Further to the compliance with the AF ESP and other international laws and policies, the RECOFE 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 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 management according to the Project ESMP and the grievance redress mechanism.

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.

Equally to the compliance with the AF ESP and other International laws and policies, the RECOFE project is compliant with national laws, and adheres to all National Technical Standards that are applicable to the project. As such, all activities implemented as USPs will comply with these laws and standards.

The laws and standards that are relevant for the USPs are listed above in Section 2. Any USP identified and implemented in the RECOFE project will, without exception, comply with the identified national laws and technical standards Uganda.

According to the National Environment Act 2019 and the National Environment (Environmental and Social Assessment) Regulations, 2020 a Project briefs shall be prepared for all identified USPs and submitted to the Executive Director for NEMA for review. After review any of the three scenarios may hold:

- *If the executive director finds that the project will have significant impacts on the environment and that the project brief discloses no sufficient mitigation measures to cope with anticipated impacts, he or she shall require that the developer or MWE undertakes an environmental impact study;*
- *If the executive director is satisfied that the project will have no significant impact on the environment, or that the project brief discloses sufficient mitigation measures to cope with the anticipated impacts, he or she may approve the project or;*
- *Where the executive director approves the project under sub regulation (2) of the National Environment (Environmental and Social Assessment) Regulations, 2020 regulation, he or she shall issue a certificate of approval on behalf of the authority in the form provided in the Second Schedule to these Regulations*

In case it is decided that a study has to be undertaken the following steps shall be undertaken:

- **Scoping** - Scoping help to determine the extent and approach of the EIA at an early stage in the planning process.
- **Terms of Reference for an ESIA** - Basing on the findings from project scoping, project management shall prepare ToR and submit to NEMA and any other relevant Lead Agencies for review and approval before the EIS study is conducted.
- **Conducting Environmental Impact Study** – This involves carrying out a detailed study of the key impacts according to the scoping report and ToR. The EIA Study is done according the National Environment Act 2019 and ESIA Regulations 2020.

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- **Reporting** - After the detailed study an ESIA report is prepared including Environmental and social Management Plan that is followed during project design and implementation to ensure that the suggested mitigation measures are followed.
- **Environmental Monitoring**-environmental monitoring is done in order to ensure that recommended mitigation measures are being implemented to plan and to ensure that the unforeseen ones are being addressed as well.
- **Environmental Audit** – The National Environmental and social Impact Assessment Regulations 2020 and Audit regulations 2020, require that after the first year of operation, the developer must undertake an initial environmental audit. The purpose of the audit is to compare the actual and predicted impacts, and assess the effectiveness of the EIA, as well as its appropriateness, applicability and success.

The current USP Policy shall apply to activities mainly in components 2 and 3 of which the detailed locations are not yet identified at the time of full proposal development.

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PART III: IMPLEMENTATION ARRANGEMENTS

A. Management and Implementation arrangements for the project

Project management

~~178.~~179. Overall, the Ministry of Water and Environment (MWE) will be responsible for the overall management and oversight of the RECOFE project. It will be in charge of all the financial, monitoring, and reporting duties as an Accredited National Implementing Entity of the Adaptation Fund. In addition, the Ministry of Finance Planning and Economic Development (MoFPED), as the Designated Authority, will receive the funds from the Adaptation Fund and channel them to MWE. The MWE through the Directorate of Water Resources Management (DWRM), will manage the disbursements to the Executing Entity (EE) Global Water Partnership Eastern Africa (GWPEA) at the national level which will be responsible for executing the project in close collaboration with other field level partners including the already established zonal office in the Victoria Water Management Zone (VWMZ) and governance structures in form of the Stakeholders Forum and Catchment Management Committee in Katonga catchment that will be strengthened and used for coordination of project implementation. The Victoria Water Management Zone (VWMZ) in Mbarara District will closely collaborate, provide entry and link the GWPEA as the EE with local government and catchment management structures in executing the project in line with the Catchment Management Planning Guidelines.

Project coordination

~~179.~~180. The project coordination arrangement will include a National Steering Committee (NSC) and the Project technical Committee. The NSC will be the highest decision-making body of the RECOFE project and will be responsible for overseeing project management. The NSC will be composed of representative stakeholders from the key institutions namely: The Executing Entity GWPEA (secretary to the committee), National Designated Authority (NDA), National Environment Management Authority (NEMA), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Climate Change Department (CCD), Ministry of Trade, Private sector, CSOs/NGOs. The involvement of the private sector on the NSC is targeted towards attracting support of private sector players in the project interventions. Gender is a very important aspect of the project. As such, the project will target to have up to 50% of the NSC members being women. 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.

Implementing entity

~~180.~~181. The project will be implemented by the Ministry of Water and Environment (MWE). As an accredited National Implementing Entity (NIE), MWE will be in charge of all financial, monitoring and reporting aspects to the Adaptation Fund. MWE will also provide administrative and management support to the project, including to the executing entities and will be responsible for reporting project related information to the Adaptation Fund. DWRM as one of the specialized institutions of MWE responsible for water resources management in Uganda and will anchor RECOFE and play an oversight role as well as technical backstopping within the Ministry. The MWE through DWRM is executing an Adaptation Funded project entitled Enhancing Resilience of Communities to Climate Change through Catchment Based Integrated Management of Water and related resources in Uganda (EURECCCA)" worth USD$7.7Million and therefore has adequate experience in implementation of such projects upon which to guide such implementation of Adaptation Funds within the Ministry and her partners.

Executing Entities

~~181.~~182. Overall, the project will be executed by the Global Water Partnership Eastern Africa (GWPEA). GWPEA will ensure that there is consistency of the policies during the project execution. Therefore, the IE will supervise and ensure that alignment and compliance are attained. GWPEA is a partner to the EURECCCA project and is providing technical support and executing component 3 of the project on capacity building and knowledge management. GWPEA is also a regional executing entity for DRESS-EA project of Adaptation Fund. GWPEA therefore has experience in executing of projects of Adaptation Fund and will ably

execute the RECOFE project.

~~182.~~183. It is expected that the RECOFE project will raise the profile of Environment and Natural Resource Management. It will also lay the foundation for establishing a structure that will be responsible to strengthening of key stakeholders, facilitate water security and promote nature-based enterprises in the Katonga catchment thereby increasing the resilience of communities and fragile ecosystems to climate change impacts and variabilities. Detailed project implementation arrangement including the roles and responsibilities of the NIE and EEs as well as the organogram are provided in Table 11 and Figure 19 respectively.

Table 11: Implementation arrangements, roles and responsibilities of project partners

No.	Entity	Roles and Responsibilities
1	Ministry of Water and Environment (An Accredited National Implementing Entity)	• Oversee the financial and monitoring aspects of the RECOFE project • Reporting of project consolidated results to the Adaptation Fund • Approval of project annual work plan and budget for the Executing Entity (EE) • Approval of annual financial and technical reports for the EE • Provide administrative and management support to executing entity
2	Global Water Partnership Eastern Africa (GWPEA): Executing Entity	•Project management and execution of the project • Provide Technical Advice, guidance and support to the project •Ensure compliance with the ESP and GP • Communication, networking and partnership building • Supporting partners during operationalization of activities • Support in policy influencing amongst the various sectors in the country • Monitoring and Evaluation and M&E data collection • Providing technical and financial reports to MWE • Will be constituted a Project Management Unit composed of a Project Manager, Finance Officer, Communication Officer, Monitoring, and Evaluation Officer. The roles of the PMU include: **Project Manager** • Program management (Ensure that project activities are on track and that key results are achieved) • Provide guidance on linkage and consistency of project activities • Communication, networking and Partnership building •**Finance Officer** • Support in project financial management • Monitor budgeting and financial expenditures • Ensure correct financial reporting of the executing entities **Communication Officer** • Develop project communication materials **Monitoring and Evaluation Officer.** • Design the project's M&E system in consultation with the stakeholders • Review and revise the project M&E tools • Design additional M&E tools, as and when required • Maintain an up-to-date catalog of all project M&E tools and forms • Ensure that all project reports are sent to the correct people and maintain distribution lists for various reports • Ensure quality of narrative reports from project activities • Monitor quality of activities within the project by conducting site visits, as appropriate • Analyse the project's M&E data and make recommendations to the project management team
	Project Coordination	
	Project Steering Committee	• Provide strategic direction for the project • Facilitate the 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
	Project Technical Committee	• To advise on the technical aspects of the project • Support to review of technical documents

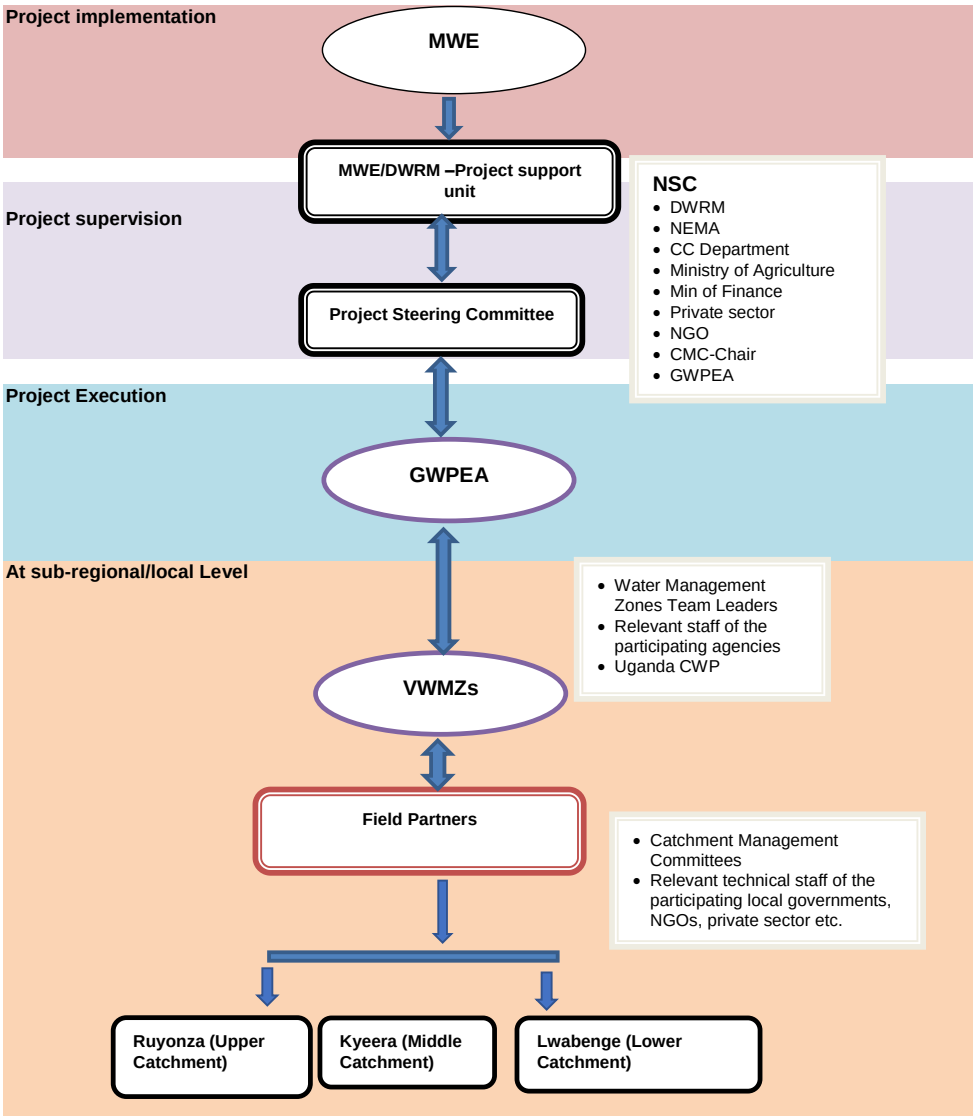

Figure 19: Project implementation organogram

B. Measures for financial and project risk management

~~183.~~184. Considering the complexity in Katonga catchment especially in terms of population and natural resources dynamics, a number of political and administrative risks are likely to emerge during implementation of RECOFE. Some of the likely risks that would influence project financial resources and risk management measures are presented in Table 12.

Table 12: Project financial risks and management measures

Risk	Rating	Risk Mitigation Measures
Financial/Economic risks		
Project financial management and accountability	Medium	Ensuring strict adherence to separation of roles in financial management and audit Providing 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
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.
Political risks		
Limited participation in project interventions by communities in different areas	Low	The project should mobilise and raise awareness before and during meetings at local community level to ensure that communities participate actively in project interventions. The project will involve community leaders, catchment, and sub-catchment committee members to lead project Management team to project beneficiaries at community level. Also, the Community Based Organizations (CBO) operating in proposed project sites will be sensitized on the project activities for implementation
Low collaboration and conflicts over project involvement especially among refugees and host communities	Low	The district political and technical leadership will be involved from the baseline survey stage, to national and field consultations. Project updates and briefs will be regularly provided to the district political and technical leadership through a focal office at the district.
Lack of political will to implement the project at national and local levels	Low	The Ministry, national and regional stakeholders as well as Local Government Authorities have all demonstrated commitment to the project Comprehensive and rigorous stakeholder consultations were conducted during development of the proposal. Regular consultations and updates 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.
Environmental risks		
Adverse weather affects 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 monitoring and evaluation
Limited capacity of communities and other stakeholders to implement interventions in project sites	Medium	Conduct capacity building sessions in meetings and workshops as indicated in the project narrative Undertake training sessions for different stakeholders Link the targeted project beneficiaries to project demonstration sites and implement the learning and exchange events

C. Measures for environmental and social risk management

~~184.~~185. The project environmental and social risks screening and impact assessment reveal limited environmental or social risks and impacts. The management of the Environmental and social risks of the project will further be guided by the Environment and Social Safeguards Framework (2018) This Environment and Social Safeguards Framework is used by the Ministry of Water and Environment to ensure that all environmental and social issues are adequately addressed as required for projects funded by the Adaptation Fund and Green Climate Fund and other development partners. The goal is to avoid unnecessary environment and social harm as a result of project implementation. This Environment and Social Safeguards Framework aims specifically to ensure the following: To ensure integration of environmental and social concerns in all stages of project development and implementation and at all levels including national, district and local levels, with full participation of the people as means of minimizing environmental and social impacts

- Identification of key environmental and social issues and ensuring that they are screened against Adaptation Fund 15 principles,8GCF Performance standards and other development partner guidelines and ensuring that adequate mitigation measures are put in place
- Specifying appropriate roles and responsibilities of key stakeholders including procedures, for managing, monitoring and reporting environmental and social concerns
- Ensuring that there is adequate institutional capacity to successfully implement the ESS and ensure Compliance

~~185.~~186. The following flow chart describes the Approach used in Handling Environment and Social issues under this Framework.

Source: MWE, 2018[28]

The table below summarizes the main risks identified and the measures that will be undertaken during the implementation of the project for risk management and mitigation. The risk mitigation and management measures are described in detail in Section K, as well as in the Environment and Social Management Plan (ESMP). This Environmental and Social Safeguards Framework has been formulated to facilitate the MWE to effectively address the environmental and social issues for projects and programmes funded by the Adaptation and green Climate funds and other development partners. This will guide the Ministry to address Environment and social issues in a harmonized and coherent manner during and after projects/programmes implementation.

~~186.~~187. Other key documents that will guide the management of Environmental and social management risks include the Environment and Social Management Plan (ESMP) within the Environmental and Social Management Framework (ESMF) (Annex 5) and gender action plan (Annex 6)) attached to this proposal.

[28] MWE, 2018. The Environmental and Social Safeguards Framework, Kampala.

Table 13: Environmental and social risk mitigation measures

AF ES Principles checklist	Potential impacts	Level	Mitigation measures
1. Compliance with the Law	Project activities will not generate risks.	None	Project activities do not generate risks related to conformity with the law so there are no mitigation measures to plan for.
2. Access and Equity	Risk of insufficient access of the project benefits by a segment of the population Elite capture and bias in allocating project benefits Lack of interest to participate in project activities	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 as nature-based enterprises and access to markets equally without discrimination. • There will be sustained and continuous sensitization of all stakeholders to ensure that marginalized and most vulnerable groups will be benefit from project interventions • Continues monitoring to ensure all the target stakeholders are benefiting from the project activities • Grievance redress mechanism that shall be followed in handling reported issues of inequality and lack of access to project benefits.
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	Medium	• Marginalized and vulnerable groups will be deliberately targeted right from the project design to ensure that they participate and benefit from project activities. Beneficiary selection criteria with positive bias towards these groups will be developed. • Marginalized and vulnerable groups people who do not have land will be given priority for access to other project activities such Bee-keeping 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.
4. Human rights	Most of the project activities do not generate risks related to human rights. However, for activities such construction and restoration that may require additional labour to undertake, there may be issues arising from treatment of workers by the project Contractors. Risk of inequitable access of the segments of the population to the project's resources	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. • The project will respect and promote all fundamental human rights as per the constitution of Uganda and in accordance to all conventions signed by the government of Uganda. The project will work Local governments and Communities to ensure no human rights violation happens. The project anticipates no violation of human rights through the project activities, and on the other hand will strive to empower the local community to be aware of and exercise their human rights for maximum benefits from the project. • The Project Grievance redress mechanism shall also 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	Low	• 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 agriculture practices and development of business plans as well as undertaking of nature-based enterprises including: bee keeping, and agro-forestry as well as facilitating vulnerable communities (women, elderly, youth, People

			with Disabilities-PWDs) to scale -up nature-based enterprises will deliberately target women and other vulnerable groups. This will enhance their access to finance, markets and market information thereby contributing directly to their financial empowerment. • 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. • Project Reports to emphasize Gender segregated 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.
6. Core labour rights	• Accidents and other occupational hazards 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 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.	Low	• 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 and individuals/community groups undertaking restoration activities, occupational health and safety procedures, employment and workers compensation Acts to ensure that they meet the national and international labour standards, laws and guidelines. • Provide workers with protective gears (nose and mouth masks, ear muffs, overalls, industrial boots and gloves) and helmets as applicable and training them on their usage • Ensure that each site has 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; • 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 as 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	Although there are different tribes in the project area, but no sharp distinction between indigenous and non-indigenous people can be made, thus no specific impacts to indigenous people and no mitigation measures are required. However there is a risk that traditional natural resource use and land use rights will be undermined.	Low	Detailed analysis of traditional natural 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 result in involuntary resettlement of households or communities in the project area except for loss of farmlands that have encroached on natural resources such as riverbanks, wetlands and forests supposed to be restored and protected	Low	itor 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.
9. Protection of natural habitats	• The project sites boarder on Katonga Wildlife reserve and Forest reserves within the Katonga river catchment so there is a risk of encroachment on these reserves • Clearance of vegetation from sites for valley dams and irrigation systems development may affect natural habitats • Destruction of vegetation and compaction of soils by construction equipment Danger of fires especially those undertaking apiary/beekeeping	Medium	• Efforts shall be undertaken to ensure that the project activities do not encroach on the Katonga Wildlife Reserve and other forest reserves within the catchment through awareness raising on the importance biodiversity conservation ensuring that laws and regulations are followed • Comprehensive site assessment shall be done to ensure that valley dams and irrigation systems are not located in sensitive habitats and restoration undertaken where vegetation is disturbed • 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. • Continuous monitoring and follow-up of the implementation of all activities related to the protection and management of ecosystems and natural habitats in the ESMP

			• 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 provision of improved harvesting equipment.
10. Conservation of biological diversity	• Vegetation clearance for water harvesting and storage sites and irrigation systems will result in loss of biodiversity on those sites • Opening up of new lands for agriculture may also lead to vegetation loss Appropriate seed and improved pastures for increased crop and livestock production may turn out be invasive	Low	• Vegetation clearance will 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 agriculture expansion shall be discouraged where possible and improved land management practices promoted to improve the productivity of the existing agricultural lands. • Standards will be followed and relevant technical advice sought to ensure that the crop and pasture species introduced are not invasive.
11. Climate change	Emission of greenhouse gases	None	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 fully-fledged Climate Change vulnerability study has been conducted during the design and preparation of the project's full proposal. All the four project objectives of *strengthening the capacity of key grass root stakeholders for climate change adaptation, promoting appropriate water storage technologies for increased water and food security*, *supporting establishment of nature-based enterprises for improved community livelihoods* and *supporting knowledge management and information sharing* are focused on addressing the negative impacts of climate change and enhancing the resilience of communities and fragile ecosystems. None of the activities proposed for each activity is envisaged to result in any considerable amounts of greenhouse gas emissions or other drivers of climate change.
12. Pollution prevention and resource efficiency	• There is potential of water contamination in the storage reservoirs or irrigation systems • Over use or un regulated usage of the water resources • Water and soil contamination	Low	• Ensure establishment of water management committees to ensure regular maintenance of water sources and irrigation systems 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
13. Public Health	• The water storage facilities 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	Medium	• 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
14. Physical and cultural heritage	Risk of destruction of physical and cultural heritage during the incidental findings	None	• There are no known physical and cultural sites in the project target sub-counties they are only found in the adjacent ones. However, incidental findings can take place on non-suspected sites. The project will develop a chance finding procedure to handle incidental findings if they occur.
15. 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. • Soil pollution from agrochemicals and acaricides	Medium	• 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 • Minimizing the use of Agro-chemicals. • Spraying the animals on paved surfaces

Arrangement and implementation responsibilities for the proposed mitigation measures

~~187.~~188. The Project national Implementing Entity and Executing entities shall oversee and coordinate the implementation of all mitigation measures proposed in the ESMP. At the National level, the National Environmental Management Authority (NEMA) and the Department of Environmental Affairs (DEA) in Ministry of Water and Environment (MWE) working together with the Directorate of Water Resources Management (DWRM) will take the lead in overseeing the implementation of the social and environment issues related to the project. The District and Sub- County Technical staff will take lead in the implementation and monitoring of the ESMP implementation at local levels. The key institutions and officers that will be involved in implementation of ESMP are indicated in Table 14.

Table 14: The main institutions and officers for implementing mitigation measures in the ESMF

Institution	Mandate/responsibility
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 and will take lead in monitoring of the Project ESMP implementation and approval of Project Environmental and social Audit reports.
Ministry of Water and Environment (MWE)	The Ministry, through it's the DEA and DWRM will monitor the implementation of the ESMP and provide technical backstopping and capacity building to field officers.
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 Environment Officer (DEOs)	Oversee the implementation of the ESMP at Field level including out spot checks on programs to confirm if the proposed mitigation measures are being implemented and provide technical backstopping to other field officers.
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	The community primary beneficiaries of the project will participate fully in all aspects of the program including project identification, preparation, implementation, operation and maintenance.
Contractors	Mitigation measures proposed for their projects

Grievance Redress Mechanism

~~188.~~189. 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.

~~189.~~190. This Project Grievance Redress Mechanism shall consist of Grievance Redress committees at two levels. One will be at Project sites with the Team Leader of the Water Management Zone (WMZ) as the Chairman of the Committee (GRC). The GRC at this level will be constituted of the following members:

1. WMZ – Team Leader – Chairman
2. LC V Chairperson – Member
3. Project/Program Manager – Secretary

4. Contractor/Consultant – Member
5. LC 111 – Chairman-Member
6. Community Representative
7. Representative of a local CBO or NGO/ Religious Leader operating in the area

~~190.~~191. The representative from the Organization operating in the area and the Community representative shall serve as non-permanent members. The second committee will be at the MWE level. At the Ministry Level, the GRC will be housed in the Directorate of Environmental affairs with the following as the permanent members appointed by the Permanent Secretary:

1. Commissioner – Department of Environment Support Services – Chair,
2. Assistant Commissioner Environment Affairs (Monitoring, Compliance, Assessment, and Education) – Member
3. Principal Sociologist (Water sector Liaison Department) – Member
4. Principal Environment Officer (Monitoring and Compliance) – Member
5. Project/Program Manager – Secretary
6. Community Representative
7. Representative of a local CBO or NGO/ Religious Leader

The Manager of any of the projects or Programs will be the Secretary to the committee, at the time issues and complaints from his project or program are being addressed. The Committee members are mandated to carry out such functions as may be allocated to them, and to support the Grievance Redress committee in discharging its functions as stipulated in the TORs. Consistent with the TOR of the committee the GRC may develop and issue Supporting Operating Procedures (SOPs) for the GRM to facilitate easy implementation and to ensure the effective and efficient operation of the GRM.

Functions of the Grievance Redress Committees (GRC)

~~191.~~192. The Grievance Redress Committee will be mandated to address grievances and complaints by a person, a group of persons or a community who/which have been or may be adversely impacted by the project through problem-solving methods and/or compliance review, as appropriate. It mandated to initiate proceedings on its own to investigate grievances of a person, a group of persons or a community who/which have been or may be adversely impacted by the project as well as monitoring whether decisions taken by the Commissioner /PS based on recommendations made by Grievance Redress Committee, or agreements reached relating to grievances and complains through problems solving methods, have been implemented.

Grievance Implementation Approach

~~192.~~193. The GRM shall be given a wide publicity among all these key stakeholders. Effective awareness of GRM process makes people better understanding about their options, depending on the types of complaints. Criteria for eligibility need shall be communicated and awareness campaigns launched to give publicity to the roles and functions of the GRM. Awareness shall include the following components:

- Scope of the project, planned phases, and activities etc.;
- Availability of GRM and GRC, their purpose and their accessibility;
- Eligible complaints that can be lodged and how they can be lodged
- Types of grievances not acceptable to the GRM.
- Members of GRC and its location
- Method of complaining or reporting the grievance
- Taking part in the GRC meeting (is any companions of the complainant allowed)

- The steps of resolving process and timeline adopted in this mechanism.
- Needed documents and evidence to support of the complaint
- Procedures and time frames for initiating and concluding the grievance redress process; boundaries and limits of GRM in handling grievances; and roles of different stakeholders involved including the project implementer and the affected parties.

A variety of methods shall be adopted for communicating information to the relevant stakeholders. This information shall be part of a simple brochure explaining the different grievance redress procedures and possibilities for affected persons. Other methods shall include display of posters in public places such Local government offices at District and Sub- County levels, project offices, community centers, hospitals and health clinics of the area.

Stages for MWE Grievance Redress Mechanism

~~193.~~194. A two-stage (Step 1 and Step 2) GRM will be designed and implemented for the Project. Accordingly, two (2) GRCs will be appointed for these two stages as described in 1.5 above. Step 1 GRC will be given four (4) weeks' time to address any ground level issue. Any issue which cannot be addressed at this stage will be referred to Step 2 GRC within 07 days after conclusion of business at step 1 with a full report comprising suggestions and observations of Step 1 GRC for review.

Step 1 GRC

~~194.~~195. There shall be two focal points one at the field level project office and one at the sub-county community development offices in the three-project focal Sub-counties. These will be liaison offices especially for receiving complaints and grievances as well as communicating feedback to the complainants. In addition to the above designated offices the public shall submit their complaints to one selected CBO/NGO operating in the project/program area that shall be agreed upon by all stakeholders at the time of formation of the GRCs. This is intended to ensure that people who have complaints and clarifications are able to submit them for processing and feedback. Considering the importance of efficient functioning of GRM, Step 1 the GRC shall be expected to resolve complains within three weeks after receiving them. This stage is expected to benefit from the /Consultant 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. Proximity of most of the members of GRC that involves the team leader, Project Manager, contractor.

The timeframes are as follows:

~~195.~~196. All the receiving points – the Project site office OR Sub- County CDO office OR the selected CBO/NGO office shall inform the Chairman of Step 1 GRC with a full report within 3 working days from receipt of a grievance or complain. GRC meetings will be held at the Project/program site office within at least 12 days after receiving and verifying the complaint/grievance and the affected persons who has lodged complaints will be invited for the GRC meeting. The affected persons will be informed about the GRC, five days prior to its meeting. However, the GRC meeting shall be held in public if required or at the Projects site office. The Secretary of GRC shall coordinate with all relevant parties to get necessary information and keep. Records of all complaints and reports. At the time of GRC meeting all complaints should be in written form. If the issue is resolved at Step 1 GRC, the decision/resolution shall be documented in a report by the Secretary, signed by all committee members and communicated to all stakeholders within 5 days after the GRC meeting. If the issue cannot be resolved at this level, then a report should be written and sent to Step 2 GRC within 5 days after the meeting of step 1 GRC. Committee meetings will be convened by the Secretary of Step 1 GRC who is the Project Manager. The chairman of Step 1 GRC is expected to take appropriate action with the consultation of other committee members within the given a three weeks' time and to inform the affected persons accordingly.

Step 2 GRC

~~196.~~197. The issues that could not be resolved by Step 1 GRC, will be forwarded to Step 2 GRC within five days (working days) of the final decision of Step 1 GRC. Step 2 GRC. The main objective of Step 2 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, Step 2 GRC is requested to convey its decisions to Step 1 GRC and other relevant parties within four (4) weeks' time from the date of receiving issues from Step 1 GRC without further delay to take immediate actions. (Step 1 GRC - 3 weeks + Step 2 GRC 4 - weeks = 7 weeks). The Detailed Implementation Steps are critical to the success of the GRM and are indicated in the Grievance Redress Chain below.

The process of implementing a GRM involves the following steps,
Step 1: Decide on Focal offices
Step 2: Receive and register complaints.
Step 3: Screen and refer the complaints.
Step 4: Coordinate with other GRMs/ agencies (if required).
Step 5: Assess the complaint.
Step 6: Formulate a response.
Step 7: Select a resolution approach
Step 8: Implement the approach.
Step 9: Settle the issues/complaints
Step 10: Track, document, and evaluate the process and results.

The detailed GRM is elaborated in Chapter 8 of the ESMF

D. Monitoring and evaluation arrangements

~~197.~~198. Project Monitoring and Evaluation will be carried out using the MWE standards. 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 and final 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.~~199. 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. 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 15) detailed the M&E activity to be performed and the corresponding budget.

Table 15: Project monitoring and evaluation work plan and budget

M&E activity	Responsible parties	Budget (USD)	Time frame												Notes
			2021	2022				2023				2024			
								Quarters							
			4	1	2	3	4	1	2	3	4	1	2	3	4	
Inception workshop	MWE	15,000														Within two months after signing the contract
Baseline study (to update the current baseline), Environmental, social and gender analyses	MWE	25,000														Will be undertaken at project inception to facilitate the tracking of changes and/or impact.
Field visits to measure and report on project results and targets (Quarterly and annual Reports)	M & E Officer, and Team Leader WMZ	Team support costs were included in the Project's implementation														To be done continuously-Will be undertaken quarterly
Monitoring Project outputs by Project Team/MWE and reporting	Project Manager and MWE, GWPEA	Team support costs were included in the Project's implementation														will be done Semi-annually
Visits to field sites for joint review of status and project progress and reporting	Project team/ MWE and GWPEA	15,000														Will be done yearly
Independent mid-term evaluation	MWE Project team, independent consultants hired to carry out the evaluations	15,000														Will be done after One and half year
Independent final evaluation	MWE	15,000														Will be done at least two months before the end of the Project
Final project report	Project Manager/ MWE	None														Will be submitted at the end of the Project
Final project audit	MWE	20,000														Will be done at least two months before the end of the Project
Total M&E Costs		**105,000**														

E. Results framework with milestones, targets and indicators

Table 16: Project results framework

Result	Indicators	Baseline	Milestone (after 1.5 years)	End of Project Targets	Means of Verification	Responsible Parties	Risks and Assumptions
Impact							
Enhanced resilience of communities and fragile ecosystems to climate change impacts and variability in Katonga Catchment	Number of direct beneficiaries of CC adaptation measures (50% women) Number of indirect beneficiaries of CC adaptation measures (50% women)	0 0	At least 6,256 community members (with 3,128 women) directly benefiting from adaptation interventions At least 12,512 community members (with 50% women indirectly benefiting from project interventions)	At least 12,512 community members (with 6,256 women) directly benefiting from adaptation interventions. At least 29,191 community members (with 50% women indirectly benefiting from project interventions)	Initial Baseline survey Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Governments	Availability of adequate security for project implementation Political will to support project activities at regional, national and local levels There are no major inflationary pressures There no major natural disasters and pandemics to impede project implementation.
Result	**Indicators**	**Baseline**	**Milestone (after 1.5 years)**	**End of Project Targets**	**Means of Verification**	**Responsible Parties**	**Risks and Assumptions**
Objectives							
1. To strengthen the capacity of key grass root stakeholders for climate change adaptation	1.1 Proportion of the targeted key grass root stakeholders that are aware of CC impacts and climate resilient initiatives/ measures 1.2 Proportion of community governance structures with improved capacities	To Be Determined (TBD)	At least 40% of targeted key stakeholders that are aware of CC impacts and climate resilient initiatives/ measures At least 50% of community governance structures that have 50% women leaders.	At least 90% of targeted key stakeholders that are aware of CC impacts and climate resilient initiatives/ measures At least 90% of community governance structures that have 50% women leaders.	Initial Baseline survey Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM GWPEA Independent Consultants VWMZ Focal District Local Government leaders	
2. To promote appropriate water storage technologies for increased water and food security	2.1 Proportion of HHs in targeted areas that are accessing/utilizing appropriate/improved water harvesting/storage facilities 2.2 Proportion of food secure HHs in targeted project sites	To Be Determined (TBD) during the initial baseline study	At least 40% of HHs in targeted communities access/utilize appropriate/improved water harvesting/storage facilities At least 40% of HHs in targeted sites are food secure.	At least 90% of HHs in targeted communities access/utilize appropriate/improved water harvesting/storage facilities At least 90% of HHs in targeted sites are food secure.	Baseline survey Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	
3. To support	3.1 Proportion of HHs in targeted	TBD	At least 40% of HHs in	At least 90% of HHs in	Baseline survey	MWE	

establishment of nature-based enterprises for improved community livelihoods	areas that are engaged in alternative nature-based enterprises/IGAs 3.2 Proportion of HHs with at least 25% increase in aggregated income 3.3 Proportion of degraded fragile ecosystems restored/conserved		targeted areas that are engaged in alternative nature-based enterprises/ IGAs At least 40% of HHs in targeted areas have at least a 25% increase in aggregated income At least 40% of degraded fragile ecosystems restored/conserved	targeted areas that are engaged in alternative nature-based enterprises/ IGAs At least 90% of HHs have at least a 25% increase in aggregated income 90% of degraded fragile ecosystems restored/conserved	Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders and community members	DWRM Independent Consultants VWMZ Focal District Local Government leaders	
4. To support knowledge management and information sharing	4.1 Proportion of community members who have acquired and demonstrate practical knowledge and skills of how well-designed climate resilient development measures can significantly and concretely contribute to economic development, poverty strategies and enhance fragile ecosystems	TBD	At least 40% of HHs in targeted areas have adopted/practice climate resilient development measures	90% of HHs in targeted areas have adopted/practice climate resilient development measures	Baseline survey Mid-term and End of project reports Independent Evaluation report Project implementation reports Field visit reports M&E reports Interviews with local leaders and community members.	MWE DWRM GWPEA Independent Consultants VWMZ Focal District Local Governments leaders	
Result	**Indicators**	**Baseline**	**Milestone (after 1.5 years)**	**End of Project Targets**	**Means of Verification**	**Responsible Parties**	**Risks and Assumptions**
Component 1: Strengthening the capacity of key grass root stakeholders for climate change adaptation							
Outcome1.1 Capacity of key grass root stakeholders in implementing climate resilient development initiatives strengthened	Number of Key grass root stakeholders who have acquired and demonstrate practical knowledge and skills of how well-designed climate resilient development measures can significantly and concretely contribute to economic development, poverty strategies and enhance fragile ecosystems Percentage increase of targeted communities undertaking climate change adaptation actions.	TBD	50 persons	100 persons	Baseline survey Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM GWPEA Independent Consultants VWMZ Focal District Local Government leaders	Political stability within the catchment ensures continuity The persons trained will be retained in these positions within and beyond the project life time
Output 1.1.1 Capacity building program for key grass root stakeholders established	Number of trainings conducted Capacity needs assessment conducted Number of people empowered Number of people trained (Disaggregated by sex) Number of Domesticated tool kits developed		At least 2 capacity building trainings conducted A capacity needs assessment report 100 persons to be empowered (50% women)	At least 3 capacity building trainings conducted A capacity needs assessment 200 people empowered (50% women) At least 200 people	Participants lists, Evaluation forms, Certificate of completion of training Mid-term and End of project reports Independent Evaluation report	MWE DWRM GWPEA Independent Consultants VWMZ Focal District Local	

			At least 100 people trained (at least 50% women) One tool kit developed	trained (at least 50% women) One tool kit developed	Field visit reports M&E reports Interviews with local leaders and community members	Government leaders	
Outcome 1.2 Governance of natural resources strengthened	Presence of gender specific measures in the catchment arrangements and integration thereof into climate change initiatives and/or economic development strategies) Number of rights holders (custodians) engaged in accessing information		At least 15% of leadership roles/responsibilities are spearheaded by women	At least 30% of leadership roles/responsibilities are spearheaded by women	Knowledge Attitude and Practices (KAP) survey Stakeholder mapping reports Community reflection meetings minutes Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	There is an existing enabling environment in support of climate change adaptation and policy frameworks
Output 1.2.1 Community group leadership structures orientated in leadership and management	Number of key duty bearers and right holders trained who display basic knowledge and take corrective actions about their communities' rights over territories and natural resources		At least 50 people trained	At least 100 people trained	Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	
Result	**Indicators**	**Baseline**	**Milestone (after 1.5 years)**	**End of Project Targets**	**Means of Verification**	**Responsible Parties**	**Risks and Assumptions**
Component 2: Promoting appropriate water storage technologies for increased water and food security							
Outcome 2.1 Increased water and food security	Percentage increase of households with suitable daily water & food and fodder consumption for livestock	TBD	At least 15% increase of households with suitable daily water & food and fodder consumption for livestock	At least 30% increase of households with suitable daily water & food and fodder consumption for livestock	Project implementation reports Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	
Output 2.1.1 Innovative and agreed upon multi-stakeholder	Number of households with demonstrated water harvesting enhancing options to reduce	TBD	At least 50 HHs with demonstrated water harvesting options	At least 100 HHs with demonstrated water harvesting options	Mid-term and End of project reports Independent	MWE DWRM Independent	

water storage technologies adopted	water scarcity for domestic and agricultural production within the catchment				Evaluation report Field visit reports M&E reports Interviews with local leaders	Consultants VWMZ Focal District Local Government leaders	
Result	**Indicators**	**Baseline**	**Milestone (after 1.5 years)**	**End of Project Targets**	**Means of Verification**	**Responsible Parties**	**Risks and Assumptions**
Component 3: Supporting nature-based enterprises for sustainable socio-economic development							
Outcome 3.1 Increased income for improved stakeholder livelihoods	Percentage increase in income for project beneficiaries in targeted project sites	TBD	Income for project beneficiaries increased by at least 15%	Income for project beneficiaries increased by at least 30%	Household surveys Mid-term and End of project reports Independent Evaluation report Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	Persons enjoying superior intellectual or social or economic status easily exert influence
Output 3.1.1 Nature-based enterprises promoted	Number of households taking up new interventions as a result of the project Number of demonstrated livelihood enhancing options to reduce poverty and environmental degradation in the catchment		At least 25 HHs taking up new interventions as a result of the project	At least 50 HHs taking up new interventions as a result of the project	Project implementation reports Mid-term and End of project reports Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	
Output 3.1.2 Market linkages of products from nature-based enterprises established	Number of community groups linked for their products Number of farmers/ producers linked for their products		At 4 groups At least 50 producers	At least 8 groups At least 200 producers	District reports Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	
Output 3.1.3 Entrepreneur skills of stakeholders enhanced	Number of businesses reviewed		At least 100 producers trained	At least 200 producers trained	Project implementation reports Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	
Outcome 3.2 Enhanced ecosystem health	By end of project, sediment load within rivers in the catchment is maintained below average threshold Proportion of ecosystems (		<7% A least 40% restored	<7% At least 60% restored	Project implementation reports Field visit reports M&E reports Interviews with local	MWE DWRM Independent Consultants VWMZ	

	riverbanks, wetlands, forests) hot spot area restored				leaders and community members	Focal District Local Government leaders	
Output 3.2.1 Fragile ecosystems conserved	Area of fragile ecosystem restored	TBD	At least 500ha of wetlands restored At least 75 ha of river banks restored At least 75 ha of degraded areas reforested	At least 100ha of wetlands restored At least 150 ha of river banks restored At least 150 ha of degraded areas reforested	Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM Independent Consultants VWMZ Focal District Local Government leaders	
Result	**Indicators**	**Baseline**	**Milestone (after 1.5 years)**	**End of Project Targets**	**Means of Verification**	**Responsible Parties**	**Risks and Assumptions**
Component 4: Supporting knowledge management and information sharing							
Outcome 4.1 Lessons and good practices shared and adopted	Number of development plans incorporating climate change resilience issues Good practices and lessons from the project are documented and influence policy		At least 25% of the district developing plans incorporate CC resilience issues One policy brief produced by end of the project	At least 50% of the district developing plans incorporate CC resilience issues Two policy briefs produced by end of the project	Project implementation reports Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM GWPEA Independent Consultants VWMZ Focal District Local Government leaders	
Output 4.1.1 Knowledge management and information sharing system developed	• Number of cross learning events organised • Number of learning events organised • Number of knowledge products e.g., documents on lessons and best practices from project interventions		• One exchange visit for key stakeholders organised • One community learning event organised • 2 brochures, 1 publication (documents) on lessons and best practices from project interventions • At least 2 climate related case studies /lessons documented, packaged and shared with key stakeholders.	• 2 exchange visits for key stakeholders organised • 2 community learning events organised • 4 brochures, 2 publications (documents) on lessons and best practices from project interventions • At least 4 case studies case studies /lessons documented, popularised, packaged and shared with key stakeholders.	Project implementation reports Field visit reports M&E reports Interviews with local leaders and community members	MWE DWRM GWPEA Independent Consultants VWMZ Focal District Local Government leaders	

F. Project alignment with the Adaptation Fund Results Framework

Table 17: Alignment with AF results framework

Project Objective(s)[1]	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
The overall objective of the project is strengthening the resilience of communities and fragile ecosystems to climate change impacts through promoting appropriate water infrastructure investments and nature- based solutions.	1.1 Proportion of the targeted key grass root stakeholders that are aware of CC impacts and climate resilient initiatives/ measures	**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	2,249,000
			3.2. Percentage of targeted population applying appropriate adaptation responses	
	1.2 Proportion of community governance structures with improved capacities	**Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	**2.1.2** No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
	2.1 Proportion of HHs in targeted areas that are accessing/utilizing appropriate/improved water harvesting/storage facilities	**Outcome 4:** Increased adaptive capacity within relevant development sector services and infrastructure assets	**4.2**. Physical infrastructure improved to withstand climate change and variability-induced stress	
	2.2 Proportion of food secure HHs in targeted project sites	**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 access to livelihood assets	
	3.1 Proportion of HHs in targeted areas that are engaged in alternative IGAs		**6.2**. Percentage of targeted population with sustained climate-resilient alternative livelihoods	
	3.2 Proportion of HHs with at least 25% increase in aggregated income			
	3.3 Proportion of degraded fragile ecosystems restored/conserved	**Outcome 5**: Increased ecosystem resilience in response to climate change and variability-induced stress	**5**. Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress	
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
Outcome1.1 Capacity of key grass root stakeholders in implementing climate resilient development initiatives strengthened	Number of Key grass root stakeholders who have acquired and demonstrate practical knowledge and skills of how well-designed climate resilient development measures can significantly and concretely contribute to economic development, poverty strategies and enhance fragile ecosystems	***Output 2.1***: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	**2.1.1**. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	118,000

	Percentage increase of targeted communities undertaking climate change adaptation actions		**2.1.2** No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
Outcome 1.2 Governance of natural resources strengthened	Presence of gender specific measures in the catchment arrangements and integration thereof into climate change initiatives and/or economic development strategies)	***Output 7***: Improved integration of climate resilience strategies into country development plans	**7.2**. No. of targeted development strategies with incorporated climate change priorities enforced	165,000
	Number of rights holders (custodians) engaged in accessing information			
Outcome 2.1 Increased water and food security	Percentage increase of households with suitable daily water & food and fodder consumption for livestock	***Output 8:*** Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	**8.1**. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	479,000
Outcome 3.1 Increased income for improved stakeholder livelihoods	Percentage increase in income for project beneficiaries in targeted project sites	***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 (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	636,500
			6.2.1. Type of income sources for households generated under climate change scenario	
Outcome 3.2 Enhanced ecosystem health	By end of project, sediment load within rivers in the catchment is maintained below average threshold	***Output 5:*** Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	**5.1**. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	288,500
	Proportion of ecosystems restored			
Outcome 4.1 Lessons and good practices shared and adopted	Number of development plans incorporating climate change resilience issues	***Output 3.1:*** Targeted population groups participating in adaptation and risk reduction awareness activities	**3.1.1** No. of news outlets in the local press and media that have covered the topic	238,000
	Good practices and lessons from the project are documented and influence policy	***Output 3.2:*** Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	**3.2.1** No. of technical committees/associations formed to ensure transfer of knowledge	
			3.2.2 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	

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

G. Detailed budget with IE fee use, and execution explanations

Table 18: The detailed budget

Component/Outcome/Output/Activity	Unit cost (USD)	No. of Units	Total Budget ('000 USD)	Budget notes
COMPONENT 1: Strengthening capacity of key grass root stakeholders for climate change adaptation			**283,000**	
Outcome 1.1: Capacity of key grass root stakeholders in implementing climate resilient development initiatives strengthened			**118,000**	
***Output 1.1.1:* Climate change Capacity building program for key grass root stakeholders established**			**118,000**	
Activity 1.1.1.1 Undertake capacity needs assessment in relation to climate change for key grass root stakeholders	500	30	**15,000**	This is a study budgeted for 30-man days @ USD 300/day and associated costs of USD 6,000 for reimbursables for meetings and workshops for inception and validation of study findings.
Activity 1.1.1.2 Induct and empower grass root-duty bearers with knowledge in climate change and integrate climate change guidelines in district and sub county plans	13,000	4	**52,000**	Involves costs of 4 residential workshops full board at USD 65 per individual for 200 participants to cover transport refund for participants, out of pocket, facilitators' allowances, and Fuel costs for MWE.
Activity 1.1.1.3Training in roles and responsibilities of the duty bearers at the grass-roots	425	40	**17,000**	This includes Consultants fees @USD 300 per day for 40 days and USD 5,000 for reimbursable costs for meetings, refreshments, venue and fuel.
Activity 1.1.1.4 Facilitate tool kit development for mainstreaming climate interventions in development initiatives	8,500	4	**34,000**	Involves costs of 4 residential workshops full board at USD 65 per individual for 100 participants to cover transport refund for participants; and USD 2,000 for refreshments and out of pocket for facilitators' and other reimbursable costs per workshop.
Sub-Total			**118,000**	
Outcome 1.2 Governance of natural resources strengthened			**165,000**	
***Output 1.2.1:* Community resource use group leaders orientated in leadership and management**			**165,000**	
Activity 1.2.1.1 Facilitate the mainstreaming of Human Rights Based Approaches in climate change initiatives	8,000	4	**32,000**	Involves costs of 4 residential workshops full board at USD 65 per individual for 100 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for Facilitators and other reimbursable costs.
Activity 1.2.1.2 Facilitate communities in advocacy, lobbying and public relations through creation of dialogue platforms and conducting climate change campaigns	4,000	8	**32,000**	Involves the costs of organising 4 dialogue platforms and 4 campaigns in the catchment @ USD 400 per facilitator for 5 facilitators per dialogue and campaign; and USD 2,000 for reimbursable costs including hiring the venue, refreshments and out of pocket.
Activity 1.2.1.3 Facilitate resource use negotiations and development of Management plans, MoUs between the communities and duty bearers of the natural resources	5,000	4	**20,000**	This involves organising and facilitating 4 meetings for resource use negotiations and MoU arrangements targeting 50 people @USD 100per person.
Activity 1.2.1.4 Develop and strengthen the governance and leadership frameworks (Bye-laws, ordinances, guidelines)	9,000	9	**81,000**	Facilitation of community meetings, for relevant sub county and district, natural resources council members' committee meetings targeting 200 people @USD45 for a total of 9 meetings. The

				participants will be selected from district, sub county and community levels.
Sub-Total			**165,000**	
COMPONENT 2: Promoting establishment of appropriate water harvesting and storage technologies			**479,000**	
Outcome 2.1: Increased water and food security			**479,000**	
***Output 2.1.1:* Innovative multi-stakeholder water harvesting and storage technologies adopted**			**479,000**	
Activity 2.1.1.1 Construct five earth dams to harvest and store rain water and run offActivity 2.1.1.1 Construct five (5) earth dams to capture and store rain water and run off to support micro-irrigation schemes and livestock management	25,000	5	**125,000**	This is the cost of constructing 5 earth dams (50,000 litre capacity) that may last for up to 20 years, at a Unit cost of USD 25,000 per dam.
Activity 2.1.1.2 Activity 2.1.1.2 Facilitate establishment of five low cost drip micro-irrigation schemes Activity 2.1.1.2 Facilitate development of simple biophysical water harvesting technologies	15,000	4	**60,000**	This is the cost of 4 demonstration sites for biophysical water harvesting technologies established each at an estimate of USD 15,000 per site for serving households. This is the cost of 4 low-cost trickle irrigation systems (covering about 50 acres each) established at an estimated cost of USD 500 per acre in the catchment.
Activity 2.1.1.3 Facilitate establishment of five soil and water conservation demonstration sites Activity 2.1.1.3 Promote climate smart agriculture and improved livestock management for increased crop and livestock production	500	200	**100,000**	This is the cost of 4 low-cost trickle irrigation systems (covering about 50 acres each) established at an estimated cost of USD 500 per acre in the catchment. This is the cost of 4 demonstration sites for biophysical water harvesting technologies established each at an estimate of USD 15,000 per site for serving households
Activity 2.1.1.4 Train farmers in climate smart agricultural practices and improved livestock management. Activity 2.1.1.4 Train farmers in smart agricultural practices and improved livestock management.	6,500	3	**19,500**	Involves costs of conducting 3 community training sessions at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 2,500 for refreshments and out of pocket for facilitators and other reimbursable costs USD 2,000 per session.
Activity 2.1.1.5 Provide improved tools and planting materials to communities	25,000	5	**125,000**	Purchase of 5,000 kg of appropriate seed and pastures @USD 3 per kilogram as well as tools @ USD 10,000 for at most 5 community groups.
Activity 2.1.1.6 Train farmers in improved post-harvest handling technologies	6,500	3	**19,500**	Involves costs of conducting 3 community training sessions at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for facilitators and other reimbursable costs @ USD 3,000 per session.
Activity 2.1.1.7 Enable community groups to establish improved post-harvest handling and storage facilities for crops and livestock products.	3,000	10	**30,000**	This involves the cost of establishing 10 storage/handling points and platforms, advertising materials, packaging and billboard materials @ USD 3,000 per selling point.
Sub-Total			**479,000**	
COMPONENT 3: Supporting nature-based enterprises for sustainable socio-economic development			**925,000**	
Outcome 3.1 Increased income for improved stakeholder livelihoods			**636,500**	
***Output 3.1.1* Nature-based enterprises promoted**			**420,500**	
Activity 3.1.1.1 Sensitize communities on bee keeping in the target sub counties	9,500	4	**38,000**	This covers the cost of conducting 2 community meetings and 2 radio talk shows on bee keeping and products @USD 9,500 per gathering.

Activity 3.1.1.2 Conduct hands-on training at least 8 community groups to develop business plans, setting up of bee keeping enterprises, post-harvest handling, value addition and marketing for implementing bee keeping.	6,500	3	**19,500**	Involves costs of conducting 3 community training sessions at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and USD 1,500 out of pocket for Facilitators and USD 1,500 for other reimbursable costs per session.
Activity 3.1.1.3 Provide equipment for setting up bee keeping business, post-harvest handling/storage and value addition to community beekeeping groups	4,050	20	**81,000**	This is the cost of purchasing an assortment of beehives @USD 1,200, boxes @USD 1,050, harvesting gear @USD 900 and tools @USD 900 per 20 community groups.
Activity 3.1.1.4 Support community bee keeping groups to add value to bee keeping products	10,375	8	**83,000**	This involves the cost of adding value for at most 8 enterprise groups @USD 10,375 per group.
Activity 3.1.1.5 Support the community groups to set up points of sale and market the products from bee keeping	5,100	10	**51,000**	This involves the cost of developing 10 selling points and platforms, advertising materials, packaging and billboard materials and containers @ USD 5,100 per selling point.
Activity 3.1.1.6 Sensitize communities on the coffee based agroforestry systems in the target sub counties	6,500	3	**19,500**	Involves costs of conducting 3 community training sessions at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for Facilitators USD 1,500 and other reimbursable costs USD 1,500 per session.
Activity 3.1.1.7 Conduct hands-on training of at least 8 community groups to develop business plans, setting up of coffee based agroforestry enterprises, post-harvest handling, value addition and marketing for implementing the agroforestry enterprises	6,500	3	**19,500**	Involves costs of conducting 3 community training sessions at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for Facilitators USD 1,500 and other reimbursable costs USD 1,500 per session.
Activity 3.1.1.8 Provide planting materials including coffee seedlings, tree seedlings, crops or livestock) for setting up the enterprise, post-harvest handling and value addition to community members	8,000	4	**32,000**	This involves the cost of 10,000 coffee and agroforestry trees seedlings and/or pasture clusters @USD 0.8 per seedling distributed for 4 community groups.
Activity 3.1.1.9 Support community groups engaged in coffee based agroforestry	5,000	4	**20,000**	This is the cost of nursery tools for two nurseries @USD 2,000 each as well as one carton of assorted inputs for coffee/fruit tree growing also at USD 3,000 for 4 community groups.
Activity 3.1.1.10 Support community groups engaged in coffee based agroforestry enterprises to add value to different products	6,000	4	**24,000**	This involves the cost of adding value for at most 4 enterprise groups @USD 6,000 per group.
Activity 3.1.1.11 Support the community groups to set up points of sale and market the products from agroforestry enterprises.	8,250	4	**33,000**	This involves the cost of developing 4 selling points and platforms, advertising materials, packaging and billboard materials and containers @ USD 8,250 per selling point.
Sub-Total			**420,500**	
Output 3.1.2 **Market linkages of products from nature-based enterprises established**			**128,000**	
Activity 3.1.2.1 Facilitate nature-based beneficiary groups to participate in business forums, trade fairs & exhibitions	800	25	**20,000**	This covers the costs of exhibition fees @ USD 200, producing exhibition materials @USD 300, travel costs, and upkeep @ 300 per participant for 25 participants.
Activity 3.1.2.2 Facilitate community groups to establish formal market linkages for their products	1,000	30	**30,000**	This covers 3 studies internal and external opportunities to the identified products value chains budgeted for 30-man days @ USD 300/day and associated costs of USD 3,000 for reimbursables for inception and validation meetings of study findings.

Activity 3.1.2.3 Facilitate establishment and operation of a market information systems	1,000	30	**30,000**	This involves the cost of consultancy fees @USD 300 per day for 30 man-days and USD 10,000 for tools/inputs and USD 11,000 for reimbursables.
Activity 3.1.2.4 Develop promotional materials for marketing of products	1,000	4	**40,000**	This covers the costs of the consultancy for developing social media marketing materials @USD 150 and USD 250 for print media materials for 30 man-days for 2 agreed upon materials Plus USD 600 as the cost of specific inputs for marketing materials for four products from nature-based enterprises.
Sub-Total			**128,000**	
***Output* 3.1.3 Entrepreneur skills of stakeholders enhanced**			**88,000**	
Activity 3.1.3.1 Facilitate registration of small-scale businesses	500	40	**20,000**	This covers the registration fees and processing costs of small-scale businesses @USD 500 for 40 key businesses in the catchment.
Activity 3.1.3.2 Conduct refresher training courses for entrepreneurs in management of nature based enterprises	21,500	2	**43,000**	Involves costs of 2 day residential workshops full board @ USD 68 per individual for 200 participants to cover transport refund for participants and USD 7,900 for refreshments and out of pocket for facilitators and other reimbursable costs per day.
Activity 3.1.3.3 Review the functioning of the nature based businesses	1,000	25	**25,000**	This is a study budgeted for 25-man days @ USD 300/day and associated costs of USD 8,750 for reimbursables for meetings and workshops for inception and USD 8,750 for validation of study findings.
Sub-Total			**88,000**	
Outcome 3.2 Enhanced ecosystem health			**288,500**	
***Output 3.2.1* Fragile ecosystems conserved**			**288,500**	
Activity 3.2.1.1 Sensitize communities and catchment management committees on wetland ecosystems management	6,500	3	**19,500**	Involves costs of conducting 3 community meetings at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for facilitators USD 1,500 and other reimbursable costs USD 1,500 per session.
Activity .3.2.1.2 Train duty bearers (as outlined in Table 4) in sustainable management and/or utilization of wetlands	13,000	2	**26,000**	This involves the facilitation costs for conducting two training sessions on sustainable wetland utilisation targeting 200 stakeholders @USD 10 per person for each event and USD 11,000 for facilitation and refreshments.
Activity 3.2.1.3 Support communities and catchment management committees to in the target parishes to develop and implement wetlands management action plans, including activities such as demarcating degraded wetlands with pillars and live markers	1,000	24	**24,000**	This is the cost of demarcating 24km of wetland boundary @USD 100 per km degraded wetland.
Activity 3.2.1.4 Support communities and catchment management committees to establish structures and wetland management measures for enforcement of plans, ordinances and byelaws	15,000	4	**60,000**	This is the cost of supporting enforcement of physical structures, ordinances and byelaws at 4 demonstration sites different structures (e.g., check dams) established each at an estimate of USD 15,000 per site.
Activity 3.2.1.5 Sensitise communities and catchment management committees on river bank ecosystems management	6,500	3	**19,500**	Involves costs of conducting 3 community meetings at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for facilitators USD 1,500 and other reimbursable costs USD 1,500 per session.

Activity 3.2.1.6 Train stakeholders in sustainable management and/or utilization of river banks	6,500	3	**19,500**	Involves costs of conducting 3 community training sessions at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for Facilitators USD 1,500 and other reimbursable costs USD 1,500 per session.
Activity 3.2.1.7 Support communities and catchment management committees to develop and implement restoration action plans, including demarcating and restoring degraded river banks with live markers	1,000	24	**24,000**	This is the cost of demarcating 24km of wetland boundary @USD 100 per km degraded wetland.
Activity 3.2.1.8 Train selected farmers/CBOs in tree nursery establishment and management	6,500	3	**19,500**	Involves costs of conducting 3 community training sessions at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for Facilitators USD 1,500 and other reimbursable costs USD 1,500 per session.
Activity 3.2.1.9 Provide nursery equipment and materials to establish three tree nurseries with a capacity	5,000	4	**20,000**	This is the cost of nursery tools for two nurseries @USD 2,000 each as well as one carton of assorted inputs for tree planting also at USD 3,000 for 4 community groups.
Activity 3.2.1.10 Train selected farmers/CBOs on tree growing approaches and silvicultural practices	6,500	3	**19,500**	Involves costs of conducting 3 community training sessions at USD 10 per individual for 200 participants to cover transport refund for participants; and USD 1,500 for refreshments and out of pocket for Facilitators USD 1,500 and other reimbursable costs USD 1,500 per session.
Activity 3.2.1.11 Provide tree seedlings to farmers for planting	1	37,000	**37,000**	This involves the cost of raising and transporting 37,000 seedlings of different species @USD 01 for planting on forest and agricultural landscapes.
Sub-total			**288,500**	
COMPONENT 4: Supporting knowledge management and information sharing			**238,000**	
Outcome 4.1 Lessons and good practices shared and adopted			**238,000**	
***Output 4.1.1* Knowledge management and information sharing system developed**			**238,000**	
Activity 4.1.1.1 Organise Study tours/visits to areas with successful innovative climate change adaptation interventions to enable experience sharing and cross-learning	930	100	**93,000**	This covers travel costs and up keep for up of USD 340 and USD 590_for reimbursable costs for each of 100 key stakeholders participating in the exchange tour.
Activity 4.1.1.2 Organize learning events in climate change adaptation Study tours/visits	500	100	**50,000**	This includes facilitation costs for conducting one learning event @USD 500 for 100 participants by end of project.
Activity 4.1.1.3 Document lessons, good practices from project interventions and disseminate them to stakeholders for possible replication and up-scaling	225	200	**45,000**	Covers costs for regular field visits and meetings with key 50 stakeholders @ USD225 per quarter for 2 quarters for 2 years targeting to document lessons,
Activity 4.1.1.4 Prepare/develop popular versions of existing policies, plans, ordinances and byelaws	100	500	**50,000**	This includes the costs for formatting lay outs in 4 local languages and English and printing in bulk popular versions @USD 100 targeting 500 copies.
Sub-total			**238,000**	
Project activities Total Budget (component 1, 2, 3 and 4)			***1,925,000***	
Project Co-ordination and Management				
Executing Entity fees				
Management and coordination costs, and consulting services			81,000	Facilitation for M&E staff salaries, coordination and management staff, finance, procurement and salary for the Project Coordinator and 2 Field Staff per month for 36 months.
Monitoring, Auditing and reporting			50,000	One (1) vehicle for M&E Staff operations and office equipment.

Operating costs			50,000	Travel costs, Daily Safari Allowances, printing and communication, office rent per month.
Sub-Total			**181,000**	
Implementing Entity fees				
Monitoring, Auditing and consulting services			62,000	Facilitation for M&E staff salaries, coordination and management staff, finance, procurement and admin per month.
Equipment and consumables			52,000	One (1) vehicle for M&E Staff operations and office equipment.
Operating costs			29,000	Travel costs, Daily Safari Allowance, printing and communication, office rent per month.
Sub-Total			**143,000**	
Grand total			**2,249,000**	

H. Disbursement schedule with time-bound milestones

Table 19: Disbursement schedule

Component/Outcome/Output/Activity	Total Budget ('000 USD)	Disbursements (USD)		
		Year 1	Year 2	Year 3
COMPONENT 1: Strengthening capacity of key grass root stakeholders for climate change adaptation	**283,000**	**121,000**	**121,500**	**40,500**
Outcome 1.1: Capacity of key grass root stakeholders in implementing climate resilient development initiatives strengthened	**118,000**	**101,000**	**17,000**	
***Output 1.1.1:* Climate change Capacity building program for key grass root stakeholders established**	**118,000**	***101,000***	***17,000***	
Activity 1.1.1.1 Undertake capacity needs assessment in relation to climate change for key grass root stakeholders	**15,000**	15,000		
Activity 1.1.1.2 Induct and empower grass root-duty bearers with knowledge in climate change	**17,000**		17,000	
Activity1.1.1.3 Training in roles and responsibilities of the duty bearers at the grass-roots	**34,000**	34,000		
Activity 1.1.1.4 Facilitate tool kit development for mainstreaming climate interventions in development initiatives	**52,000**	52,000	17,000	
Sub-Total	**118,000**	**101,000**	**17,000**	
Outcome 1.2 Governance of natural resources strengthened	**165,000**	**20,000**	**104,500**	**40,500**
***Output 1.2.1:* Community resource use group leaders orientated in leadership and management**	**165,000**	**20,000**	**104,500**	**40,500**
Activity 1.2.1.1 Facilitate the mainstreaming of Human Rights Based Approaches in climate change initiatives	**32,000**		32,000	
Activity 1.2.1.2 Facilitate communities in advocacy, lobbying and public relations through creation of dialogue platforms and conducting climate change campaigns.	**32,000**		32,000	
Activity 1.2.1.3 Facilitate resource use negotiations and development of Management plans, MoUs between the communities and duty bearers of the natural resources	**20,000**	20,000		
Activity 1.2.1.4 Develop and strengthen the governance and leadership frameworks (Bye-laws, ordinances, guidelines)	**81,000**		40,500	40,500
Sub-Total	**165,000**	**20,000**	**104,500**	**40,500**
COMPONENT 2: Promoting establishment of appropriate water harvesting and storage technologies	**479,000**	**219,000**	**205,000**	**55,000**
Outcome 2.1: Increased water and food security	**479,000**	**219,000**	**205,000**	**55,000**
***Output 2.1.1:* Innovative multi-stakeholder water harvesting and storage technologies adopted**	**479,000**	***219,000***	***205,000***	***55,000***
Activity 2.1.1.1 Construct five (5) water dams to capture and store rain water to address the challenges of water scarcity in support of micro-irrigation schemes and livestock management	**125,000**	62,500	62,500	
Activity 2.1.1.2 Facilitate development of simple biophysical water harvesting technologies for soil and water conservation to aid crop production	**60,000**		30,000	30,000

Activity 2.1.1.3 Promote climate smart agriculture and improved livestock management for increased crop and livestock production	**100,000**	25,000	50,000	25,000
Activity 2.1.1.4 Train farmers in smart agricultural practices and improved livestock management.	**19,500**	19,500		
Activity 2.1.1.5 Provide improved tools and improved planting materials to communities	**125,000**	62,500	62,500	
Activity 2.1.1.6 Train farmers in improved post-harvest handling technologies	**19,500**	19,500		
Activity 2.1.1.7 Enable community groups to establish improved post-harvest handling and storage facilities for crops and livestock products.	**30,000**	30,000		
Sub-Total	**479,000**	**219,000**	**205,000**	**55,000**
COMPONENT 3: Supporting nature-based enterprises for sustainable socio-economic development	**925,000**	**339,250**	**399,250**	**186,500**
Outcome 3.1 Increased income for improved stakeholder livelihoods	**636,500**	**195,500**	**284,500**	**156,500**
***Output 3.1.1* Nature-based enterprises promoted**	***420,500***	***174,000***	***165,000***	***81,500***
Activity 3.1.1.1 Sensitize communities on bee keeping in the target sub counties	**38,000**		38,000	
Activity 3.1.1.2 Conduct hands-on training at least 8 community groups to develop business plans, setting up of bee keeping enterprises, post-harvest handling, value addition and marketing for implementing bee keeping.	**19,500**	6,500	6,500	6,500
Activity 3.1.1.3 Provide equipment for setting up bee keeping business, post-harvest handling/storage and value addition to community beekeeping groups	**81,000**	81,000		
Activity 3.1.1.4 Support community bee keeping groups to add value to bee keeping products	**83,000**	32,000	20,000	31,000
Activity 3.1.1.5 Support the community groups to set up points of sale and market the products from bee keeping	**51,000**	17,000	17,000	17,000
Activity 3.1.1.6 Sensitize communities on the coffee based agroforestry systems in the target sub counties	**19,500**	19,500		
Activity 3.1.1.7 Conduct hands-on training of at least 8 community groups to develop business plans, setting up of coffee based agroforestry enterprises, post-harvest handling, value addition and marketing for implementing the agroforestry enterprises	**19,500**		19,500	
Activity 3.1.1.8 Provide planting materials including coffee seedlings, tree seedlings, crops or livestock) for setting up the enterprise, post-harvest handling and value addition to community members	**32,000**		32,000	
Activity 3.1.1.9 Support community groups engaged in coffee based agroforestry	**20,000**		20,000	
Activity 3.1.1.10 Support community groups engaged in coffee based agroforestry enterprises to add value to different products	**24,000**		12,000	12,000
Activity 3.1.1.11 Support the community groups to set up points of sale and market the products from agroforestry enterprises.	**33,000**	18,000		15,000
Sub-Total	**420,500**	**174,000**	**165,000**	**81,500**
***Output 3.1.2* Market linkages of products from nature-based enterprises established**	**128,000**		***73,000***	***55,000***
Activity 3.1.2.1 Facilitate community groups to participate in business forums, trade fairs & exhibitions	**20,000**			20,000
Activity 3.1.2.2 Facilitate community groups to establish formal market linkages for their products sector	**30,000**		30,000	
Activity 3.1.2.3 Facilitate establishment and operation of a market information systems	**30,000**		15,000	15,000
Activity 3.1.2.4 Develop promotional materials for marketing of products	**40,000**		20,000	20,000
Sub-Total	**128,000**		**73,000**	**55,000**
***Output* 3.1.3 Entrepreneur skills of stakeholders enhanced**	**88,000**	***21,500***	***46,500***	***20,000***
Activity 3.1.3.1 Facilitate registration of small-scale businesses	**20,000**			20,000
Activity 3.1.3.2 Conduct refresher training courses for entrepreneurs in management of nature based enterprises	**43,000**	21,500	21,500	
Activity 3.1.3.3 Review the functioning of the nature based businesses	**25,000**		25,000	
Sub-Total	**88,000**	**21,500**	**46,500**	**20,000**
Outcome 3.2 Enhanced ecosystem health	**288,500**	**143,750**	**114,750**	**30,000**
***Output 3.2.1* Fragile ecosystems conserved**	***288,500***	***143,750***	***114,750***	***30,000***
Activity 3.2.1.1 Sensitize communities and catchment management committees on wetland ecosystems management	**19,500**	9,750	9,750	
Activity .3.2.1.2 Train duty bearers (as outlined in Table 4) in sustainable management and/or utilization of wetlands	**26,000**	26,000		
Activity 3.2.1.3 Support communities and catchment management committees to in the target parishes to develop and implement wetlands management action plans, including activities such as demarcating degraded wetlands with pillars and live markers	**24,000**		24,000	
Activity 3.2.1.4 Support communities and catchment management committees to establish structures and wetland management measures for enforcement of plans, ordinances and byelaws	**60,000**	30,000		30,000

Activity 3.2.1.5 Sensitise communities and catchment management committees on river bank ecosystems management	**19,500**	19,500		
Activity 3.2.1.6 Train stakeholders in sustainable management and/or utilization of river banks	**19,500**	19,500		
Activity 3.2.1.7 Support communities and catchment management committees to develop and implement restoration action plans, including demarcating and restoring degraded river banks with live markers	**24,000**		24,000	
Activity 3.2.1.8 Train selected farmers/CBOs in tree nursery establishment and management	**19,500**	19,500		
Activity 3.2.1.9 Provide nursery equipment and materials to establish three tree nurseries with a capacity	**20,000**		20,000	
Activity 3.2.1.10 Train selected farmers/CBOs on tree growing approaches and silvicultural practices	**19,500**	19,500		
Activity 3.2.1.11 Provide tree seedlings to farmers for planting	**37,000**		37,000	
Sub-Total	**288,500**	143,750	114,750	30,000
COMPONENT 4: Supporting knowledge management and information sharing	**238,000**	**53,500**	**31,000**	**153,500**
Outcome 4.1 Lessons and good practices shared and adopted	**238,000**	**53,500**	**31,000**	**153,500**
***Output 4.1.1* Knowledge management and information sharing system developed**	**238,000**	***53,500***	***31,000***	***153,500***
Activity 4.1.1.1 Organise Study tours/visits to areas with successful innovative climate change adaptation interventions to enable experience sharing and cross-learning	**93,000**	31,000	31,000	31,000
Activity 4.1.1.2 Organize learning events in climate change adaptation Study tours/visits	**50,000**			50,000
Activity 4.1.1.3 Document lessons, good practices from project interventions and disseminate them to stakeholders for possible replication and up-scaling	**45,000**	22,500		22,500
Activity 4.1.1.4 Prepare/develop popular versions of existing policies, plans, ordinances and byelaws	**50,000**			50,000
Sub-Total	**238,000**	**53,500**	**31,000**	**153,500**
Project activities Total Budget (component 1, 2, 3 and 4)	***1,925,000***	***732,750***	***756,750***	***435,500***
Project Co-ordination and Management				
Executing Entity (EE) fees				
Management and coordination costs, and consulting services	81,000	41,000	20,000	20,000
Monitoring, Auditing and reporting	50,000	20,000	20,000	10,000
Operating costs	50,000	20,000	10,000	20,000
Sub-Total	**181,000**	**81,000**	**50,000**	**50,000**
Implementing Entity (IE) fees				
Monitoring, Auditing and consulting services	62,000	24,000	20,000	14,000
Equipment and consumables	52,000	52,000		
Operating costs	29,000	13,000	10,000	10,000
Sub-Total	**143,000**	**89,000**	**30,000**	**24,000**
Grand total	**2,249,000**	**902,750**	**836,750**	**509,500**

Milestones	**Upon Agreement and Contract Signing (October 2021)**	**One and a half years after Project start (October 2023)**	**Three years after project start (October 2024)**	**Total**
Project Funds (USD)	813,750	806,750	485,500	**2,106,000**
IE fees (USD)	89,000	30,000	24,000	**143,000**
Grand Total	**902,750**	**836,750**	**509,500**	**2,249,000**

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IE

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*: **26 April 2021***

A. **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: *26 April 2021*	Tel. and email: **+256784544270;** email: **alfred.okidi64@gmail.com**
Project Contact Person: **Dr Callist Tindimugaya and Mr. James Kaweesi**	
Tel. And Email: **+256772521413; email: callist_tindimugaya@yahoo.co.uk/jkaweesi11@gmail.com**	

1: Endorsement letter by the NDA

Telephone : 256 41 4707 000
: 256 41 4232 095
Fax : 256 41 4230 183
: 256 41 4343 023
: 256 41 4341 286
Email : finance@finance.go.ug
Website : www.finance.go.ug

In any correspondence on
this subject please quote No. ALD 79/251/02

THE REPUBLIC OF UGANDA

Ministry of Finance, Planning &
Economic Development
Plot 2-12, Apollo Kaggwa Road
P.O. Box 8147
Kampala
Uganda

22nd April 2021

The Adaptation Fund Board
C/o Adaptation Fund Board Secretariat
Email: secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

ENDORSEMENT FOR A PROJECT: ENHANCING RESILIENCE OF COMMUNITIES AND FRAGILE ECOSYSTEMS TO CLIMATE CHANGE IN KATONGA CATCHMENT UGANDA

I have the honor to refer to the above mentioned subject.

In my capacity as the Designated Authority for the Adaptation Fund in Uganda, I confirm that the above project proposal is in accordance with the national and regional climate Adaptation priorities of the Government of Uganda.

Accordingly, I am pleased to endorse the full project proposal for support from the Adaptation Fund. If approved, the project will be implemented by the Ministry of Water and Environment of Uganda in partnership with the Global Water Partnership Eastern Africa (GWP-EA).

Matia Kasaija (M.P)
MINISTER OF FINANCE, PLANNING AND ECONOMIC DEVELOPMENT

Copies to: The Hon. Minister of Water and Environment
Ministry of Water and Environment, Kampala, Uganda

The Permanent Secretary/Secretary to the Treasury,
MFPED, Kampala, Uganda.

The Permanent Secretary, Ministry of Water and Environment.
Kampala, Uganda

The Regional Coordinator, Global Water Partnership, Eastern Africa
Entebbe, Uganda.

2: Project Approval by the National Environment Management Authority

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

NEMA/4.5

19th April 2021

The Permanent Secretary
Ministry of Water and Environment
KAMPALA.

RE: CLEARANCE OF ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF) FOR RECOFE PROJECT IN UGA (KATONGA CATCHMENT)

Reference is made to your letter dated 13th April 2021 Ref: ADM/103/167/2019 requesting for the clearance of Environmental and Social Management Framework (ESMF) for the proposed project on "Enhancing resilience of communities and fragile ecosystems to climate change in Katonga catchment Uganda". A critical review of the ESMF has been finalized and we wish to appreciate the initiative to develop the framework that will address the environmental and social management risks associated the proposed project.

The review of the ESMF revealed that; 1) The proposed project components have been found adequate in terms of enhancing resilience of communities and fragile ecosystems to climate change, 2) environmental and social risk identification and description is adequate in terms screening criteria and proposed mitigation measures as indicated in the ESMF. However, the description of the project components is limited in scope and leaves out important details in terms of methodology and technologies to be used and this limits the scope of risk identification and mitigation; there is no evidence of stakeholder consultation which was necessary to enrich the framework and to help validate important aspects of the proposed components.
In view of the above, the Environmental Social Management Framework (ESMF) has been cleared with the following conditions:

1. The Environmental Social Management Framework (ESMF) be further improved to address the gaps identified above;
2. At the level of developing specific project components, ensure detailed description of the project activities in terms of methodology and technological requirements as well as indicating specific physical location sites to facilitate adequate risk identification and mitigation in compliance with environmental laws and regulations;

Page 1 of 2

3. In line with the National Environment Act No.5 of 2019, ensure that all proposed project components undergo proper screening and Environmental and Social Impact Assessment to effectively address environmental and social management risks;
4. Effectively engage with the relevant stakeholders including this Authority during the implementation of the planned projects to ensure proper oversight on environmental and social safeguard issues including establishing an appropriate monitoring framework for the implemented projects.

Dr. Tom O. Okurut
EXECUTIVE DIRECTOR

PART V: ANNEXES

Annex 3: Environmental and Socio-economic baseline report

1.0. INTRODUCTION

This baseline assessment report serves to inform decision makers and project developers of likely impacts the project(s) may have on the targeted communities in regard to their adaptability and food security. The catchment traverses part of the dry Ugandan cattle corridor[29], which is affected with a wide range of climate change effects. It is amongst the most climate-vulnerable regions in Uganda. Climate change effects in the Katonga catchment are expected to worsen the impacts of existing threats to the catchment's inhabitants and ecosystems and resultant effects include, more extreme and frequent periods of intense rainfall, erratic on-set and cessation of the rainy season, as well as more frequent episodes of drought. The increase in land use for agricultural practices and the widespread environmental changes are impacting heavily on the people who rely on ecosystem goods and services for their livelihoods, and the ecosystems in the catchment. The major issues related to environmental changes in the catchment include among others:

- Deforestation and forest degradation; excessive loss of forest cover evidenced by reduction in spatial extent of forested areas from 63% (8,739km^2) in 1999 to 5% (734.3km^2) in 2017, of the total land area in the catchment.
- Wetland reclamation due to excessive drainage of wetlands, riverbanks and lakeshores are also degraded in the catchment through agriculture, mechanized industrial scale sand mining, growing of eucalyptus, and brick making among others.
- Soil erosion especially in hilly parts of the catchment such as Kalungu, Lyantonde, Mubende, etc., due to lack of soil and water management infrastructure.
- Severe water stress characterized by domestic and agricultural water demand deficit. Water stress underlined by prolonged droughts that lead to drying up of surface and ground water sources such as boreholes, valley tanks, valley dams, streams, etc., are leaving people and livestock desperate.
- Prolonged droughts also characterize the catchment as part of the cattle-corridor. Droughts are reportedly becoming severe due to climatic change effects, excessive deforestation, and forest degradation. They are associated with severe water scarcity, reduced pastures and overgrazing, school dropouts, wetland encroachment and wildfires.
- 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 animal diseases and crop pests, soil infertility, prolonged droughts, and human diseases.

Study Rationale

In lieu of amelioration of climate change impacts and issues in Katonga catchment as highlighted, the Ministry of Water and Environment (MWE) in partnership with Global Water Partnership Eastern Africa (GWPEA) are evolving a national project entitled "*Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda*". The Adaptation Fund Board approved the project concept note and consequently, the need for detailed preparatory studies to inform the designing and development of the full project document. Ministry of Water and Environment therefore commissioned preparatory studies including the **Environment and socio-economic assessment** which is here presented (This Report).

2.0. METHODS

2.1 STUDY AREA

Katonga catchment is located in Victoria Water Management Zone, one of the four zones in Uganda. River

[29] Cattle Corridor stretches from south-western to north-eastern Uganda, highly affected by climate change impacts e.g. droughts and is constituted by rangelands which form 44% of Uganda

Katonga drains into Lake Victoria, and the river's basin (Figure 1) is what defines the catchment. Minimum elevation within the catchment is 1108m a.s.l; while the maximum is about 1581m a.s.l. The catchment is generally flat, allowing satellite wetlands (permanently flooded papyrus and grass swamps along the River Katonga) to dominate, with about 2,478km^2 forming the Katonga wetland system. The main lake is L. Wamala.

In some parts (e.g. Kyegegwa District), the landscape is generally rocky with various rocky outcrops 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.

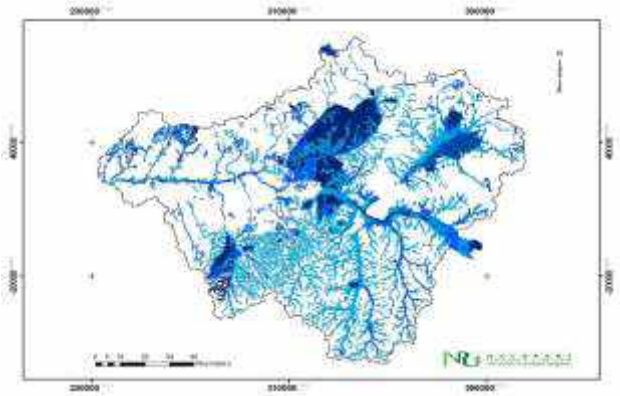

Figure 1. Katonga catchment drainage basin (Source: Nacopart Uganda Limited)

2.1.1 Flora and Fauna

River Katonga and its basin traverse different remnants of Langdale-Brown (1964) vegetation types. The northern part is mostly Dry *Combretum* savannah, whereas the southern part is mostly Forest/Savannah mosaic. On lower elevations are Papyrus/*Miscanthidium* swamps, and *Sorghastrum*/ *Echinochloa* grasslands. These are now isolated vegetation types in farmlands highly degraded, or occurring in smaller fairly intact patches. The key land cover types include rainfed farmland, isolated central and local forest reserves, a wildlife reserve, wetlands, forest plantations and irrigated farmland. The Map was generated based on spatially aggregated multipurpose landcover database for Uganda AFRICOVER (2015).

The Katonga catchment is known to have a viable Sitatunga *(Tragelaphus spekei)* population inhabiting the Katonga Wetland System. The IUCN Global Red List categorizes *T. spekei* as a species of Least Concern, but at National Level, it is categorized as a vulnerable species as a result of habitat loss (wetland reclamation), hunting and unsustainable harvesting of the plant species that constitute its food (MTWA, 2018[30]). The species has low resilience to these threats and this partly explains the its declining populations in Uganda.

Within the catchment is the Katonga Wildlife Reserve that habours high population of waterbucks, Hippos, Elephant, buffalo, bushbuck, reedbuck and birds. In 2015, about 60 Impalas and 5 Zebras were successfully translocated to the reserve in order to restock and boost animal populations for tourism. The population of impalas now stands at 300 individuals. The current bird checklist is over 150 including species specific to wetlands, savannah and forests. Other mammals include Black and White Colobus Monkey, the River Otter, and Olive Baboon, Uganda Kob, Leopard, and duiker and chevrotain. The Katonga Wildlife reserve is in addition, home to various reptiles, amphibians and butterflies (UWA, 2019).

2.1.2 Soils

Following the FAO soil classification, the predominant soil type in the catchment is Acric Ferralsols, followed by Luvisols, Gleyic Arenosols, Planosols and Dystric Regosols. The geology is comprised of Toro and

[30] Ministry of Tourism, Wildlife and Antiquities, (2018). Red List of threatened species in Uganda.

Basement complex granites, quartz mica schists, Toro arkose, Toro gneisses and granites. Other parent rock material includes Toro quartzites, sandstones, schists and phyllites; Phyllites and quartz and schists. Research indicates declining soil fertility due to nutrient mining and little or no replenishment of nutrients.

2.2 Climate

Much as it falls short of being categorized as semi-arid, Katonga Catchment which falls within Uganda's cattle corridor exhibits semi-arid characteristics. These include: i) high rainfall variability; ii) periodic late onset rains/droughts; and iii) historical reliance on mobile pastoralism as coping strategy to resource variability.

2.2.1 Rainfall

The mean annual rainfall based on data measured in the period 1950-2004 ranges between 800mm-1300mm (MWE, 2018). Monthly rainfall patterns in the Katonga catchment portray two wet seasons that occur from March to May, and September to December. Maximum rainfall is recorded during April and October-November, while the driest months are observed during July-August and January-February. Based on CHIRPS data, there has been an unpredictable annual rainfall trend in the catchment in past 20 years. The rainfall patterns are variable both in time and spatial distribution. Heavy precipitation events are anticipated to increase, which would escalate the risk of disasters such as floods**.** The population thus lives in uncertain weather circumstances, which sometimes cause extremities leading to economic losses of crops and animals, depriving communities of a better livelihood. The special distribution of rainfall is reported in ICPAC[31], 2015.

Most climate models project increasing rainfall over East Africa (EA) in the coming decades, however, the long rainy season, March to May, has been experiencing devastating droughts whereas the October to December (OND) season's rainfall is increasing (Rowell, et. al, 2015).

2.2.2 Temperature

Temperature data from the USGS FEWSnet data portal for the VWMZ, projects a substantial increase in the mean annual minimum temperature by 1.3–4.5 ºC, and warming in the colder season (June to September) by 1.7–2.9 ºC under RCP 4.5 and 4.9 ◦C under RCP 8.5 by 2085. The mean annual maximum temperature is projected to increase throughout the Lake Victoria Basin (LVB) by about 1.0–1.50 C by 2030, and 1.2–1.80 C by year 2050, while the mean annual minimum temperature is projected to increase over the basin by 1.2–1.90 C by the 2030s, and 1.5 –2.40 C by year 2050 (Olaka *et al*. 2019[32]). Specifically, Katonga catchment temperature data (MODIS) retrieved for the period 2000-2020 conforms to this warming trend. Within this period, the variance in mean annual temperatures was unpredictable. Due to the warming trend, there is a potential for an increase in the frequency of extreme events (e.g. heavy rainstorms, flooding, droughts, etc.).

2.3 Demography

The population of the Katonga catchment is estimated at 3,020,638, of which 1,524,887 (50.5%) are female, and 1,495,751 (49.5%) males (UBOS, 2014). Whilst the total number of households in the catchment are estimated to be 678,076. The highest population growth (946,483) is in areas of Mubende, while the lowest population growth (26,159) is estimated for areas within Kyenjojo District. The trend suggests that the population could even double by 2040 with more than half of the population below the age of 14 years. The population estimates put in consideration that Sembabule and Bukomansimbi districts are the only ones that wholly lie within the catchment. Gomba district follows with about 90% of its area within the catchment, while Kyenjojo has the least area within the catchment.

2.4. Livelihoods

The Katonga catchment communities are dependent on rain-fed subsistence farming, livestock rearing, fishing and to a lesser extent Tourism for their livelihoods. Crops grown in the catchment include Maize, Bananas, Beans and coffee. Other economic activities include bee keeping (apiary management), mushroom growing, physical settlements, woodlots and quarrying/mining activities (i.e. sand, stones and phosphate/vermiculite). Katonga Wildlife Reserve and Bigo Byamugenyi stand out as the key tourist attraction, in addition to the Sitatunga populations that are much easily seen in the Katonga wetland system than in any other wetland ecosystems in Uganda.

[31] IGAD Climate Prediction and Applications Centre

[32] Olaka A.L., Ogutu O.J.; Said Y.M., and Oludhe C., (2019). Projected Climatic and Hydrologic Changes to Lake Victoria Basin Rivers under Three RCP Emission Scenarios for 2015–2100 and Impacts on the Water Sector. *Water 2019, 11, 1449; doi:10.3390/w11071449*

2.5 Methods

A Rapid Evidence Assessment approach was used using a combination of ways that included Field visits, key informant interviews, Field visits, Focus Group Discussions and targeted literature searches.

2.5.1 Field Visit

A field-scoping mission was conducted to visibly assess and validate the status quo in the Katonga catchment, in regard to the condition and extent of the degradation as outlined in the catchment management plan, hence vulnerability of both the communities and ecosystems to climate change impacts, and current active players operating in the identified country. Key informant interviews targeting technical staff were held at district and sub county levels. The team traversed the catchment from the Upper sub catchment, through the middle, to lower sub catchments, interacting with technical staff and opinion leaders, in addition to direct observations for capturing land use and land cover changes.

2.5.2 Consultations

Four representative field level consultative meetings were held, one in each of four selected degraded hot spot districts in the Katonga catchment as defined in the Katonga Catchment Management Plan (Table 1). The districts were selected using stratified random sampling method, one representative district from each of the three sub catchments of Upper sub-catchment, Mid–sub-catchment, Lower sub-catchment, and lastly one district from the Eastern side of the catchment. The sub counties in addition, had minimally benefitted from any environment related projects to increase communities' and ecosystems' resilience to climate change impacts.

Table 1: Degradation hot spot sub-catchments, districts and Sub-Counties.

No.	Sub-Catchment	Most Degraded District	Focal Sub-Counties
1	Upper Katonga	Kyegegwa	Ruyonza Sub-county
2	Mid-Katonga	Sembabule	Lwemiyaga Sub-County
3	Kakinga	Lyantonde	Mpumudde Sub-County
4	Nabajjuzi	Kalungu	Bwesa Sub County

To ensure effective participation during the consultative meetings, the participants were assigned tasks and worked in small groups, and letter convened in plenary to share their assessment results

Figure 9: Community group work session in Kyengegwa during community consultations

Figure 10: Plenary session in Sembabule district during the consultations

2.5.3 Catchment and National Level Meetings

One consultative meeting at regional/catchment level, and another at national level helped in validating and internalizing the bigger picture for the catchment in regards to the baselines. Throughout the consultative meetings, relevant references were sought for literature review and these included district development plan documents, district statistical abstracts, project reports. The assessments were conducted in collaboration with the Victoria Water Management Zone team.

2.5.4 Literature Review

This was to help locate major formative works in the field related to the planned project actions in the catchment. It included desk reviews of project documents, policies and institutions in place, related to vulnerability to climate effects, water resources, gender and climate change. Relevant documents included the existing Katonga catchment management plan, District Development Plans, District statistical abstracts, EURECCCA project reports, Adaptation fund reports, relevant Ministry documents.

FINDINGS

3.1 STAKEHOLDERS MAPPING

A stakeholder mapping was carried out for probable collaboration/synergies and avoidance of duplication or re-inventing the wheel in carrying out project processes and activities. This in addition, was in the spirit of leveraging resources, selection of entry points/appropriate sites for effective project developments, and not least, in enhancing integration or cooperation to deliver combined greater project impacts. From the regional level, seven natural resources/climate related projects are implemented in the catchment (Table 2). In addition to these, there are other government sustainable development program initiates geared towards alleviating poverty in collaboration with civil society organizations, hence contributing to the resilience of targeted communities to climate change effects (Appendix 1). A good number of these projects are in their first year of implementation such as the IFPA-CD and GCCCa+ projects, while some have been in existence since 2013 to date, such as the Water for people project. This sets a good and strong base to build on and effectively plan and implement new project actions to enhance resilience of both communities and ecosystems. Worthy to take note are the strong cultural and religious institutions that can be influential in promoting project actions. The Buganda Kingdom as a cultural institution is highly influential, and faith-based organizations such as Bisaka in Kamwenge be noted.

Table 2: Key Stakeholders' mapping

INSTITUTION	PROJECT	CATCHMENT PROJECT SITES		Remarks
		District(s)	***Sub county***	
Ministry of Water and Environment, National Forest Authority (NFA) and Uganda Wildlife Authority (UWA)	UGANDA Investing in Forests and Protected Areas for Climate Smart Development (IFPA-CD) Project	Kamwenge and Kyegegwa districts		Financed by WB, GCF, and GoU. Project is at inception phase and supports development and implementation of a resilient landscapes program in the Albert Water Management Zone and West Nile
Minsitry of Water and Environment (MWE) – Water for Production department	*Improving livelihoods through water for production*: Small scale irrigation systems	Kyegegwa	Rwentuha	15 acres
		Gomba	Kabulasoke	15 acres
			Kyegonza	10 acres
		Butambala	Bulo	10 acres
			Gombe	6 acres
		Kalungu	Kyamulibwa	15 acres
		Masaka	Mukungwe	6 acres
		Mpigi	Mpigi TC	20 acres
		Kassanda	Nalutuntu	18 acres
		Mityana	Manyi	10 acres
		Kiruhura	Kashongi	20 acres
		Lyantonde	Lyatonde rural	5 acreas
		Lwengo	Kisekka	10 acres
			Lwengo	10 acres
	Improving livelihoods through water for production: Valley tanks, earth dams and bulk water transfer schemes	Bukomansimbi		16 facilities
		Gomba		26 facilities
		Lyatonde		87 facilities
		Mityana		1 facility
		Sembabule		91 facilities
		Kiruhura		357 facilities

INSTITUTION	PROJECT	CATCHMENT PROJECT SITES		Remarks
		District(s)	*Sub county*	
		Kyegegwa		2 facilities
		Mubende		12 facilities
Mubende district farmers association	Global Climate Change Alliance Plus (GCCA+)-Uganda: Agricultural Adaptation to Climate Change project Implementing partners: Ministry of Water and Environment; Ministry of Agriculture Animal Industry and Fisheries;	Mubende	Kitenga	Project is at inception phase and focuses on empowering rural communities in most vulnerable districts, to identify and adapt to climate change, through interventions that will also promote food security, income generation and sustainability of livelihoods.
Sembabule district farmers association and LWF		Sembabule	Lugusuulu, Mateete and Lwebitakuli	
Kalungu district farmers association		Kalungu	Lwabenge	
Gomba district farmers association		Gomba	Maddu, Kabulosoke	
Lyatonde district Farmers Association		Lyatonde	Mpumudde	
			Kaliro	
MWE – Rural Water Supply and Sanitation Department (RWSSD) under the Directorate of Water Development	Lwemiyaga Rural Growth Centres (RGC) Piped Water Supply and Sanitation Scheme	Sembabule	Lwemiyaga	Water supply system worthy UGX 2,161,586,008
Water for people Uganda	Institutional support and restoration of the wetlands	Kamwenge	Biguli	Wetlands restoration as part of an IWRM approach to ensuring sustainable supply of water resources – about 39.4 ha restored

3.2 COMMUNITY LIVELIHOODS

3.2.1 Socio-economic activities

A snap short at Livelihoods context in the Katonga catchment rangeland as presented in the four districts visited in the assessment, portrays high dependency on natural resources for livelihood needs (Tables 3-4). The resources serve as basic security against which communities base to improve their livelihood (Appendix 2). Their wellbeing is thus dependent on the capacity to use land, and access to the natural resources. Community livelihoods resilience and hence improvement, is hinged to building on these basic sources of livelihoods for the near future, pending extension of infrastructure and critical services to the area. True to the fact that economic activities/projects in the different districts are vulnerable to climate change effects, households within their means, attempt to deal with the challenges and have suggested coping strategies to enhance resilience (Table 3). There are a multitude of environmental and climate change challenges embraced by these communities that are affecting their livelihoods and therefore their vulnerability to climate change impacts such as unreliable rainfall patterns; Floods that destroy crops; Wild animals destroying people's crops/property; Pests and diseases; Strong winds as a result of extensive cutting down of trees in the catchment; wetlands encroachment; Dirty water; Water contamination (washing cars and motorcycles in the wetland); Dumping waste in wetlands; Drought; Infertile soils; Scarcity of water and the Poor/bad roads. Problem solution matrices were generated by participants in this study from respective districts to visually compare possible solutions as one way of informing selection of best course of appropriate actions that could easily be adopted in the catchment (Table 4).

Table 3: Economic activities in the catchment and coping strategies to enhance resilience

ACTIVITIES VULNERABLE TO CLIMATE HAZARDS	LOCAL COPING STRATEGIES
Ssembabule District	
Farming projects affected by prolonged drought leading to low yields and thus food insecurity.	Irrigation system Quick maturing crop varieties Sustainable land management
Animal rearing; scarcity of water & grass for animals	Preserving grass (Hay) for animals; Provision of alternative clean water sources
Roads: Floods destroy marrum roads	Raising of roads in flood prone areas (Swamps)
Lyatonde District	
-Valley dams dry up during dry seasons	Introducing pumped water systems Sustainable land management
Agricultural projects are affected by prolonged droughts	Irrigation/more valley dams; Improved farming methods; Introduction of quick maturing crops
Loss of livestock	Build more valley dams Sensitize farmers on improved farming methods including production of hay
Operation wealth creation	Identifying suitable technologies (enterprise development)

ACTIVITIES VULNERABLE TO CLIMATE HAZARDS	LOCAL COPING STRATEGIES
Kyegegwa District	
NAADS: Distributing seedling during dry seasons	Timely distribution of plating materials
DRDIP, Plants trees in the community and on the roadside is affected by drought	Timely distribution of planting materials Watering of trees
Domestic water supplies	Establishment of piped water systems (Ministry of water and environment piped water in progress)
OXFAM, planting trees like mangoes, orange, avocado among others in schools	Environmental greening – timely distribution of planting materials
Kalungu District	
Flooding and drought affect gardens of maize, beans, banana, coffee, cassava potatoes	Irrigation Sustainable land management Water storage / **No** to wetlands reclamations Quick maturing crops
Pests and diseases affecting crops	Early planting Control of Pests and Diseases Introduction of strong and resistant varieties of crops/coffee plants

Table 4: Problem and Solution Matrix

ISSUES/PROBLEMS	SUGGESTED SOLUTIONS	RESPONSIBLE PERSONS
Drought	Planting trees; Quick maturing seed/crops; Water dams; Boreholes Climate smart agriculture; irrigation	General public, Ministry of Agriculture, Animal Industries and Fisheries (MAAIF); Ministry of Water and Environment (MWE); District Local Government (DLG)
Changes in rainfall patterns	People should stop cultivating in wetlands Planting trees	National Environment Management Authority (; Ministry of Water and Environment (MWE)
Diseases & pests	Conservation of the Environmental; Control and management of Pests& diseases; Good quality pesticides	General public, MAAIF; DLG; National Drug Authority
Floods	Sustainable Land Management; sensitization of communities; Stopping wetland reclamation/cultivation	General public, MWE; MAAIF; DLG
Infertile soils	Sustainable land mgt practices	General public, MAAIF; MWE
Water scarcity	Water harvesting; soil and water conservation techniques; drilling boreholes; building dams	General public, private sector, government
Cutting down trees	Ordinances & byelaws; planting trees	General public, DLG, MWE
Poor/bad roads	Construction & maintenance of roads	DLG, MWE
Vermin	Vermin control methods	DLG; Uganda Wildlife Authority
Dumping waste in wetlands	Sensitization of communities on waste management; Formerly designate safe garbage dumping sites	Local leaders; Communities; DLG; Ministry of Lands, Housing, & Urban Development; MWE.

It was clearly outstanding that communities who are majorly dependent on the natural resources for livelihoods, were highly vulnerable to the effects of climate change. Climate change is affecting food security, health, water security, and household incomes. Much as there are gaps in Uganda's poverty data with no official publication of district and parish-level poverty statistics since 2014, recent years have seen poverty headcounts increase in western Uganda (within which the catchment falls) since 2014. The National poverty line set in 1990 ranges between US$0.88-1.04 depending on the region. This is believed to give a much more positive view of poverty trends than the World Bank's US%1,90 per person per day extreme poverty line updated in 2015. Most of the Katonga catchment falls in central region where UBOS 2019 poverty estimate is 24.3 percent of the regions population, and adjacent Tooro within which two of the Katonga catchment districts fall is about 20.5% of the region's population (Development Initiatives, 2020[33]). Particularly Kalungu

[33] Development Initiatives, 2020. Poverty in Uganda: National and regional data and trends fact sheet.

district estimates that for every 1000 people, 198 of them are poor[34]. It is hence estimated that about 20% of the Katonga catchment population lives below the poverty line. The negative shocks, such as burdens of Covid-19 may worsen this status.

3.2.2 Water, Sanitation and Hygiene

This is computed as percentage of people within 1 km (rural) and 0.2km (urban) of an improved water source. Access to water in 2020 was 65% (66.5% in rural areas, and 63.9% in urban areas), Table 5. Water access and sanitation are critical determinants of the health status of households as they are valuable for hygiene.

Table 5: People with access to safe water supply in Katonga catchment

	Access to water in Year 2017 [MWE Water Atlas 2017]					**Access to water in 2020 [MWE Water & Environment Sector Performance Report 2020]**		
District	Total Population (#)[35]	Population served (#)	Rural (%)	Urban (%)	Total (%)	Rural (%)	Urban (%)	Total (%)
Bukomansimbi	153,869	132,260	85	95	86	87	92	83
Butambala	103,907	98,712	95	95	95	95	95	95
Gomba	166,940	134,168	79	95	80	86	95	87
Kalungu	190,013	173,773	91	95	91	92	95	93
Kamwenge	467,658	351,768	74	95	75	73	95	74
Kiboga	159,394	115,946	80	49	73	85	46	76
Kiruhura	362,063	150,964	42	43	42	47	53	48
Kyegegwa	336,774	120,893	34	56	36	31	45	32
Kyenjojo	470,101	354,111	72	91	75	64	91	69
Lwengo	283,711	204,439	76	44	72	75	46	72
Lyantonde	102,499	53,133	47	82	52	43	74	48
Masaka	314,858	221,374	78	57	70	78	54	69
Mityana	348,258	271,910	75	95	78	79	70	77
Mpigi	268,712	214,595	84	61	80	83	59	78
Mubende	767,201	229,548	32	0	30	38	0	34
Rakai	547,918	250,428	45	55	46	36	36	36
Sembabule	273,060	103,207	37	44	38	38	41	38
Overall	**5,316,936**	**3,181,229**	**66.2**	**67.8**	**65.8**	**66.5**	**63.9**	**65.2**

3.2.3 Households source of energy for cooking

Most households (80.4%) use wood fuel for cooking (national value of 71.2% of rural households), and above 31% in the urban areas (Table 6). At national level, 22.9% of households in Uganda use charcoal for cooking. The high dependence on wood fuel for cooking contributes to environmental degradation, and negatively affects the health of households, most especially women through reduced exposure to smoke from wood fuels.

Table 6: Katonga catchment household source of energy for cooking.

District	**Electricity (%)**	**Gas (%)**	**Paraffin stove (%)**	**Charcoal (%)**	**Firewood (%)**	**Others (%)**	**Electricity (%)**	**Total (%)**
Bukomansimbi	1.5	0.2	1.0	9.1	86.5	1.1	1.5	100
Butambala	2.0	0.2	1.4	20.6	74.9	0.7	2.0	100
Gomba	1.8	0.3	0.8	11.7	84.4	0.8	1.8	100
Kalungu	1.8	0.3	1.5	16.6	78.3	1.1	1.8	100
Kamwenge	1.4	0.4	0.5	7.2	89.0	0.5	1.4	100
Kiboga	1.2	0.3	0.9	23.7	72.6	1.1	1.2	100
Kiruhura	1.3	0.3	0.4	9.3	87.8	0.5	1.3	100
Kyegegwa	1.3	0.5	0.3	8.4	88.8	0.5	1.3	100
Kyenjojo	1.4	0.5	0.6	6.5	90.2	0.6	1.4	100
Lwengo	1.7	0.3	1.0	16.7	79.3	0.7	1.7	100
Lyantonde	1.4	0.6	1.6	23.9	70.9	0.8	1.4	100
Masaka	3.9	0.7	2.9	35.9	54.9	1.2	3.9	100
Mityana	1.8	0.5	0.9	23.9	71.6	0.9	1.8	100
Mpigi	1.7	0.4	1.0	24.2	70.1	1.1	1.7	100
Mubende	1.8	0.4	0.6	16.6	79.8	0.6	1.8	100
Rakai	1.5	0.4	1.1	13.5	82.2	0.8	1.5	100

[34] Kalungu District Local Government, (2015). District development plan 2015/2016-2019/2020

[35] The population statistics are from UBOS Census 2014 and have been projected to April 2017 based on the district population growth rates published in the Census 2014.

Sembabule	1.5	0.3	0.9	12.3	81.6	0.6	1.5	100
Overall	**1.7**	**0.4**	**0.9**	**15.3**	**80.4**	**0.7**	**1.7**	**100**

3.3 STATE OF NATURAL RESOURCES

3.3.1 Forest resources

With an increasing human population of 40+ million in Uganda, there is increasing pressure on finite natural resources that is pausing management challenges. Loss of vegetative cover has emanated majorly from converting forested areas to what is perceived as more gainful farmlands, and the demand for fuel wood. The forest cover in the country has thus declined from 23.8% (4.8 million ha) in 1990 to about 9.9 % (2 million ha) in 2017 (NEMA, 2019[36]). Forests on private land are most affected as owners gain more benefits in a short run from converting these areas to farmlands than retaining them as forests. Uganda is currently estimated to be losing about 200,000 hectares of forest per year (NBS[37] estimates for 2010-2015). The drivers of deforestation in the cattle corridor and savannah woodlands outside Central Forest Reserves (CFR) include opening up land for agriculture, ranching, settlements and charcoal making. The cattle corridor is most affected as a major area of charcoal production, supplying all urban centers as well as the neighboring countries of Kenya, Rwanda, and South Sudan. This scenario is no different from the situation depicted in the Katonga catchment (Figure 12). For the period between 2005 and 2010, at least 70,065ha were deforested and 29,132ha of forests were degraded (MWE, 2015[38]). The well-established refugee settlements in Kyegegwa and Kamwenge districts in the catchment aggravates the situation within their areas of establishment. The period of 2005-2010 conforms to the timeline and trends analysis by grassroot level stakeholders that indicate by 2010, population with in the catchment had increased, more farms were opened up, and deforestation, cutting down trees was at the onset (Appendix IV).

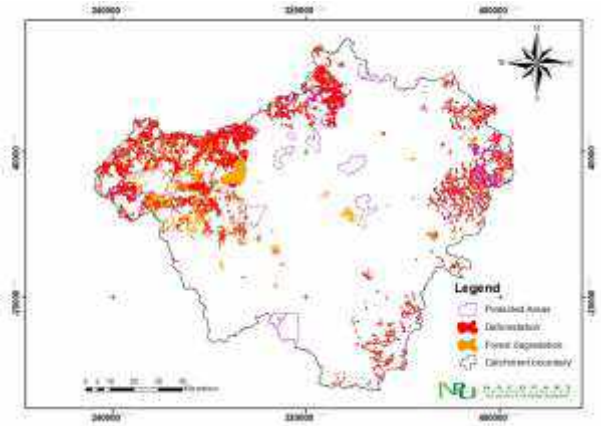

Figure 12: Katonga catchment deforestation and forest degradation map (2005-2010)

3.3.2 Land management

Soil degradation is a major threat to food security in Uganda and is responsible for siltation and pollution of lakes, rivers and open water sources, which has affected livelihoods. It is defined by reduction or exhaustion of soil nutrients and degradation of soil physical properties. Main stimulants of this soil degradation are nutrient depletion and soil erosion, which are on the raise as farmers are not using external sources of nutrients (Okoboi and Barungi 2012[39]) and are not adopting recommended soil and water management practices. Poor land husbandry practices such as over grazing in the cattle corridor, results in bare land, exposing it to the elements causing erosion (Karamage et al. 2017). Soil erosion is extreme in the cattle corridor in the country, with predicted erosion rates of over 10t ha-1yr-1. The recent population explosion

[36] National Environment Management Authority – NEMA (2019). National State of The Environment Report 2018-2019: "Managing the Environment for Climate Resilient Livelihoods and Sustainable Economic Development"
[37] National Biomass Study
[38] Ministry of Water and Environment – MWE, (2015). Restoration Opportunities Assessment Report for Uganda.
[39] Okoboi, Godfrey & Barungi, Mildred, (2012). "Constraints to Fertiliser Use in Uganda: Insights from Uganda Census of Agriculture 2008/9," Research Series 150240, Economic Policy Research Centre (EPRC)

seems to out-match farmers' ability to find arable land, with the consequence that continuous tillage is the norm (see Umezaki et al. 2000). Most of the Katonga catchment is highly degraded (62%), and only 1% is low degraded (Figure 13 & 14).

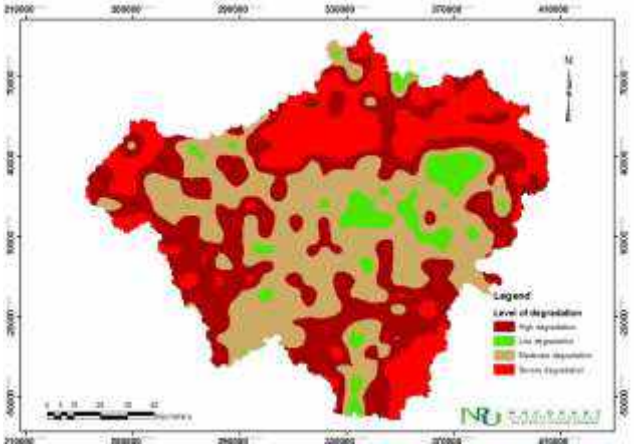

Figure 13: Map of Katonga catchment showing levels of degradation

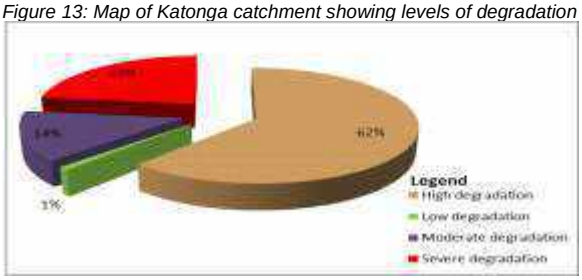

Figure 14: Proportion of degraded areas in Katonga catchment

3.3.3 Wetlands resources

Wetlands are important ecosystems as they provide regulatory and provisioning services to communities in the catchment. They are a source for construction materials, fishing and domestic water supply among other functions. Wetlands are also considered to have a back-and-forth relationship with groundwater, thus can be a source of replenishment for a groundwater aquifer and need to be conserved, most especially in cattle corridor areas with characteristic semi-arid environments.

Despite their importance, the extent and rate of wetland degradation (53.8%) in the Katonga catchment is high. The wetlands are degraded through human activities, mainly crop agriculture, brick making, sand mining, and water draining tree species such as eucalyptus that were planted and are thriving in the fragile ecosystems. Water draining trenches and alien plant species, mainly crops and trees introduced in the sensitive ecosystems are reducing the wetlands' ability to perform their natural functions of filtration, flood control, aquifer replenishment, and providing habitat to wetland adapted flora and fauna.

Wetland restoration to ensure sustainable supply of water resources has been piloted by '*water for people Uganda*', upstream in Biguli Sub County, Kamwenge district, in the Katonga Catchment, and lessons from this initiative are invaluable. Ground water monitoring project findings from 7 CTD divers installed in the sub county indicate that most of the drilled wells in Biguli Sub County consist of unconfined aquifer which highly depends on precipitation for recharge (Kanweri, Okettayot, and Nimanya, 2019). Sustaining recharge throughout the year therefore requires a system (such as a restored wetland), that holds the surface runoff that flows during rainy season to ensure constant recharge during the rainfall off seasons.

The degradations of the environment in Katonga catchment is failing ecosystems to function as they should, therefore rendering them to be vulnerable to climate change impacts. This makes the communities even more vulnerable as they are heavily dependent on the naturals resources as source of their livelihoods.

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Annex 4: Vulnerability Assessment report

1.0. INTRODUCTION

1.1. Context of the assessment

Natural ecosystems 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 Katonga 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 Katonga Wildlife Reserve in order to avoid food insecurity and displacement of people.

The proposed project titled *"Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda (RECOFE)"* is designed to reverse this trend. The aim is: "To strengthen the resilience of communities and fragile ecosystems to climate change impacts by promoting appropriate water infrastructure investments and nature- based solutions". The objectives are:

- To strengthen the capacity of key grass root stakeholders for climate change adaptation
- To promote appropriate water storage technologies for increased water and food security
- To support establishment of nature-based enterprises for improved community livelihoods
- To support knowledge management and information sharing

The anticipated outputs of the project are:

- Capacity of grass root stakeholders in implementing climate resilient development initiatives strengthened
- Governance of natural resources strengthened
- Increased water and food security
- Increased income for improved stakeholder livelihoods
- Enhanced ecosystem health
- Lessons and good practices shared and adopted

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).

Project Justification requires a baseline of current effects of climate change on communities and their vulnerabilities. This clarifies how Ecosystem Services will be affected by future changes. Forecast climatic conditions at high spatial resolution across the Catchment will serve conservation planning needs. The forecasts need to be robust, taking account of exposure, adaptive capacity and sensitivity components.

Tt is vital to clarify how threatening processes (e.g. Invasive species, sand mining, land use, disease, livestock and wildlife) will change under different climate change scenarios. The high spatial variability of climate across the Katonga 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.

1.2. Statement of the problem

The vulnerability (exposure, sensitivity and adaptive capacity) of households that are increasingly dependent on agricultural related activities in the River Katonga Catchment to climate change is unclear. There is rapid development accompanied by widespread environmental change within the Katonga 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: deforestation and forest degradation; wetland reclamation; soil erosion; and prolonged drought. These have resulted in water stress and food insecurity with adverse effects on livelihoods making the communities vulnerable. The community-based enterprises are faced with difficulties threatening the gains in development. Therefore, efforts are needed to diversify the adaptation strategies beyond the current options. This study was undertaken to generate information on the current status as a justification and guidance for the project.

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 Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda (RECOFE)". 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 species, ecosystems, and ecological processes within the Katonga Catchment are affected by climate change so as to determine how ecosystem services will be affected by the changes;
2. Undertake forecast climatic conditions taking account of exposure, adaptive capacity and sensitivity;
3. Describe how current threatening processes such as invasive species, mining, land use, diseases of humans, livestock and wildlife will change under different climate change forecasts and what these changes mean for local livelihoods and the future of the Katonga Catchment;
4. Propose appropriate actions for managing and mitigating negative changes in biodiversity and ecosystem services in the Katonga 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

Uganda's drylands area, referred to as the "Cattle Corridor," stretches along a broad swath across the country from the southwest to the northeast covering 84,000 Km^2. The area receives irregular and low rainfall, experiencing periodic and extreme drought. Thus, it covers some of the country's most fragile ecosystems (Stark 2011). Within this corridor lies the Katonga Catchment which is the focus of the current assessment. The Katonga Catchment derives its name from R. Katonga, located in the south-central Uganda near the Katonga Wildlife Reserve (> 120km from Lake Victoria into which it drains). The catchment, thus, traverses part of the dry cattle corridor affected by many climate change effects. It covers about 13,837Km^2 in 16 districts.

The Katonga Catchment is a diverse landscape that is rich in biological and physical resources (e.g. biodiversity, fertile lands, wood, and water, among others). In terms of hydrology, the catchment is generally flat, allowing satellite wetlands to dominate. During the wet seasons, raised water levels in the vicinity of the swampy watershed occasionally forces some water to flow west into the western section of Katonga River which feeds L. George but, the bulk of the flow still continues eastwards into L. Victoria. To the west of its catchment, R. Katonga is also fed by several tributaries along its course to L. George. The principal mouth of the river enters L. Victoria near Lukaya in Kalungu district.

Local communities depend on natural resources contributing to livelihoods and Uganda's GDP. However, recently there has been an influx of refugees in the catchment with settlements Gazetted by Government. These have come in with increased pressure on resources and changes in resource use practices. Hence, the Catchment is threatened by over exploitation of species (through hunting, agriculture, timber harvesting, and habitat loss), among others. Climate Change is also believed to exercise confounding effects, exacerbating the impacts of these threats to the livelihoods of the local communities, biodiversity and ecosystem services.

Thus, climate change is anticipated to have impacts on biodiversity (genes, species and ecosystems) with far reaching consequences on the local communities. Where the climate has changed or habitats have been destroyed, there is uncertainty about the impacts on plants and animals that live in such sites, as well as the

communities that rely on such resources. The present study was undertaken to determine how the communities would adjust to the changed climate as a justification for the proposed project.
Predictions show that climate change may lead to additional stress on habitats and ecosystems that are already stressed by anthropogenic activities. This will have major implications for the areas within the Katonga Catchment by causing a reduction in habitat size leading to loss of fauna. Significant local extinctions of plant and animal species, many of which are important resources for people, are projected, and if they occur, would affect rural livelihoods and genetic resources (IPCC, 2007). Pressures on ecosystems (e.g. conversion of land for agricultural expansion and settlement due to population growth, pollution, and the introduction of Invasive Alien Species (IAS)) are likely to change the integrity of ecosystems.

The rapidly increasing human populations across the catchment increases stress on the Ecosystem Services because climate change may affect species and ecosystems in numerous ways. This has implications for the livelihoods of communities. The most important likely impacts include increased water stress and the associated changes in productivity and viability of agricultural practices. This mirrors the general scenario in Africa where it projected that the population at the risk of increased water stress alone lies between 75–250 million and 350–600 million people by the 2020s and 2050s respectively (Boko *et al.* 2007), while agricultural productivity is expected to decrease by 17–28% by the 2080s as a result of climate change (Cline 2007).

2.2. Methods

2.2.1. Sampling Design

The Selection of the Focal Districts and Sub-Counties was based on the Katonga Catchment Management Plan (CMP). Within this plan, the catchment is divided into eight sub-catchments with the most degraded districts per sub-catchment indicated (Table 1, Figure 1). The Districts have been selected as hot spots for IWRM including degradation levels and the respective sub-counties. One District was selected from each of the Upper, Mid, and Lower sub-catchments as well as the Eastern side of the catchment.

Figure 1: Districts and Wetlands of the Katonga Catchment

Table 1: Degradation hot spot sub-catchments, districts and Sub-Counties selected for field level consultative meetings for developing the RECOFE project in Katonga Catchment

No.	Sub-Catchment	Most Degraded District	Focal Sub-Counties
1	Upper Katonga	Kyegegwa	Ruyonza Sub-county
2	Mid-Katonga	Sembabule	Lwemiyaga Sub-County
3	Nabakazi	Mubende	Nabingoola Sub-County
4	Kakinga	Lyantonde	Mpumudde Sub-County
5	Bwogero	Mubende	Kasambya Sub-County
6	Nabajjuzi	Kalungu	Bwesa Sub County
7	Wamala	Mityana	Kakindu Sub-County

8	Kyogya	Lwengo	Kkingo Sub-County

2.2.2. Data Collection

Literature review

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.

Field visits

Field data collection was conducted between 21/02/2020 to 27/02/2021. Site visits were conducted to ascertain the existence, current status, vulnerability/risks and adaptation measures to Climate Change. The visits were conducted to selected sites and settlements. Changes, and interventions reported by stakeholders were documented. The existence and magnitude of threatening processes such as invasive alien species, land degradation, diseases of humans, livestock and wildlife were documented. The desire was to determine how these may change under different climate change forecasts and what the changes mean for the future of the Catchment.

Consultations/meetings

Consultative meetings, Key Informant Interviews on community meetings were held at field level with various stakeholder including the Technical Staff/ Local Government Leadership, Resource Users, and the local community respectively. A key informant interview guide was used to guide discussions on:

- Vulnerability i.e. Exposure, Sensitivity and adaptive capacity
- Vulnerability of the biodiversity, ecosystems and local communities/households
- Gaps in knowledge about the Climate Change and its impacts on the communities and landscapes;
- Current threatening processes (e.g. invasive species, mining, land use, diseases of humans, livestock and wildlife) and how they may change under different climate change forecasts
- What the changes mean for the catchment and community livelihood
- Current mitigations/adaptation measures/interventions and best practices
- Key recommendations/appropriate actions for managing and mitigating the negative impacts

Vulnerability Assessment

Vulnerability was assessed to determine the factors that make the human communities and biodiversity vulnerable to climate change and other threats. The assessment considered how biodiversity and livelihoods within the Katonga Catchment are affected by climate change in order to understand how ecosystem services will be affected by future changes. Data were collected on land use, socio-economics, impacts of climate change, interventions, adaptive capacities and management measures. We needed to understand how threatening processes may change under climate change forecasts by the communities 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 changes in biodiversity, ecosystem services and livelihoods. This would consider the identified knowledge on vulnerabilities to impacts of climate change obtained through consultations with key stakeholders.

2.2.3. Data Analysis

Qualitative data obtained from the Consultative meetings, Key Informant Interviews and community meetings were analysed using qualitative techniques (thematic analysis, discourse analysis and content analysis). Overall, the process involved data reduction, displaying data and drawing conclusions.

3.0. FINDINGS

3.1. Exposure to Climate Change

The degradation levels within the Katonga Catchment are already considered to be quite high and the catchment may, therefore, be considered as one of the most climate-vulnerable regions of Uganda.

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. These are summarized by district.

Table 6. Vulnerability assessment and adaptation strategies of communities to climate change impacts in the

Katonga Catchment (A: Ssembabule District, B: Lyantonde District, C: Kyegegwa District), and D: Kalungu District)

A. SSEMBABULE DISTRICT

CLIMATE HAZARDS AFFECTING AREA	IMPACTS OF THESE HAZARDS	ADAPTATION STRATEGIES
Shortage of water for domestic use and production	Floods destroy houses, Marram roads Diseases as a result of flooding Food insecurity which results in malnutrition	-Sensitization of farmers on new farming technologies -Vacating of flooded areas
Prolonged drought	Food insecurity Death of animals Water scarcity	-Afforestation -Construction of water tanks -Adoption of irrigation system
Deforestation		
Food insecurity	Destruction of crops	-Mulching -Terracing
Increase in pests and diseases		
Too much heat		
Disturbance of ecosystems		
Floods	Soil erosion	
Intense Rainfall and Hailstones	Destruction of crops and livestock	

B. LYANTONDE DISTRICT

IMPACTS OF CLIMATE CHANGE	CLIMATE HAZARDS	IMPACTS OF EACH HAZARD	ADAPTATION STRATEGIES CURRENT	ADAPTATION STRATEGIES PROPOSED
1. Unreliable rainfall (expected in March and September but now occurring in February)	Low crop production	Famine	Clearing land and planting trees	Afforestation/tree planting
	Low income	Poverty		
		School dropouts		
		Theft		
		Family breakups		
		Early marriages		
	Famine			
2. Floods (e.g. in Kanyeganyegye and Rwamabala villages)	Soil erosion	Loss of soil fertility	Practicing climate smart technologies like terraces and mulching	Technical training in terracing and mulching
			Construction of small dams and wells	Construction of large valley dam
		Introduction of alien species of plants		
	Outbreak of diseases like Cholera	Death due to disease outbreaks?		
	Water siltation			
3. Prolonged dry spells	Water scarcity	-Drying of boreholes and valley dams -Failure of water related projects		
	Shortage of pastures for livestock	Death of livestock		
4. Strong winds (Affecting Plantations and Houses Occurring in September)	Destruction of infrastructure like houses, roads, schools and hospitals	Divorce	Planting wind breaks	Supplying tree seedlings
		Migration		
		Poverty		

	Spread of airborne diseases like flu	Death		
5. Outbreaks of pests and diseases			Spraying animals and crops with chemicals	Providing training in use of chemicals
6. Land disputes	Land fragmentation	Low development		
	Enmity	Insecurity		

C. KYEGEGWA DISTRICT

IMPACTS OF CLIMATE CHANGE	HAZARDS AFFECTING AREA	IMPACTS OF THESE HAZARDS	ADAPTATION STRATEGIES
Changes in rainfall amount, patterns and intensity	Flooding	-Poor road infrastructure -Destruction of property and infrastructure	
	Dirty water sources	-Disease outbreaks e.g. Cholera	Participating in communal work to protect water sources
Reduction in rainfall amounts	Prolonged drought	-Food insecurity (low yields) -Scarcity of water - Shortage of food	Acquiring storage facilities
Changes in patterns and strength of winds	Strong winds	--Destruction of property and infrastructure	

D. KALUNGU DISTRICT

IMPACTS OF CLIMATE CHANGE	CLIMATE HAZARDS	IMPACTS OF THESE HAZARDS	ADAPTATION STRATEGIES
Reduced Rainfall Amounts	Prolonged drought	Drying up rivers, plants -Famine	Selling animals and crops at a lower price for survival
Heavy rains	Destruction of crops by hailstones	-Displacement of people	-Taking bank loans to handle damage of hailstones -Higher demand for natural resources due to high population
	Flooding	Outbreak of diseases both people and animals	
		Destruction of property	Relocating to safe places
Changes in patterns and strength of winds	Strong winds	Destruction of property	Relocating to safe places

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 Katonga Catchment

District	Perceptions if communities experienced Climatic Change Related hazards and perturbations	Climatic hazards and perturbations experienced			
		Drought	Landslides	Flooding	Soil erosion
Sembabule	Yes	√	X	√	√
Lyantonde	Yes	√	X	√	√
Kyegegwa	Yes	√	X	√	√
Kalungu	Yes	√	X	√	√

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 Katonga downstream decreased leading to reduced water volumes for the sources, affecting the agricultural and domestic activities adversely.

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. The communities are affected when floods sweep away access routes to developments.

3.2. Sensitivity to Climate Change

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.

3.2.3. Drivers of high sensitivity to climate related risks

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

(i) **Topography**

The landscape is generally rocky with various rocky outcrops 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 Katonga Catchment is characterized 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 Katonga 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) **Alienation of local people from natural resources**

The value attached to natural resources and or ecosystems in general influences the sensitivity to climate change. People who care less about the natural resources like forests and wetlands are more insensitive to climate change hazards. In some parts of the Katonga 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 Katonga 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.

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

SEMBABULE

APTATION STRATEGIES
Sensitization of farmers on new farming technologies Vacating of flooded areas
Afforestation Construction of water tanks Adoption of irrigation system
Mulching Terracing

LYANTONDE

ADAPTATION STRATEGIES CURRENT	**ADAPTATION STRATEGIES PROPOSED**
Clearing land and planting trees	Afforestation
Practicing climate smart technologies like terraces and mulching	Technical training in terracing and mulching
Construction of small dams and wells	Construction of large valley dam
Planting wind breaks	Supplying tree seedlings
Spraying animals and crops with chemicals	Providing training in use of chemicals

KYEGEGWA

APTATION STRATEGIES
rticipate in communal work to protect water sources
quire storage facilities

KALUNGU

APTATION STRATEGIES
lling animals and crops at a lower price for survival
king bank loans to address the damages of hailstones gher demand for natural resources due to high population
locating to safe places
locating to safe places

Table 9. Summary of measures undertaken by the communities to adapt to climate change effects

Main actions undertaken to cope with climatic hazards and perturbations	Sembabule	Lyantonde	Kyegegwa	Kalungu
Afforestation/Tree planting on farm/gardens	√	√		
Terracing	√			
Mulching	√			
Fallowing				
Small scale irrigation systems	√			
Contour bands stabilized with grass/vegetation				
Crop rotation				
Planting fodder crops for livestock				
Planting improved crop varieties				
Digging trenches/drainage channels				
Avoiding deforestation				
Leaving river banks uncultivated				
Protecting river banks by planting				
Stopping cultivation on steep slopes				
Retaining indigenous trees on farm				
Construction of culverts/bridges				
Protecting the wetlands				
Acquiring land in other areas				
Applying organic fertilizers				
Using pesticides				
Rainwater Harvesting and storage			√	
Intercropping/Mixed cropping/plant cover crops				
Using alternative and efficient energy solutions e.g. energy saving stoves and solar power				
Engaging in other IGAs				
Controlling Invasive Alien Species				
Storing food for food security				
Technical Training in Terracing		√		
Construction of large valley dams		√		
Suppling tree seedlings		√		
Training in use of herbicides/herbicides		√		
Training farmers on new farming techniques	√			
Vacating flooded areas	√			
Construction of water tanks	√			
Communal work to protect water sources			√	
Selling animals and crops at lower prices				√
Taking bank loans to handle damage of hailstones				√
Higher demand for natural resources due to high population				√
Relocating to safe places				√

Some of the actions undertaken by the communities are quite innovative such as the 'Roof Top Gardens', Figures 3 and 4.

Figure 3. 'Roof Top Gardens', a '3 in 1 climate change adaptation measure' to hold roofs against strong winds,

moderate high day-time temperatures, and grow vegetables as food security

Figure 4. Solar Panel as an alternative energy source

4.0. DISCUSSION

To prevent and overcome the threats of climate change in the landscape, it has been proposed that nature-based measures should be undertaken. Such measures include enhancing availability of natural resources including water, energy, and sustainable land management measures aimed at improving land productivity. On-farm tree planting, controlling/reducing deforestation, terracing and crop rotation are the most important measures for mitigating negative changes.

None of the community members representing individual households have significant buffers against additional stress. Village focus group results indicate that they all face major challenges indirectly related to climate, such as declining soil fertility and increasing land pressure. On average, the communities are food insecure. Specific attributes made some households more sensitive to climate variability and change. More vulnerable households were those with many of the following characteristics:

- Lower proportion of able-bodied (working) members;
- Less well educated;
- More likely to be headed by females;
- Less likely to sell a portion of their crops or livestock;
- Less access to loans;
- Participate less frequently in community groups such as producer associations, cultural or labor savings groups, and religious organizations; and
- Earn income less frequently from off-farm sources (and when they do, that income is less than the amount that more secure households earn).

The vulnerability also stems from the fact that they depend heavily on crops whose value chains are sensitive to climate variability and change; any change in food production critically increases overall vulnerability. For example, maize is an essential part of the diet of the most vulnerable households, and they sell a small portion of their harvest; yet this small amount of maize they sell represents a significant source of cash for the household. Less vulnerable households plant maize more often, sell a greater portion of their harvest, and have other more important sources of income. Similarly, the most vulnerable households in coffee-growing districts sell coffee less often, but they rely more heavily on it for income.

Adaptive Capacity: The level of income diversity affects the ability of households to adapt to climate change. The assessment concludes that households with greater adaptive capacity manage more diverse agricultural portfolios; they plant more crops and invest in livestock. They also have a more varied mix of on-farm and off-farm income sources. Marked differences by districts significantly affect this diversity. Access to land plays a strong role in on-farm diversification; as a result, land pressure in more densely populated districts increases vulnerability. Proximity to urban centers also increases off- farm income and thus significantly reduces vulnerability to climate variability and change.

The assessment identified a wide range of measures that households employ to adapt to climate variability and change. They modify their management practices by shifting planting dates, preparing soil differently, or changing the mix of crops farmed on the same plot. Households also address risks by planting additional crops and crop varieties, and by investing in livestock or fruit trees. Additionally, households seek sources of income outside of agriculture, both through short-term 'coping' strategies, such as hiring themselves out as manual labor or by producing charcoal; and through longer-term strategies, such as migration and investments in the education of their children.

5.0. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusions

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.

The study, as expected, shows that climate change is occurring in the Katonga 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.

Climate change will negatively affect species, ecosystems and ecological processes in the Katonga Catchment if appropriate mitigation and adaptation actions are not implemented. However, the Katonga 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.

The projected climatic conditions will thus affect several ecosystem services and processes in the Katonga Catchment, but the proposed project is likely to help in dealing with some of the challenges.

5.2. Recommendations and Adaptation Options

Sustainable Land Management Practices such as Mulching, Terracing, Planting Trees must be encouraged and scaled up. In addition, alternative livelihood strategies must be identified for the most vulnerable households.

The adaptive capacity of communities that are increasingly dependent on agricultural related activities in the Katonga 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.

The Katonga 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. Livelihoods of communities requires additional attention by sustaining promising/successful interventions.

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Annex 5: Environmental and Social Management Framework

CHAPTER ONE: INTRODUCTION

1.1. Project Background

Uganda has experienced an increase in the frequency and intensity of droughts and floods in recent years. The percentage of rainfall coming in the form of heavy precipitation events is anticipated to increase, escalating the risk of disasters such as floods and landslides.

The Katonga catchment is amongst the most climate-vulnerable regions in Uganda. The catchment traverses part of the dry Ugandan cattle corridor[40], which is affected with a wide range of climate change effects. Climate change is expected to exacerbate the impacts of existing threats to the catchment's inhabitants and ecosystems[41]. Climate change effects in the catchment include, more extreme and frequent periods of intense rainfall, erratic on-set and cessation of the rainy season as well as more frequent episodes of drought.

In addition, majority of the farmers in Katonga catchment are small scale farmers with land holding ranging between 0.5ha and 1ha. Annual crops grown include mainly millet, maize, beans and sweet potatoes. Land fragmentation is common due to high population density especially in hilly areas thus, severe degradation of shallow soil areas. The catchment population depends on the natural environment for their livelihoods and most especially for food and biomass energy. The communities have also drained wetlands in some areas for cultivation and others have cleared the shrubs and thickets, especially in drier areas for charcoal burning. Some activities in the catchment have directly impacted on the availability and sustainability of water resources especially land use change for agricultural production through deforestation and forest degradation, and reclamation of wetlands.

It is against this background that the Ministry of Water and Environment in partnership with Global Water Partnership and lower local governments in the Katonga catchment have designed the project "Enhancing resilience of communities and fragile ecosystems to climate change in Katonga catchment Uganda (RECOFE).

The overall goal of the project is strengthening the resilience of communities and fragile ecosystems to climate change impacts through promoting appropriate water infrastructure investments and nature- based solutions. The specific objectives of the project are to:

- Strengthen the capacity of key grass root stakeholders for climate change adaptation
- Promote appropriate water storage technologies for increased water and food security.
- Support establishment of nature-based enterprises for improved community livelihoods.
- Support knowledge management and information sharing.

The project has four components:

Component 1: ***Strengthening the capacity of key grass root stakeholders for climate change adaptation***. This will focus on undertaking capacity needs assessment in relation to climate change for key grass root stakeholders, inducting and empowering grass root-duty bearers with knowledge in climate change, training in roles and responsibilities of the duty bearers at the grass-roots, facilitating tool kit development for mainstreaming climate interventions in development initiatives. The tool kit will provide reference and guide the climate change interventions as well as Integrating Climate change issues into the Katonga catchment Management Plan (CMP).

Others include facilitating the mainstreaming of Human Rights Based Approaches in climate change initiatives, facilitating communities in advocacy, lobbying and public relations through creation of dialogue

[40] Cattle Corridor stretches from south-western to north-eastern Uganda, highly affected by climate change impacts e.g. droughts and is constituted by rangelands which form 44% of Uganda

[41] *Katonga catchment water resources development and management plan 2018*

platforms and conducting of climate change campaigns/dialogues, facilitating resource use negotiations and development of Management plans, Memorandum of Understanding (MoUs) between the communities and duty bearers of the natural resources and developing and strengthening the governance and leadership frameworks (by-laws, ordinances, guidelines).

Component 2: Promoting appropriate water storage technologies for increased water and food security. This will focus on construction or rehabilitation of agreed upon low cost and appropriate physical water storage facilities, facilitating development of simple biophysical water harvesting technologies for crop and livestock production, facilitating construction of micro-irrigation schemes as learning centers and procuring appropriate seed and improved pastures for increased crop and livestock production respectively.

Component 3: Supporting nature-based enterprises for sustainable socio-economic development. This will focus on establishing Income Generating Activities (IGAs) like bee keeping, commercial fruits and tree nurseries, Mushroom growing, incense sticks, bamboo and agro-waste biomass, procuring necessary tools to improve productivity of nature-based enterprises and viable high value germplasm, establishing value chains for key and agreed nature-based enterprises (including production, processing, handling/storage, packaging/ eco-labelling and Identifying and finding probable Sources of funding (in-kind and credit) for vulnerable communities (women, elderly, youth, People With Disabilities-PWDs) to scale -up nature-based enterprises.

Others include facilitating stakeholders to participate in business forums, trade fairs & exhibitions, business tours and pitches of business plans to the private sector, establishment and operation of a market information systems and development of promotional materials for marketing of products. Lastly it will involve facilitating registration of small-scale businesses, training entrepreneurs in business management skills, developing business plans for translation into functioning businesses, undertaking ecosystem restoration activities (wetlands and river bank restoration, reforestation etc.) and sensitization of stakeholders in sustainable utilization of natural resources (e.g. appreciation and importance of the natural ecosystems).

Component 4: Knowledge management and information sharing. Involves facilitating experience sharing and cross-learning of innovative climate change adaptation interventions through learning events, documenting lessons, good practices and disseminating them for replication and up-scaling, documenting climate related case studies, packaging existing and new information into usable forms including policy briefs, flyers and leaflets as well as popularizing existing frameworks (i.e. policies, Ordinances, by-laws).

1.2. Rationale for Environmental and Social management Framework (ESMF)

One of the key requirements for the approval of the RECOFE 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.

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 ESMP

CHAPTER TWO: POLICY LEGAL AND INSTITUTIONAL FRAMEWORK

Uganda's policy, legal and regulatory frameworks that are relevant to and that will guide implementation of Environmental and social issues for the RECOFE Project are summarized below

2.1. Policy Framework

Policy	Relevance to the Project
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[42]. 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, 3 and 4 are in line with the objectives of this overarching policy.
The National Climate Change Policy 2015	The goal 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. The costed Implementation Strategy provides a detailed account on implementation of the Policy, including an indicative costing for programmes and activities to be developed. The project components and activities are aligned and contribute to the attainment of the policy objectives.
The National Water Policy 1999	The policy is for 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 water needs for domestic use, irrigation and livestock in the target communities. Activities under component 2 are in line with and will be guided by this Policy.
The National Policy for Disaster Preparedness and Management 2010	It is the framework policy for disaster and risk management and preparedness in Uganda, including disasters caused by climate change. Has mechanisms and structures for 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[43]. All project components 1, 2, 3 and 4 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.
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
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.

[42] https://climate-laws.org/geographies/uganda/policies/national-climate-change-policy
[43] https://climate-laws.org/geographies/uganda/policies/national-policy-for-disaster-preparedness-and-management

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[44]. 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.
The National Forest Policy 2001	Key issues 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.
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 mini-irrigation schemes and other water related infrastructure.
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 Katonga Wildlife Reserve. Therefore, extra care share be undertaken not to disturb or encroach on the Wildlife reserve during project implementation.
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[45]. 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.
The National Agriculture Policy 2013	The overall objective of the policy is to meet Uganda's high-level national commitment to achieve food and nutrition security and improve household incomes. The policy focuses on enhancing sustainable agricultural productivity and value addition, providing employment opportunities, and promoting domestic and international trade[46]. Activities under component 2 and 3 are in line with this policy.
National Irrigation Policy 2017	The overall policy objective of the draft irrigation policy is "Poverty Alleviation and Economic Growth as a result of the sustainable realization of the country's irrigation potential mitigating the effects of climate change and contributing to the transformation of Ugandan society from a peasant to a modern and prosperous country"[47]. Component 2 of the project contributes to this policy.

[44] https://climate-laws.org/geographies/uganda/policies/the-renewable-energy-policy-for-uganda
[45] http://extwprlegs1.fao.org/docs/pdf/uga163564.pdf
[46] http://agriculture.go.ug/wp-content/uploads/2019/04/National-Agriculture-Policy.pdf
[47] https://www.mwe.go.ug/sites/default/files/library/Uganda%20National%20Irrigation%20Policy.pdf

2.2. Legal Framework

Legislation	Relevance to the Project
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.
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[48]. 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.
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 and irrigation subprojects under components 2 and 3.
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 international instruments. Components 1 and 4 of the project.
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 3 will contribute to this Act. The Uganda Wildlife Act (2019): Under Section 23 of the Act, projects which may have a significant effect on any wildlife species or community are required to undertake an environmental impact assessment. The project activities shall be implemented in areas around Katonga Wildlife Reserve are intended to promote natural resource conservation and reduce pressure on the resources in the Wildlife Reserve.
Historical Monument Act, 1967	The Act provides for the preservation and protection of historical monuments and objects of archaeological, paleontological, ethnographical and traditional interest. Section 10(2) requires that any person who discovers any such object takes such measures as may be reasonable for its protection. This implies that the project will undertake the Chance Finds Procedures in addressing possible encounters of any archaeological resources during project implementation especially under components 2 and 3.
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

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

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.
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.
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[49] . All project components 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[50]. 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.
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[51]. Component 4 of the project contributes to this strategy.

2.3. Regulatory Framework

Regulations	Relevance to the Project
The National (Environmental and Social Assessment) Regulations, 2020.	The ESIA Regulations give a systematic ESIA 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.
Conduct and Certification of Environmental Practitioners Regulations, 2003	Provides guidance on conduct and Registration and certification of EIA practitioners.
Guidelines for strategic Environmental assessment	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

[49] http://ccd.go.ug/wp-content/uploads/2019/10/INDC-Uganda-final-14-October-2015.pdf
[50] https://ndcpartnership.org/news/uganda-releases-first-ndc-partnership-plan-climate-action-africa
[51] https://www.mwe.go.ug/library/uganda-national-climate-change-communication-strategy

(SEA) in Uganda 2020	at the earliest stage of decision making in line with economic, environmental, health and social considerations[52]. 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.
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.
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.
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.
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.
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[53]. 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.
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.

[52] https://nema.go.ug/sites/all/themes/nema/docs/Strategic%20Environmental%20Assessment%20(SEA)%20Guidelines%20Pdf%202020.pd
[53] https://nema.go.ug/sites/all/themes/nema/docs/wetlands_riverbanks.pdf

2.4. 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 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[54]. The key sectors served by UNMA include; transport (mainly aviation and marine), defense, 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/ Climate Change Department (MWE/CCD) – 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

CHAPTER THREE: ENVIRONMENTAL AND SOCIAL POLICY OF THE ADAPTATION FUND (APPROVED: 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[55]. All implementing entities are required to have an environmental and social

[54] https://www.devex.com/organizations/uganda-national-meteorological-authority-unma-135238
[55] https://www.adaptation-fund.org/documents-publications/operational-policies-guidelines/

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 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.

3.1. Environmental and Social Principles of the Adaptation 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 Environmental and social principles of the adaptation fund are summarized in Table 5 below:

Environmental and social principles	Details
Compliance with the Law	Projects/programmes supported by the Fund shall comply with all applicable domestic and international law.
Access and Equity	Projects/programmes 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/programmes should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups.
Marginalized and Vulnerable Groups	Projects/programmes 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/programme, the implementing entities shall assess and consider particular impacts on marginalized and vulnerable groups.
Human Rights	Projects/programmes supported by the Fund shall respect and where applicable promote international human rights.
Gender Equality and Women's Empowerment	Projects/programmes supported by the Fund shall be designed and implemented in such a way that both women and men (a) have equal opportunities to participate as per the Fund gender policy (refer to Annex 6 for details); (b) receive comparable social and economic benefits; (b) receive comparable social and economic benefits; and (c) do not suffer disproportionate adverse effects during the development process
Core Labour Rights	Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.
Indigenous Peoples	The Fund shall not support projects/programmes 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.
Involuntary Resettlement	Projects/programmes 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.
Protection of Natural Habitats	The Fund shall not support projects/programmes 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
Conservation of Biological Diversity.	Projects/programmes 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
Climate Change	Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.
Pollution Prevention and Resource Efficiency	Projects/programmes 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
Public Health	Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health.
Physical and Cultural Heritage	Projects/programmes 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/programmes should also not permanently interfere with existing access and use of such physical and cultural resources.
Lands and Soil	Projects/programmes supported by the Fund shall be designed and implemented in a way that promotes soil

Conservation	conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services.

3.2 Other International guidelines and Conventions

Other key international guidelines and conventions relevant to the Project include among others:

United Nations Convention on Biological D (UNCBD) 1993 - The Convention on Biological Diversity (CBD) entered into force on 29 December 1993[56]. 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 threatened[57], 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.

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[58].

CHAPTER FIVE: ENVIRONMENT AND SOCIAL RISK IDENTIFICATION AND DESCRIPTION

5.1. Environmental and Social Issues in the Catchment

Key environmental issues that came out from field consultations and literature review include drought, diseases & pests, floods, infertile soils, water scarcity, cutting down trees/deforestation, degradation of wetlands including the Katonga wetland ecosystem for grazing and cultivation of crops, poor/bad roads and vermin.

Key social issues that came out from field consultations and literature review include resources use conflicts especially land issues, selective implementation of regulations especially on management of wetlands, access and control of land, limited participation of women, youth, elderly and PWDs in decision making, limited livelihood options and access to finance and credit among others.

5.2. Methods for Environment and Social Risk identification and description

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 ESPrequires 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 risks during the development and implementation of projects. Among

[56] https://www.cbd.int/intro/
[57] https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change
[58] https://byjus.com/free-ias-prep/ramsar-convention/

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 as well as lands and soil conservation.

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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.

Where risks and potential impacts are identified and if these are unavoidable, suitable mitigation measures will be properly planned to adequately compensate for residual impacts and to provide for restoration. The methodology builds on two key steps:

5.3. Screening to identifying specific environmental and social risks at the project level

Each activity of the project will undergo screening against the 15 Environmental and Social Principles of the Adaptation Funds. *Project Activities Screening in accordance with the AF ESP "* assesses generic activities for potential environmental and social risks. As such impact identification is still rather preliminary and the table below should be understood as indicative.

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 Undertake capacity needs assessment in relation to climate change for key grass root stakeholders		√	√		√										
Activity 1.1.1.2 Induct and empower grass root-duty bearers with knowledge in climate change		√	√		√										
Activity 1.1.1.3 Training in roles and responsibilities of the duty bearers at the grass-roots.		√	√		√										
Activity 1.1.1.4 Facilitate tool kit development for mainstreaming climate interventions in development initiatives		√	√		√						√				
Activity 1.1.1.5 Integrate Climate change issues into the Catchment Management Plan (CMP)											√				
Activity 1.2.1.1 Facilitate the mainstreaming of Human Rights based approaches in climate change initiatives		√	√	√	√										
Activity 1.2.1.2 Facilitate communities in advocacy, lobbying and public relations through creation of dialogue platforms and conducting of climate change campaigns/dialogues.		√	√		√						√				
Activity 1.2.1.3 Facilitate resource use negotiations and development of Management plans, Memorandum of Understanding (MoUs) between the communities and duty bearers of the natural resources.		√	√		√				√	√		√		√	
Activity 1.2.1.4 Develop and strengthen the governance and leadership frameworks (By-laws, ordinances, guidelines)		√	√		√										
Component 2															
Activity 2.1.1.1 Construct at least five valley dams to capture and store water to address the challenges of water scarcity in support of micro irrigation schemes and livestock management most especially in extreme weather conditions.		√	√	√	√	√	√	√	√	√	√	√	√	√	√

Activity 2.1.1.2 Facilitate development of simple biophysical water harvesting technologies for soil and water conservation to aid crop production.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Activity 2.1.1.3 Promote climate smart agriculture and improved livestock management for increased crop and livestock production.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Activity 2.1.1.4 Train farmers in smart agricultural practices and improved livestock management		√	√	√	√	√	√			√	√	√	√		√
Activity 2.1.1.5 Purchase and distribute improved planting materials and inputs		√	√	√	√	√	√			√	√	√	√		√
Activity 2.1.1.6 Train farmers in improved post-harvest handling technologies		√	√	√	√	√	√			√	√	√	√		√
Activity 2.1.1.7 Support community groups to establish points of sale and market information for information for crop and livestock products		√	√	√	√	√	√			√	√	√	√		√
Component 3															
3.1.1.1 Beekeeping		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.1 Sensitize community groups on bee farming		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.2 Train selected community groups to develop business plans for implementing bee keeping		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.3 Procure and distribute Beehives, catcher boxes and honey harvesting, processing and packaging equipment to community beekeeping groups		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.4 Establish value chains for bee keeping (including production, processing, handling/storage, packaging/ eco-labelling		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.5 Support community groups to establish points of sale and market information for honey and its products.		√	√	√	√	√	√			√	√	√	√		√
3.1.1.2 Coffee based agroforestry enterprise		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.6 Sensitize communities on the coffee-based agroforestry systems in the target sub counties		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.7 Conduct hands-on training of at least 8 community groups to develop business plans, setting up of coffee-based agroforestry enterprises, post-harvest handling, value addition and marketing for implementing the agroforestry enterprises		√	√	√	√	√	√			√	√	√	√		√

Activity 3.1.1.8 Provide planting materials including coffee seedlings, tree seedlings, crops or livestock) for setting up the enterprise, post-harvest handling and value addition to community members		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.9 Support community groups engaged in coffee-based agroforestry enterprises to add value to different products		√	√	√	√	√	√			√	√	√	√		√
Activity 3.1.1.10 Support the community groups to set up points of sale and market the products from agroforestry enterprises		√	√	√	√	√	√			√	√	√	√		√
3.2.1.1 Wetlands restoration and management			√	√	√	√	√	√			√	√	√	√	
Activity 3.2.1.1 Sensitize communities and catchment management committees on wetland ecosystems restoration		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.2 Sensitize stakeholders in sustainable management and/or utilization of wetlands		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.3 Support communities and catchment management committees to demarcate degraded wetlands with pillars and live markers		√	√	√	√	√	√			√	√	√	√		√
3.2.1.2 Riverbanks restoration and management		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.4 Sensitize communities and catchment management committees on river bank ecosystems restoration		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.5 Sensitize stakeholders in sustainable management and/or utilization of river banks		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.6 Support communities and catchment management committees to demarcate degraded river banks with pillars and live markers		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.7 Support communities and catchment management committees to establish soil erosion and flood control structures		√	√	√	√	√	√			√	√	√	√		√
3.2.1.3 Forest landscape restoration		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.8 Train selected farmers/CBOs in tree nursery establishment and management		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.9 Procure and distribute nursery equipment to equipment to nursery operators		√	√	√	√	√	√			√	√	√	√		√
Activity 3.2.1.3c Train selected farmers/CBOs on tree growing approaches and silvi-cultural practices		√	√	√	√	√	√			√	√	√	√		√

Activity 3.2.1.10 Procure and distribute tree seedlings to farmers for planting		√	√	√	√	√	√			√	√	√	√		√
3.1.1.1 Beekeeping		√	√	√	√	√	√			√	√	√	√		√
Component 4															
Output 4.1.1 Knowledge management and information sharing systems		√	√	√	√	√	√			√	√	√	√		√
Activity 4.1.1.1 Organize exchange visits to areas with successful innovative climate change adaptation interventions to enable experience sharing and cross-learnings.		√	√	√	√	√	√			√	√	√	√		√
Activity 4.1.1.2 Organize learning events in climate change adaptations		√	√	√	√	√	√			√	√	√	√		√
Activity 4.1.1.3 Document lessons and good practices from project interventions and disseminate them to stakeholders for possible replication and up-scaling		√	√	√	√	√	√			√	√	√	√		√
Activity 4.1.1.4 Prepare/develop popular versions of existing policy and legal frameworks (i.e. policies, plans, strategies, ordinances and by-laws).	√	√	√	√	√	√	√			√	√	√	√		√

KEY:

	No risks generated
√	Risks Identified according to the corresponding AF ES Principle

A detailed identification and assessment of the possible environmental and social risks and impacts of the 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

The project activities will comply with all the relevant National and policies laws, regulations strategies and standards as well as the relevant international laws and regulations. It is consistent with the relevant environmental and climate change policies strategies and plans. No further assessment and management are required for compliance.

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, improved availability of water, improved crop and pasture varieties as well as Income generating activities and access to markets equally without discrimination. After consultations with the stakeholders the following criteria was proposed for selecting beneficiary communities and groups (see Part II, section A). In addition to applying this criteria 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

The main focus of the project is to increase the resilience of grass root stakeholders mainly the marginalized and vulnerable groups. The project will avoid and will not have any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, refugees, people living with disabilities, and people living with HIV/AIDS and instead it will promote their active involvement in project activities and associated benefits. However there is a likely hood that some of these groups may be excluded from participating in the project activities and decision making during project implementation either due to capacity limitations, bias, discrimination or lack of information among other. The females as one of the marginalized and vulnerable groups in the catchment are estimated to be 1,524,887 (50.5% of the total catchment population). The proportions of other marginalized and vulnerable groups in the catchment that include the youth, elderly, People With disabilities, as well as the absolute poor (live on less than USD 1 per day) shall be determined at the onset of the project. Key among the vulnerabilities of Women, youth and the elderly include low incomes, limited access to land and credit, cultural bias and discrimination, high levels of illiteracy, adverse weather events and crop diseases, exclusion from decision-making on access to and the use of land and resources and other economic activities.

Special attention shall also be given to refugees living in a refugee settlement in Kyegegwa District to ensure that the refugees participate and benefit from Project activities The total population of refugees in the target settlement of Kyaka is 123,086, of which females and children are 96,702 (79%), the elderly 3,061 (2%) and youth between 12 and 24 years 25934 (21%). The refugees participated in the community consultative meeting and most of the issues affecting them in line with the project were captured and incorporated in the proposal. The key vulnerabilities of refugees are; have no clear sources of income, no acess to credit, extreme poverty, hunger, low levels of education and skills, poor health especially the elderly, no land or sufficient land for cultivation, adverse weather events and crop diseases, limited opportunities for wage income or self-employment as refugees face social, economic and procedural barriers such as lack of documentation showing education, language and social stigma among others.

To address this the project will emphasize and ensure that all categories of people shall participate in the planning and execution of activities especially at community level. At community level at least 50% of the project beneficiaries shall be representatives of the vulnerable and marginalized groups. Stakeholder mapping and consultations have also ensured that issues affecting marginalized and vulnerable groups in the project area have been identified and incorporated in the project design.

Capacity building activities shall in particular target the vulnerable and marginalized groups to enable them participate and benefit fully from project activities. Information about the project shall also be packaged and shared in simple and easily understandable formats and languages in different forums targeting all stakeholders including the Vulnerable and marginalized groups to ensure that they have adequate information about the project to enable participation.

Under components 2 the project will support water infrastructure development including valley and micro dams and mini-irrigation schemes as well as improved crop, animal breeds and improved grass varieties. Under component 3 nature-based enterprises of bamboo and beekeeping will also be supported. As earlier stated 50% or more of the target groups will be the vulnerable and marginalized groups, the women, youth elderly and refugees among others. The insistence on targeting of 50% or more of the marginalized and vulnerable groups

will ensure that these groups are included in the project activities and the benefits derived from these activities will increase their production capacities, incomes, livelihoods and their resilience to the impacts of climate change. Monitoring system for the project will emphasize collection of data and information on participation of marginalized groups as well as sex segregated data such that any gaps are identified in the early stages of the project and rectified. Any project issues, regarding vulnerable and marginalized groups that will not be addressed by the above approaches will be handled using the Project grievance redress mechanism.

Principle 4: Human rights

The MWE and other executing entities of the project will ensure that the rights of marginalized and vulnerable groups as well as those of other stakeholders are observed. The project is designed to respect and adhere to the requirements of all relevant conventions on human rights. 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. The project aims at promoting human rights for equitable access to services, water for irrigation, capacity building, and information. The project will respect the human rights of all actors and local population in accordance with its objectives and scope. The proposed project will promote the basic human rights of access to food, water, and information. Therefore, no further assessment is required.

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. 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. For activities that are long term like tree growing and livestock production 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. Women and other vulnerable groups 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 including capacity building in climate smart agriculture practices and development of business plans as well as undertaking of nature -based enterprises including: bee keeping and bamboo growing as well as establishment of probable Sources of funding (in-kind and credit) for vulnerable communities (women, elderly, youth, People With Disabilities-PWDs) to scale -up nature-based enterprises will deliberately target women and other vulnerable groups. The project monitoring plan will emphasize reporting basing on gender segregated data to ensure issues of gender are addressed at every level and stage of the project and any gaps are quickly addressed. In addition, the projects intends to carry out communication and sensitization of populations on the gender issues to ensure gender equality in participation in project and strengthening representation of women and youth on project management committees as well as use of the project grievance redress mechanism to solve any gender equality issues arising from project implementation.

Principle 6: Core labour rights

The project will be implemented and managed in compliance with the international and national labour laws and regulations. Compliance with fundamental labor rights will be ensured in all the proposed project activities and especially the community-based ones. MWE will ensure that the project activities will fully comply with relevant National labour laws and regulations as elaborated in section 2 as well as ILO labour standards and conventions to which Uganda is a signatory. For concrete adaptation actions especially under component 2 involving construction or rehabilitation appropriate physical water storage facilities, micro-irrigation schemes as well as crop and livestock production and activities under component 3 involving undertaking nature based enterprises like bee keeping and bamboo growing and establishment

of value chains for nature-based enterprises where communities will provide the local labor force, core labor rights compliance will be mandatory. These activities shall involve the use of local labour especially during the construction Phases of the different projects or while undertaking land preparation, planting, harvesting and processing for agricultural crops and livestock farm operations. Common violations include use of child labour, low pay, and working overtime without pay, working without contracts, delayed payments, working without appropriate PPE among others. In addition, accidents or occupational hazards could occur during activity implementation. All stakeholders including workers and populations shall be sensitized about the risks related to the activities to be undertaken activities. Contacts will be established with representatives of the local communities responsible for carrying out activities and their mandate and their rights will be clearly explained. Also, during activity implementation, the Directorate of water resources management will follow-up and monitor the worksites including activities progress and the respect of the labor and safety rights of workers. Contracts under this project shall have clear clauses on compliance with both international and National labour laws and regulations. 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 undertaking project activities will be required to sensitize workers and populations to the risks related to the undertaken activities, provide workers with protective gears (nose and mouth masks, ear muffs, overalls, industrial boots and gloves) and helmets, design and implement safety measures and emergency plans to contain accidents risks and ensure the application of safety standards by companies (equipment, signs, training, etc.),remunerate their workers adequately and on time, put gender consideration during recruitment, ensure that no child labour is employed in undertaking the project activities and avoid over exploitation of workers as well as establishing a robust monitoring and evaluation system by the Directorate of water resources management to ensure that these provisions are being implemented. No further assessment required

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. The Project promotes the rights and responsibilities set forth in the United Nations Declaration on the Rights of Indigenous Peoples. 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 to ensure that traditional natural resource use and land use rights are not undermined

Principle 8: Involuntary resettlement

The project will not result in involuntary resettlement of communities in the project area in regard to eviction or people involuntarily leaving their homes or even losing their land use rights. However, the construction of valley earth dams and mini-irrigation schemes will need land and may affect private lands or related activities. Strict criteria will be followed in the selection of sites for these activities. Under this criterion there will be no communities or populations resettlement in favour of project activities. Priority will be given to government or community owned lands. No further assessment is required.

Principle 9: Protection of Natural Habitats

The rates of forest and wetland degradation in the catchment is high. For the period between 2005-20010, at least 70,065 hectares of forests were deforested and 29,132 hectares were degraded. Over 53% of wetlands in the catchment have been degraded. The project activities mainly under components 2 and 3 will lead to restoration and protection of these natural habitats. Most of the project activities under these components are aimed at restoring the integrity of these ecosystems and habitats. These include 2.1.1.2 – soil and water conservation measures 3.2.1.1 Wetlands restoration and management, Intervention, 3.2.1.2 Riverbanks restoration and management and 3.2.1.3 Forest landscape restoration. Efforts shall also be undertaken during the construction of the water dams and micro irrigation schemes to ensure minimum disturbance to the natural habitats as much as possible. These will include sensitization sessions to local populations, contractors and their workforce on good environmental practices and the protection of natural habitats such as selecting sites carefully to avoid sensitive

ecosystems and focusing on those where minimum damage will occur ,the need and how to minimize damage to the habitats during excavation and construction, ensuring vegetation clearance is minimized as much as possible, restoring any exposed areas during excavations and construction with natural vegetation and robust monitoring during the construction Phases to ensure these guidelines are adhered to among others.

Principle 10: Conservation of biological diversity

The Katonga catchment is known to have viable Sitatunga (*Tragelahpus spekei*) population inhabiting in the Katonga wetland system. Within the catchment is also the Katonga Wildlife Reserves that harbors high populations of Waterbucks, Hippos, Elephant, Buffalo, Bushbuck, Reedbuck, impalas, Zebras among others and Birds. There are also a number of Forest and wetlands ecosystems in the catchment although they are threatened by high levels of degradation. Project activities are expected to positively impact the landscape and enhance biodiversity conservation mainly through building the capacity of communities in and promoting soil and water conservation measures, wetland restoration and management, riverbank restoration and management as well as restoration of degraded catchment areas. Therefore, the project will enhance the integrity of natural habitats as well as well as building the capacity of communities and other stakeholders in biodiversity conservation. However, as part of the implementation of some of the activities such as construction of water dams and mini-irrigation schemes biodiversity may be lost due to vegetation clearance and migration of birds and animals from the disturbed areas. Steps shall be undertaken to minimize these risks including, creating awareness on biodiversity conservation for the local populations and contractors, avoiding sensitive habitats that have high biodiversity densities of plants, animals and birds, minimizing vegetation clearance as Low as possible, restoration of disturbed areas after construction works among others.

Also, there is a risk of introducing alien and invasive species during restoration of degraded areas. Restoration activities shall be led by the District Forest departments who are technically competent in this field and will help communities in identifying the most degraded areas, as well as the most suitable species for reforestation, with the main focus on indigenous species. Equally introduction of improved and drought resistant of crop and grass species shall be supervised by the District Agriculture and Veterinary departments respectively to ensure that no alien crop or grass varieties are introduced. This together with continuous monitoring of all restoration activities will ensure that there is no introduction of invasive species.

Principle 11: Climate change

The main focus of the project is addressing climate change issues and impacts. To ensure that the project activities are focused on addressing climate change challenges a fully-fledged Climate Change vulnerability study has been conducted to inform the design and preparation of the project proposal. All the four project objectives of the project, strengthening the capacity of key grass root stakeholders for climate change adaptation, promoting appropriate water storage technologies for increased water and food security, supporting establishment of nature-based enterprises for improved community livelihoods and supporting knowledge management and information sharing are focused on addressing the negative impacts of climate change and enhancing the resilience of communities. In addition, 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 field clearing to construct Water infrastructure and associated irrigation systems 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 building the capacity of key stakeholders 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

The project will enhance the efficient use of water through the small irrigation techniques and construction of water dam. Also, the project activities will prevent air, soil and water pollution through activities such as soil and water conservation, river bank restoration and management, wetland restoration, forest landscape restoration as well as creating awareness and building capacities of different stakeholders to manage soil, wetlands, river banks, degraded catchments and water resources for irrigation and other uses

However some of the activities such as activity 2.1.1.1 under component 2 will involve construction of earth dams as well as micro-irrigation schemes as well as activities 3.1.1.1 and 3.1.1.2 under component 3 shall involve undertaking nature based enterprises for income generation like bee keeping and Bamboo growing as well as establishing their value chains (including production, processing, handling/ storage, packaging/ eco-labelling) that will bring about potential water and air pollution as well as resource use efficiency issues during value addition processes for the products. Construction activities for water infrastructure may also cause air and water pollution and stagnant water in storage facilities may pose health risks such as Malaria. Also, small amounts of waste are expected to be generated by the project activities.

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. All sub-projects under the project including earth dams, micro-irrigation schemes, and soil and water demonstration centers among others shall have management committees to ensure that resources under each sub-project are efficiently utilized.

Capacities of these committees and communities in general shall be built to ensure efficient resource utilization and to minimize or avoid pollution. The use of chemical fertilizers and pest control will not be encouraged or supported by the project, but instead manure, compost and organic pest control remedies will be promoted. In addition, the communities and other project stakeholders shall be encouraged to, conduct regular water quality monitoring and maintenance of the water supply system as well as ensure the monitoring of water quality by chemical analysis, improve the awareness on water resource management and conservation, separate the infrastructures for human and animal use and provide a specific installation for the watering of livestock near the tanks. Besides, limit levels of dust through good practice such as watering of access routes, construction sites, and other disturbed sites and cover trucks transporting construction materials. For issues of vandalism of water pipelines infrastructure, wastage of water and leakages at consumer points and over abstraction of water, awareness on water resource management and conservation will be created and regular monitoring of the irrigation system installed as well as the irrigation schedule undertaken.

Principle 13: Public Health

Construction activities for water infrastructure 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 when it is not boiled or treated. Furthermore, the process of handling agricultural waste as well as establishment of value chains for nature-based enterprises (including production, processing, handling/ storage, packaging as well as introduction of improved crop and pasture varieties may result in public health issues especially as a result of pollution and food poisoning due to aflatoxins. These shall be addressed through awareness raising and capacity building of project beneficiaries to take all precautionary measures like to avoid water pollution and contamination, having the relevant PPE while undertaking processing and proper post-harvest handling of agricultural products, ensuring as well as treating or boiling the water before consumption. These shall be addressed through detailed measures in the ESMP to ensure compliance with national laws and technical standards as well as AF ES principles. In respect to the current prevailing COVID19 pandemic the PMUs shall work hand in hand with other stakeholders to ensure that the standard operating procedures from the Ministry of Health are adhered to during implementation of project activities.

Principle 14: Physical and cultural heritage

There are no risks associated with Physical and cultural sites as they are no known sites in the project target sub-counties. Except for the two cultural heritage sites of Nakayima tree in Mubende district, and Bigo Byamugyenyi in Ssembabule district are found in adjacent sub-counties still within the Katonga catchment. However, these sites are already conserved and protected so the project activities will not interfere with these cultural sites. In case of incidental findings on non-suspected sites, the project will develop a chance finding procedure to handle such incidental findings if they occur.

Principle 15: Land and soil conservation

Soil erosion in the cattle corridor in which Katonga catchment, is extreme with predictable erosion rates of over 10tha-1yr-1. The recent population explosion outmatches farmers' ability to find arable land with the consequence that continuous tillage is the norm. Most of the Katonga catchment is highly degraded (62%), and only 1% is classified as lowly degraded.

The project activities promote the conservation of land and soil resources activities under component 2 including training farmers in soil and water conservation measures, establishing soil and water conservation demonstration centers as well as those under component 3 wetlands and river restoration and management, and forest landscape restoration are all aiming at conservation of land and soil resources. Promotion of nature-based enterprise of bee-keeping and bamboo growing in addition to providing examples of sustainable land management practices they will also provide incomes for the communities reducing pressure on the land resources.

However, there is a potential risk of soil erosion during and after the construction of water and irrigation infrastructure as well as soil compaction by the machinery during construction or maintenance may occur. 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 and provided with appropriate species to restore exposed degraded landscapes. No further assessment is required

All activities implemented under the project will adhere to the Adaptation Fund Environmental and Social Policy (AF ESP), revised in March 2016, which sets out the requirements for Implementing Entities (IEs) to assess and manage environmental and social risks in project implementation. All project activities have been screened and assessed against the 15 principles of the Fund's Environment and social Policy. All environment and social risks and impacts that cannot be avoided shall be managed as per the mitigation measures provided in the project ESMP and the project grievance redress mechanism.

Adherence to National Policies, Laws and Technical standards

Further to the compliance with the AF ESP and other international laws and policies, the RECOFE 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 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 management according to the Project ESMP and the grievance redress mechanism.

Also Audit regulations 2020, require that after the first year of operation, the project must undertake an initial environmental audit. The purpose of the audit is to assess level of compliance with set standards, compare the actual and predicted impacts, and assess the effectiveness and level of implementation of the measures proposed in the ESPM in mitigating the negative social and environmental impacts. This allows for collective measures to be taken in the early stages of project implementation.

CHAPTER SEVEN: ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT PLAN AND MEASURES IN LINE WITH THE AF ESP

7.1. Environmental and Social Management Plan (ESMP)

This ESMP is based on the detailed identification of risks and assessment of impacts and possible mitigation measures.

Environment and Social Management Plan

ES Principles checklist	Potential impacts	Mitigation measures	Indicators	Responsible Persons	Cost (USD)
Compliance with the Law	Project activities will not generate risks.	For the fully identified project activities, there is no need for mitigation measures since they generate no risks.			.
Access and Equity	Risk of insufficient access of the project benefits by a segment of the population Elite capture and bias in allocating project benefits Lack of interest to participate in project activities • 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 especially agriculturally based activities and those that need reasonable amounts of money to start up like IGAs. • Risk of insufficient access of the project benefits by a segment of the population • Elite capture and bias in allocating project benefits • Lack of interest to participate in Project activities	• Detailed stakeholder mapping, consultations and assessments have been undertaken during the proposal development stage ensuring that all stakeholders including the elderly, youth, refugees, PWDs 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 as nature-based enterprises and access to markets equally without discrimination. • There will be sustained and continuous sensitization of all stakeholders to ensure that marginalized and most vulnerable groups benefit from project interventions • Continuous monitoring to ensure all the target stakeholders are benefiting from the project activities • Grievance redress mechanism that shall be followed in handling reported issues of inequality and lack of access to project benefits • Develop a beneficiary's 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 beekeeping among others	• Reports of stakeholder mapping and consultations including lists • Documented criteria for selection of beneficiaries • List of selection criteria agreed • No of vulnerable people accessing benefits from project activities • 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 and DPOs Contractors	Cost incorporated in the total project cost

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 right from the project design to ensure that they participate and benefit from project activities. Beneficiary selection criteria with positive bias towards these groups will be developed. • Marginalized and vulnerable groups people who do not have land will be given priority for access to other project activities such Bee-keeping 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 Nature based enterprises • No of awareness raising sessions about the project conducted	MWE-PMU, DEOs, DNROs, DAOs and DPOs	Cost incorporated in the total project cost
Human rights	• Most of the project activities do not generate risks related to human rights. However, for activities such construction and restoration that will involve construction and for IGAs that may require additional require additional labour to undertake there undertake there may be issues arising from treatment of workers by the project Contractors. • Risk of inequitable access of the segments of the population to the project's resources	• 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 will respect and promote all fundamental human rights as per the constitution of Uganda and in accordance to all conventions signed by the government of Uganda. The project will work Local governments and Communities to ensure no human rights violation happens. The project anticipates no violation of human rights through the project activities, and on the other hand will strive to empower the local community to be aware of and exercise their human rights for maximum benefits from the project. • 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		

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 agriculture practices and development of business plans as well as undertaking of nature -based enterprises including: bee keeping, and bamboo growing will deliberately target women and other vulnerable groups. This will enhance their access to finance and enable them to generate income, contributing directly to their financial empowerment • 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 segregated 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	• 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 accessing credit either in kind or cash to undertake project activities/IGAs (micro-credit) • Project Reports with Gender segregated data. • No of complaints handled through the GRM	MWE-PMU, DEOs, DNROs, DAOs and DPOs	Cost incorporated in the total project cost
Core labour rights	• Accidents and other occupational hazardous 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 and general	• 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 and individuals/community groups undertaking restoration activities occupational health and safety procedures, employment and Workers' compensation Acts to ensure that they meet	• 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	MWE-PMU, DEOs, DNROs, DAOs and DPOs Contractors	Cost incorporated in the total project cost

	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.	the national and international labour 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; • 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 as 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.	• Percentage of companies that comply with safety standards • Percentage of workers equipped with protective gear Compliance monitoring reports		
Indigenous people	There are no indigenous people in the project area so no impacts and no mitigation measures are required				
Involuntary resettlement	Project activities will not result in involuntary resettlement of households or communities in the project area				
Protection of natural habitats	• The project sites boarder on Katonga Wildlife reserve and Forest reserves within the Katonga river catchment so there is a risk of encroachment on these reserves • Clearance of vegetation from sites for water dams and irrigation systems development may affect natural habitats	• Efforts shall be undertaken to ensure that the project activities do not encroach on the Katonga Wildlife Reserve and other forest reserves within the catchment through awareness raising on the importance biodiversity conservation ensuring that laws and regulations are followed • Comprehensive site assessment shall be done to ensure that water dams and irrigation systems are not located in sensitive habitats	• Site assessment reports with possible mitigation measures • No of awareness sessions on the protection of biodiversity and ecosystems • No of people sensitized by gender	MWE-PMU, DEOs, DNROs, DAOs and DPOs Contractors	Cost incorporated in the total project cost

	• Destruction of vegetation and compaction of soils by labour concentration of labourers and compaction of soil by construction equipment • Danger of fires especially those undertaking apiary/beekeeping	and restoration undertaken where vegetation is disturbed • 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. • Continuous monitoring and follow-up of the implementation of all activities related to the protection and management of ecosystems and natural habitats in the ESMP • 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 provision of improved harvesting equipment. Efforts shall be undertaken to ensure that the project activities do not encroach on the Katonga Wildlife Reserve and other forest reserves within the catchment through awareness raising on the importance biodiversity conservation ensuring that laws and regulations are followed • Comprehensive site assessment shall be done to ensure that water dams and irrigation systems are not located in sensitive habitats and restoration undertaken where vegetation is disturbed • 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.	Monitoring reports including status of water infrastructure sites		

		• Continuous monitoring and follow-up of the implementation of all activities related to the protection and management of ecosystems and natural habitats in the ESMP • 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 provision of improved harvesting equipment.			
Conservation of biological diversity	• Vegetation clearance for water harvesting and storage sites and irrigation systems will result in loss of biodiversity on those sites • Opening up of new lands for agriculture may also lead to vegetation loss Appropriate seed and improved pastures for increased crop and livestock production may turn out be invasive	• 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 agriculture expansion 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 the crop and pasture 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
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 there are 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 fully-fledged Climate Change vulnerability study has been conducted during the design and preparation of the project's full proposal. All the four project objectives of strengthening the capacity of key grass root stakeholders for climate change adaptation, promoting appropriate water storage technologies for increased water and food security, supporting establishment of nature-based enterprises for improved community			

		livelihoods and supporting knowledge management and information sharing are focused on addressing the negative impacts of climate change and enhancing the resilience of communities. None of the activities is envisaged to result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change			
Pollution prevention and resource efficiency	• There is potential of water contamination in the storage reservoirs or irrigation systems • Over use or un regulated usage of the water resources Water and soil contamination	• Ensure establishment of water management committees to ensure regular maintenance of water sources and irrigation systems 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 Sensitization on water and soil contamination avoidance measures	• Functional water management committees in place • Water quality assessment Reports • Water abstraction/use Reports • By-laws regulating water use in place. No of sensitizations done	MWE, District Water Officer	Cost incorporated in the total project cost
Public Health	• The water storage facilities 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 dams/tanks fenced off	MWE, District Water Officer, Contractor' EHS Officer ,DEOs	Cost incorporated in the total project cost
Physical and cultural heritage	• There are no known Physical and cultural sites in the project target sub-counties. However, incidental findings can take place on non-suspected sites. The project will develop a chance	There are no known Physical and cultural sites in the project target sub-counties they are only found in the adjacent ones. However, incidental findings can take place on non-suspected sites. The project will develop a chance finding procedure to handle incidental findings if they occur.	Chance find procedure in place	MWE, UWA, NFA DAOs, DEOs & DFO	Cost incorporated in the total project cost.

	finding procedure to handle incidental findings if they occur.				
Soil and land conservation	Construction activities including erosion due to exposure and compaction by machinery during construction of dams and micro-irrigation schemes as well as soil pollution from agrochemicals and acaricides	• 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. • Minimizing the use of Agro-chemicals. • Spraying the animals on paved surfaces	• 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

CHAPTER EIGHT: PROJECT GRIEVANCE REDRESS MECHANISM

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.

8.1. The Structure of the Grievance Redress Mechanism

This Project Grievance Redress Mechanism shall consist of Grievance Redress committees at two levels. One will be at Project sites with the Team Leader of the Water Management Zone (WMZ) as the Chairman of the Committee (GRC). The GRC at this level will be constituted of the following members:

8. WMZ – Team Leader – Chairman
9. LC V Chairperson – Member
10. Project/Program Manager – Secretary,
11. Contractor/Consultant – Member
12. LC 111 – Chairman-Member
13. Community Representative
14. Representative of a local CBO or NGO/ Religious Leader operating in the area

The representative from the Organization operating in the area and the Community representative shall serve as non-permanent members.

The second committee will be at the MWE level. At the Ministry Level, the GRC will be housed in the Directorate of Environmental affairs with the following as the permanent members appointed by the Permanent Secretary:

8. Commissioner – Department of Environment Support Services – Chair,
9. Assistant Commissioner Environment Affairs (Monitoring, Compliance, Assessment, and Education) – Member
10. Principal Sociologist (Water sector Liaison Department) – Member
11. Principal Environment Officer (Monitoring and Compliance) – Member
12. Project/Program Manager – Secretary
13. Community Representative
14. Representative of a local CBO or NGO/ Religious Leader

The Manager of any of the projects or Programs will be the Secretary to the committee, at the time issues and complaints from his project or program are being addressed. The Committee members are mandated to carry out such functions as may be allocated to them, and to support the Grievance Redress committee in discharging its functions as stipulated in the TORs.

Consistent with the TOR of the committee the GRC may develop and issue Supporting Operating Procedures (SOPs) for the GRM to facilitate easy implementation and to ensure the effective and efficient operation of the GRM.

8.2. Functions of the Grievance Redress Committees (GRC)

The Grievance Redress Committee will ~~be mandated~~be mandated to address grievances and complaints by a person, a group of persons or a community who/which have been or may be adversely impacted by the project through problem-solving methods and/or compliance review, as appropriate. It mandated to initiate proceedings on its own to investigate grievances of a person, a group of persons or a community who/which have been or may be adversely impacted by ~~the project~~the project as well as monitoring whether decisions taken by the Commissioner /PS based on recommendations made by Grievance Regress Committee, or agreements reached relating to grievances and complains through problems solving methods, have been implemented.

8.3. Implementation Approach

The GRM shall be given a wide publicity among all these key stakeholders. Effective awareness of GRM process makes people better understanding about their options, depending on the types of complaints. Criteria for eligibility need shall be communicated and awareness campaigns launched to give publicity to the roles and functions of the GRM. Awareness shall include the following components:

- Scope of the project, planned phases, and activities etc.;
- Availability of GRM and GRC, their purpose and their accessibility;
- Eligible complaints that can be lodged and how they can be lodged
- Types of grievances not acceptable to the GRM.
- Members of GRC and its location
- Method of complaining or reporting the grievance
- Taking part in the GRC meeting (is any companions of the complainant allowed)
- The steps of resolving process and timeline adopted in this mechanism.
- Needed documents and evidence to support of the complaint
- Procedures and time frames for initiating and concluding the grievance redress process; boundaries and limits of GRM in handling grievances; and roles of different stakeholders involved including the project implementer and the affected parties. .

A variety of methods shall be adopted for communicating information to the relevant stakeholders.
This information shall be part of a simple brochure explaining the different grievance redress procedures and possibilities for affected persons. Other methods shall include display of posters in public places such Local government offices at District and Sub-county levels, project offices, community centers, hospitals and health clinics of the area.

8.4. Stages for MWE Grievance Redress Mechanism

A two-stage (Step 1 and Step 2) GRM will be designed and implemented for the Project. Accordingly, two (2) GRCs will be appointed for these two stages as described in 1.5 above. **Step 1 GRC** will be given four (4) weeks' time to address any ground level issue. Any issue which cannot be addressed at this stage will be referred to **Step 2 GRC** within 07 days after conclusion of business **at step 1** with a full report comprising suggestions and observations of **Step 1 GRC** for review.

8.4.1. Step 1 GRC

- There shall be two focal points one at the field level project office and one at the sub-county community development offices in the three project focal Sub-counties. . These will be liaison offices especially for receiving complaints and grievances as well as communicating feedback to the complainants.
- In addition to the above designated offices the public shall submit their complaints to one selected CBO/NGO operating in the project/program area that shall be agreed upon by all stakeholders at the time of formation of the GRCs. This is intended to ensure that people who have complaints and clarifications are able to submit them for processing and feedback.
- Considering the importance of efficient functioning of **GRM, Step 1 the GRC** shall be expected to resolve complains within three weeks after receiving them. This stage is expected to benefit from the /Consultant 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. proximity of most of the members of GRC that involves the team leader, Project Manager, contractor

The timeframes are as follows:

All the receiving points – the Project site office OR Sub-county CDO office OR the selected CBO/NGO office shall inform the Chairman of Step 1 GRC with a full report within 3 working days from receipt of a grievance or complain.

GRC meetings will be held at the Project/program site office within at least 12 days after receiving and verifying the complaint/grievance and the affected persons who has lodged complaints will be invited for the GRC meeting.

The affected persons will be informed about the GRC, five days prior to its meeting. However, the GRC meeting shall be held in public if required or at the Projects site office.
The Secretary of GRC shall coordinate with all relevant parties to get necessary information and keep Records of all complaints and reports.

At the time of GRC meeting all complaints should be in written form. If the issue is resolved at Step 1 GRC, the decision/resolution shall be documented in a report by the Secretary, signed by all committee members and communicated to all stakeholders within 5 days after the GRC meeting.

If the issue cannot be resolved at this level then a report should be written and sent to Step 2 GRC within 5 days after the meeting of step 1 GRC. Committee meetings will be convened by the Secretary of Step 1 GRC who is the Project Manager. The chairman of Step 1 GRC is expected to take appropriate action with the consultation of other committee members within the given a three weeks' time and to inform the affected persons accordingly..

8.4.2. Step 2 GRC
The issues that could not be resolved by Step 1 GRC, will be forwarded to Step 2 GRC within five days (working days) of the final decision of Step 1 GRC. Step 2 GRC.

The main objective of Step 2 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, Step 2 GRC is requested to convey its decisions to Step 1 GRC and other relevant parties within four (4) weeks' time from the date of receiving issues from Step 1 GRC without further delay to take immediate actions. (Step 1 GRC - 3 weeks + Step 2 GRC 4 - weeks = 7 weeks).

8.5. Detailed Implementation Steps
The steps outlined below are critical to the success of any GRM are indicated in the flow chain below.

Grievance Redress Value Chain

The process of implementing a GRM involves the following steps,
Step 1: Decide on Focal offices
Step 2: Receive and register complaints.
Step 3: Screen and refer the complaints.
Step 4: Coordinate with other GRMs/ agencies (if required).
Step 5: Assess the complaint.
Step 6: Formulate a response.
Step 7: Select a resolution approach
Step 8: Implement the approach.
Step 9: Settle the issues/complaints
Step 10: Track, document, and evaluate the process and results.
The above steps/processes of implementing a GRM are here described;

i. Decide on focal offices
The focal office or officers for receiving and registering complaints from APs for the each project site shall be clearly identified and established with ledgers and focal persons at the inception stage.

ii. Receive, uptake and Register Complaints
A grievance or complaint can be submitted to the GRC by a person or a group of persons, or communities who

has/have been or may be affected by adverse impacts of the project may be filed and pursued on the complainant's behalf by the complainant's a representative, duly authorized by the complainant to act in that capacity. Complaints can be presented in a variety of forms ranging from verbal communications to formal and written complaints. It is also recommended that uniformity be maintained in the complaint registration systems across the different focal offices of the project sites. See sample Complaint register (Annex I). A grievance or complaint may be submitted in English or any other language the complainant uses and the GRC shall provide confidentiality to complainants or those acting on their behalf.

iii. Screen and Refer the Complaints

Having received and registered a complaint, the next step in the complaint handling process is for the focal points to establish the *eligibility* of the complaint received. The following criteria shall be used to assess and verify eligibility:

- The complainant is identifiable and has provided a name and contact details.
- The complainant is affected by the project.
- The complaint has a direct relationship to the project.
- The issues raised in the complaint fall within the scope of the issues that the GRM is mandated to address.

If the complaint is not eligible, the complainant should be informed of the reasons.

iv. Coordinate with Other GRMs/ agencies

GRMs do not operate in a vacuum. They are embedded in networks of agencies and actors, and during their operations may relate to APs, GRM of other agencies, executing and support agencies, project implementers, intermediaries used for presenting complaints, and funding agencies. Coordination among different GRMs, as well as among other external agencies and actors with whom the GRMs interact in their operations, is an important aspect of good GRM design. It is necessary to identify and establish a central point to carry out these coordinating and communication functions. **Step 1 GRC** is also considered as the central point to coordinate with other **GRMs / GRCs.**

v. Assess the Complaint

Within five (5) calendar days from the receipt of a grievance or complaint, the GRC shall send the complainant or representative, where one has been duly authorized, an acknowledgment. The GRC shall register the grievance or complaint in the GRM register.

After an acknowledgment is sent, the GRC shall consider whether the grievance or complaint meets the eligibility requirements set out in Sections 3.1 and 3.2 above.

Eligibility determination shall be made within seven days from date of acknowledgment. During this time, the GRC shall allow the complainant to provide further information to meet the requirements. The GRC will communicate to the complainant its determination on eligibility, together with reasons. If the CRC determines that the grievance or complaint is not eligible, the GRC shall not take any further steps concerning the matter.

If the initial assessment establishes eligibility of a complaint, a further assessment of its *seriousness,* is recommended, classified as high, medium or low and its impact on the complainant and the project. Assessing the seriousness of a complaint is not easy, as it could be subject to biases. Criteria shall be established and could include severity of the problem, potential impact on the well-being of an individual or group, potential impact on the project, and public profile of the issue.

Assessing the severity of a complaint requires additional data collection through field visits to the sites, discussions and interviews with complainants and other relevant persons or groups in the community, and crosschecking the information already provided.

vi. Formulate a Response

Having completed the complaint assessment, a response can be formulated on how to proceed with the complaint. This response should be communicated to the complainant. The response should include the following elements, acceptance or rejection of the complaint, reasons for acceptance or rejection, next steps;

where to forward the complaint, a time frame; and further documents or evidence required. e.g., field Investigations.

vii. Select a Resolution Approach

GRMs should always present multiple approaches for grievance redress. People should be able to participate in the grievance redress process comfortably and without any fear of intimidation. The grievance redress approach shall create adequate space for the active participation of the APs, including vulnerable groups.

viii. Settle the Issues

This GRM may/shall propose a variety of strategies to settle grievances, including;

- Requesting the relevant agencies responsible for the grievance to take appropriate measures to remove the cause of grievance, e.g., contractors to provide alternative roads, clear canals and other irrigation systems, de-silt paddy fields, and/or remove garbage.
- Determining reasonable compensation for property damage, loss of livelihood, temporary evacuations, resettlement, etc. either from the project executing agency or from contractors;
- Signing agreements between APs and the project for solutions mutually agreed upon;
- Assuring the APs to address their grievances at the end of completing the project/ program related work, e.g., repairing the houses; the assurance letters are issued by the contractors or the project executing agency in both English and Local languages.
- Initiating a monitoring process (after addressing problem causes or paying compensation) to assess any further impacts of project-related work on the properties and livelihoods of the Aps among others

ix. Track, Document and Evaluate the Process and Results

This GRM will track and monitor the process of grievance redress and implementation of decisions made and of seeing that redress is granted to APs in a timely and efficient manner. It will also have the responsibility for giving regular feedback to the complainants about the progress of the grievance redress process as well as evaluating and assessing overall effectiveness and the impact of the GRM.

This information is important for project management to see trends of complaints, detect implementation flaws, take timely corrective action, and make strategic changes, if needed. It provides valuable feedback about APs' satisfaction with the project and thus contributes to a good reputation of implementing and executing agencies.

8.6. Other key provisions of this GRM include

Local languages; All relevant documentation related to a complain should be translated into the local languages of the complainants to facilitate communication

Retaliation: The GRC may, together with the Ministry, take all possible steps within its means to protect the complainant, witnesses and other involved parties from retaliation associated with grievances or complaints processed by the GRC under this GRM.

GRC Register and Case Management System - All GRCs for projects and programs shall establish and maintain an effective case management system (CMS) and maintain a searchable, user-friendly, publicly accessible, web-based register of cases (the register).

Access To The GRC and Costs Of Participation -The GRC shall be easily accessible and shall cover the costs of conducting problem solving and monitoring, including where appropriate, out-of-pocket expenses borne by complainants, stakeholders and witnesses in meaningfully participating in grievance or complaint processes.

Standard of Evidence - Whenever the GRC is required to make a finding on a fact, state of facts or matter regarding a request, or a grievance or complaint, the GRC shall use the balance of probabilities evidentiary standard. This is an assessment of whether a matter under consideration is more likely to be true than untrue.

Time Limits -The time limits given GRM shall be adhered to unless they are extended by the GRC, for good reasons necessary to ensure the full and proper processing of cases. Extensions shall be made in consultation with the relevant stakeholders during problem solving. Any extensions of time limits shall be made in writing with reasons and noted on the GRC register and communicated to the requester, complainant, Permanent secretary and other relevant stakeholders, as appropriate.

Access to Information, Confidentiality and Disclosure - The GRC recognizes and respects a complainant's right to confidentiality including confidentiality of identities and disclosure of information provided to the GRC.

Communications and Outreach- The GRC will take a proactive approach to raising awareness and providing information about the GRC to its stakeholders, including potentially affected people, civil society organizations, and national designated authorities, accredited entities,

Lessons Learned and capacity building - The GRCs shall report to Permanent Secretary, on lessons learned and insights from handling cases and good National/ international practices, and may recommend reconsideration of policies, procedures, guidelines and systems of the MWE, including environmental and social safeguards.

CHAPTER 9: ENVIRONMENTAL MONITORING PROGRAM

Environmental and social monitoring will be mainstreamed in the overall Monitoring and Evaluation (M&E) system of the RECOFE Project. Environmental monitoring of sub-projects will be undertaken at different levels. MWE in-house Environmental/Social Experts 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. NEMA will mainly carry out "spot checks" to ensure 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 and where necessary recommend changes in project concept/design, as the project evolves or circumstances change.

9.1 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 GWPEA 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.

CHAPTER 10: INSTITUTIONAL ARRANGEMENT AND IMPLEMENTATION RESPONSIBILITIES

The Project Implementing Entity and executing entities shall oversee and coordinate the implementation of all mitigation measures proposed in the ESMP. The District and Sub-county Political and Technical leadership that 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 to be involved in implementation of ESMP, include the Ministry of Water & Environment represented by the Directorates of Water Resources Management and Environmental Affairs, Project team, District Local Government. Contractors and Consultants, District Engineer, Environment, Agriculture, Veterinary and Water officers.

Main Institutions and Officers that will be involved in the Implementation of the ESMF

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 and Environmental Affairs will monitor activities and provide technical backstopping and capacity building to field officers.
GWPEA	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, Agriculture, and Veterinary 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	The community primary beneficiaries of the project will 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

CHAPTER 11: CAPACITY BUILDING PROGRAM

If the environmental management and monitoring system is to be successfully implemented, it is recommended that various trainings be provided. A quick capacity needs assessment for ESMP implementation and monitoring shall be conducted at the start of the Project in order to identify any gaps in the capacity of the key institutions and training program shall be developed and executed to fill these gaps. This will create the right conditions for better results. This will target key staff within the DWRM, the Project management unit, District and Sub-county technical and political leadership, contractors and selected catchment management committees among others. The Project Management shall work with Directorate of Environmental Affairs (DEA) that is responsible for environmental policy, regulation, coordination, inspection, supervision and monitoring of the environment and natural resources as well as NEMA and selected consultants where necessary to build the capacity of the key stakeholders through seminars, workshops and field visits. The cost for undertaking this is incorporated in the total cost to implement the Project. In order to successfully implement the guidelines and recommendations in the ESMF, it is important to ensure that target groups and stakeholders who play a role in implementing the ESMF are provided with the appropriate and continuous Environmental and Social Safeguards capacity development.

APPENDICES

Appendix 1: Format for Reporting Grievance from Focal Point to Step 1 GRC

1	Name of the Project	
2	Name of the complainant/s:	
3	National Identity Card Number	
4	Address	
5	Date of the Complaint	
6	Grievance/complaint	
7	Statement Made by the Complainant	
8	Observations and Recommendations of GRC	
9	Participants in the GRC	

Appendix 2: Format for Recording the Proceedings of Grievance Redress Committees

	Name of the Project	
1	Name of the complainant/s:	
2	National Identity Card Number	
3	Address	
4	Date of Inquiry	
5	Time	
6	Whether complainant participated or not	
7	Grievance/complaint (Summary)	
8	Statement Made by the Complainants'	
9	GRC recommendation	
10	Copies to:	

Annex 6: Gender Analysis and Action plan

CHAPTER ONE: INTRODUCTION

1.1. Introduction

There is rapid socio-economic development and widespread environmental change within Katonga 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 maize planted at large scale in some areas. 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 Katonga catchment include among others;

- Deforestation and forest degradation; 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, riverbanks and lakeshores are also degraded in the catchment through agriculture, mechanized industrial scale sand mining, growing of eucalyptus, and brick making among others.
- Soil erosion especially in hilly parts of the catchment such as Kalungu, Lyantonde, Mubende, etc., due to lack of soil and water management infrastructure.
- Severe water stress characterized by domestic and agricultural water demand deficit. Water stress underlined by prolonged droughts that lead to drying up of surface and ground water sources such as boreholes, valley tanks, valley dams, streams, etc., are leaving people and livestock desperate.
- Prolonged droughts also characterize the catchment as part of the cattle-corridor. Droughts are reportedly becoming severe due to climatic change effects, excessive deforestation, and forest degradation. They are associated with severe water scarcity, reduced pastures and overgrazing, school dropouts, wetland encroachment and wildfires.
- 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 animal diseases and crop pests, soil infertility, prolonged droughts, and human diseases.

Katonga catchment is composed of 16 districts. Population demographics for the districts reveal an increasing population with a prediction of about 4,156,774 people expected in 2040 (UBOS, 2014). The highest population growth (946,483) is expected in areas of Mubende while the lowest population growth (26,159) is estimated for areas in the catchment within Kyenjojo District. The trend suggests that the population could even double by 2040 with more than half of the population below the age of 14 years. In addition, the rising living standards, together with rapid population growth, are creating new trans-boundary challenges to the catchment in terms of water and river basin management, livelihood options and sub-national migration flows.

There are currently major initiatives being implemented and planned throughout the Katonga Catchment to promote further regional economic growth and employment. Such initiatives include the development of more roads, railways, dams (mainly for hydropower) water infrastructure, particularly in areas previously dominated by natural resources and agriculture-based livelihoods.

The increase in the population and upcoming developments is triggering pressure on natural resources reflected in deforestation and degradation of wetlands for food and water. With a young population, pressure on water and related resources is likely to escalate.

Katonga catchment is amongst the most climate-vulnerable regions in Uganda. The catchment traverses' part of the dry Ugandan cattle corridor, which is affected with a wide range of climate change effects. Climate change is expected to exacerbate the impacts of existing threats to the catchment's inhabitants and ecosystems. Climate change effects in the catchment include, more extreme and frequent periods of intense rainfall, erratic on-set and cessation of the rainy season as well as more frequent episodes of drought.

In view of these issues, and with the aim of strengthening resilience of communities and ecosystems in Katonga catchment, the Ministry of Water and Environment (MWE) in partnership with Global Water Partnership Eastern Africa (GWPEA) prepared and submitted to the Adaptation Fund (AF) a concept for a national project entitled "***Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda*".** The overall goal of the project is strengthening the resilience of communities and fragile ecosystems to climate change impacts through promoting appropriate water infrastructure investments and nature- based solutions. 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 2,249,000 million for project implementation.

1.2.1. Purpose and Approach

Reducing of gender-based differences and inequalities necessitates effective policies, which when appropriately applied will ensure project success and realization of meaningful impacts. The expected project will be grounded on a wide range of gender mainstreaming approaches.

In order to manage the Katonga catchment area effectively it requires a clear understanding of gender-based inequalities and how they can be addressed. The absence of such understanding can lead to the continuance of gender-based inequalities and other dimensions of social vulnerability which have the potential to negatively impact project implementation. The proposed project should bear a gender lens that aims at promoting gender equality and empowerment of women, girls and other vulnerable groups such as PWDs, refugees and the youths within the Katonga catchment area.

The proposed gender action plan is in line with Adaptation Fund gender guidelines and principles that promote interventions against gender inequalities.
The following principles adopted from the Uganda Gender Policy 2007 will guide the implementation of this strategy and action plan:

Gender equality: Gender equality is an essential portion of national development processes. the ability of men and women, boys and girls to enjoy the same status and have equal opportunity to realize/ harness their potential

to contribute to development agenda of the country at large.

Gender equity: Guaranteeing fairness in the distribution of resources, programs, decision making, benefits and responsibilities between men and women, girls and boys in all spheres in life without any discrimination on the basis of sex and attending to any disparities in the opportunities that accrue to all.

Gender cuts across all sectors and levels: Fulfillment of the gender equality depends on the extent to which public and private sector institutions and agencies involve both women and men as providers and or producers and recipients of services and investments. This requires women as well as men to play an active role in shaping development directions and choices at all levels.

Affirmative action: Bridging gender gaps in the various development sectors requires preferential attention for the disadvantaged. Affirmative action as enshrined in the Constitution will be pursued to redress historical and present forms of discrimination against women and girls in the sector.

Household and family relations: Intra-household power relations decide appropriation, ownership and control of livelihood assets among women and men, girls and boys. This in turn inspires individual participation in and benefits from development processes at all levels. Interventions that address these intra-household changing dynamics are therefore critical for this plan.

Progression of gender equality requires the promotion of two approaches:
a) Women in Development (WID)
WID is a concept, which denotes an approach that advocates for women targeted interventions within the mainstream of development so as to improve their condition.

b) Gender and Development (GAD) is an approach that affirms and supports women's equal role in development. It also questions the direction of development, advocates for structural transformation, and insists on the transformation of gender relations. GAD does not mean a de-emphasis on women, rather its goal is women's empowerment and equality of women and men in the reproductive as well as productive spheres.

1.2.2. General Context

Katonga catchment is amongst the most climate-vulnerable regions in Uganda. The catchment traverses part of the dry Ugandan cattle corridor, which is affected with a wide range of climate change effects.

There is rapid development within the Katonga catchment and thus, reflecting socio-economic and political stability, there is widespread environmental change within the 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 Katonga catchment include among others

- Deforestation and forest degradation;
- Wetland reclamation;
- Soil erosion;
- Water Stress;
- Prolonged droughts;
- Food insecurity

1.2.3. Project Objectives

To strengthen the resilience of communities and fragile ecosystems to climate change impacts through promoting appropriate water infrastructure investments and nature- based solutions

1.2.4. Project Components

1. Strengthening the capacity of key grass root stakeholders for climate change adaptation
2. Promoting appropriate water storage technologies for increased water and food security
3. Supporting establishment nature-based enterprises for improved community livelihoods
4. Supporting knowledge management and information sharing

2. Project Area and Methods

2.1. Description of Project area

River Katonga is located in the South-central part of Uganda with its catchment draining into Lake Victoria. The river acts as a channel connecting Lake Victoria and George reflecting that it previously drained into Lake George. However the regional uplifting events between the two lakes (the Albertine rift) Katonga Catchment Management plan caused the swampy region to southwest of Lake Wamala to become the new catchment for Katonga river which now primarily flows east into Lake Victoria, augmented by several tributaries along its course.

The catchment lies about 0°13'N 30°39'E near the Katonga wildlife reserve with a distance of more than 120km from Lake Victoria. During wet seasons, raised water levels in the vicinity of its swampy watershed occasionally force some water to flow west from this point into the western section of Katonga River which feeds L. George but, the bulk of the flow still continues eastwards into Lake Victoria. To the West of its catchment, R. Katonga is also fed by several tributaries along its course to L. George. The principal mouth of the river enters L. Victoria near Lukaya in Kalungu district (coordinates: 0°07.3'S 31°54.8'E).

The catchment is generally flat, allowing satellite wetlands to dominate which cover an area of about 2,478km2. caused the swampy region to southwest of Lake Wamala to become the new catchment for the Katonga river which now primarily flows east into Lake Victoria, augmented by several tributaries along its course.

Demography

The population of the Katonga catchment is estimated at 3,020,638, of which 1,524,887 (50.5%) are female, and 1,495,751 (49.5%) males (UBOS, 2014). Whilst the total number of households in the catchment are estimated to be 678,076. The highest population growth (946,483) is in areas of Mubende, while the lowest population growth (26,159) is estimated for areas within Kyenjojo District. The trend suggests that the population could even double by 2040 with more than half of the population below the age of 14 years.

2.2. Methods

Data and information was obtained using a number of methods including reviewing documents and reports, key informant interviews and focused Group Discussions (FGDs), meetings with MWE staff and selected partners. The team used appropriate methods and tools to capture the required information using participatory approaches that adequately included several stakeholders within the proposed project area of the project entitled *"Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda".*

2.2.1. Field Visits

Field visits to Katonga catchment area were undertaken. The Consultants visited four selected sites (hot spots) to assess and unpack varied gender considerations that are at play, which the intended project should take care of.

Table 1: Selected sites where filed visits and consultations were conducted

No.	Sub-Catchment	Most Degraded District	Focal Sub-Counties
1	**Upper Katonga**	**Kyegegwa**	**Ruyonza Sub-county**
2	**Mid-Katonga**	**Sembabule**	**Lwemiyaga Sub-County**
3	Nabakazi	Mubende	Nabingoola Sub-County
4	**Kakinga**	**Lyantonde**	**Mpumudde Sub-County**
5	Bwogero	Mubende	Kasambya Sub-County
6	**Nabajjuzi**	**Kalungu**	**Bwesa Sub County**
7	Wamala	Mityana	Kakindu Sub-County
8	Kyogya	Lwengo	Kkingo Sub-County

2.2.2. Consultations

Consultative meetings were held with local leaders, community members, and District technical staffs who selected from the upper, mid and lower catchment casing four Districts.

A community consultative meeting at Rwemiyaga sub-county

2.2.3. Meetings
Meetings were held with MWE staff and partners mainly to collect, review and validate information and documents produced by the Consultants. The Gender analysis study was carried out between 21/02/2020 to 27/02/2021 involving participatory methods.

2.2.4. Literature Review
Included a desk review of policies and institutions in places related to water, gender and climate change. Relevant documents including the existing Katonga catchment management plan, EURECCCA project reports, Adaptation Fund gender policy guidelines and relevant Ministry documents. The review was based on the available literature on Livelihood, governance, climate change, resource use and management issues related to Katonga catchment area.

3. The Assessment Findings

Limited access and control of land:
The land tenure system in the Katonga catchment area is somewhat complex, it is consists of mailo land, free hold, and leasehold land tenure which is largely fragmented and normally culture and the patriarchal nature of society defines ownership and control.

Ownership and control of land is vested in the hands of men with women only relegated to limited user rights and control. Depriving women, girls and boys access to land in the Katonga catchment is a widespread phenomenon characterized with varied negative impacts such as inadequate sources of livelihoods. Women depend on land as a source of livelihood where they carry out different economic activities, ranging from animal rearing and growing of crops such as cassava, maize, beans etc.

Resource use related conflicts
The Katonga catchment area is experiencing an increase in population, which has led to the escalation in the demand of resources such as; firewood, water for domestic and production, land for grazing and settlement among other uses yet the resources have diminished over time. Conflicts are happening because the available resources within the catchment have diminished and cannot meet the current demand of the users whose population has exploded. For example, In the Katonga catchment, out of a total of 1,197,119 households, the majority of households (80.4%) used wood fuel as the main source for cooking as shown in Table 3. This was followed by charcoal (15.3%). The trees have been over harvested hence disputes over this scarce resource

and women are mostly affected.

The Clashes among resource users are currently happening at household and community level affecting both men and women. The women, girls and boys who entirely depend on the catchment resources for survival are particularly disturbed. Therefore, the proposed projects needs to support the vulnerable groups with alternative options such as IGAs (tree seedlings).

Limited access to finance and credit
Financial institutions are making it difficult to for women, youths, PWDs and the elderly to access credit because of the tighter and stringent terms and conditions that require collateral security to qualify for award. This is a tough asking for majority of the vulnerable groups because they barely own property.

The project should promote easy access to finances by women without stringent term and conditions. Hence formulation of SACCOS, self-help groups (Mary go round) is a leap in the right direction.

Participation in decision making
The inadequate participation of women and girls in key resource management processes is putting women and girls in vulnerable situations. Women, girls and boys in the Katonga catchment are over-represented in highly vulnerable social groups and their ability to participate in key decision making processes to prepare for, survive and manage varied challenges within the catchment is strictly inadequate.

Similarly, groups such as; women, elderly, refugees, child headed families, youth, PWDs, HIV/AIDs headed families barely participate in decision making processes at the District, Sub County and parish level regarding the management, control, use and access of the 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) and grass for animals.

Limited access to sources of Livelihoods
Majority of women in the Katonga catchment are engaged in subsistence farming that particularly focus on cultivation of staple crops such as; maize, (Bananas) matooke, cassava, and vegetables. Livestock keeping (cattle, goats and sheep) is also wide spread especially in the dryer part of the catchment.

What is evident is that, most proceeds realized from different income generating activities go to men yet women devote a lot time, energy and resources in early stages of production. This unfair sharing of proceeds from the harvest is entrenching poverty among women.

Overall women, youth, PWDs and refugees living within the catchment have limited sources of revenue to support the needs of their households. Since their lives are confined to their households, they are very prone to poverty.

From analysis, men earn more livelihoods than women do because they are involved alternative income generating activities such casual laboring, retail shops and motorcycle transport.

It is suggested that in order for women to take advantage of the project, it is essential to generate alternative nature based livelihoods sources, access to finance; capacity building; training and development; and technical services for women in the catchment area.

Livestock rearing is one of the popular activity in the Katonga catchment

Climate change perturbations

With the increase in uncertain weather conditions, several extreme events such as heavy rainstorms, flooding, droughts etc. have occurred affecting a wide range of economic activities particularly agricultural based enterprises including among others livestock keeping and crop production. The affected communities have had their livelihoods sources disturbed leading to low levels of incomes.

Majority of the women farmers in Katonga catchment are involved in subsistence farming growing arable crops such as vegetables, sweet potatoes, yam, millet, maize and beans. Weather events such flooding and prolonged drought have rendered the agricultural land unproductive leading to low crop yields and consequently food insecurity in women headed families.

Prolonged drought has led to the drying up of water sources and consequently scarcity of water for domestic use and production. Women and children bear the biggest burden where they have to walk long distances in search of water. Interventions that bring water harvesting and storage, and other sanitation programmes closer to the communities will help to improve the quality of life of women and children.

The statistics in table 2 shows that the overall access to water was 65.8% (66.2% in rural areas and 67.8% in urban areas) of Katonga catchment and surrounding areas in 2017. However, in 2020, the overall access to water was 65.2% (66.5% in rural areas and 63.9% in urban areas) of the districts that form Katonga catchment. Furthermore, access to water in Year 2020 in the following areas stood at Kyegegwa 32%, Sembabule 38%, and Lyantonde 48% an indication that scarcity of water is real challenge.

Table 2: People with access to safe water supply.

	Access to water in Year 2017 [MWE Water Atlas 2017]					**Access to water in Year 2020 [MWE Water and Environment Sector Performance Report 2020]**		
District	Total Population (#)[59]	Population served (#)	Rural (%)	Urban (%)	Total (%)	Rural (%)	Urban (%)	Total (%)
Bukomansimbi	153,869	132,260	85	95	86	87	92	83
Butambala	103,907	98,712	95	95	95	95	95	95
Gomba	166,940	134,168	79	95	80	86	95	87
Kalungu	**190,013**	**173,773**	**91**	**95**	**91**	**92**	**95**	**93**
Kamwenge	467,658	351,768	74	95	75	73	95	74
Kiboga	159,394	115,946	80	49	73	85	46	76

[59] The population statistics are from UBOS Census 2014 and have been projected to April 2017 based on the district population growth rates published in the Census 2014.

Kiruhura	362,063	150,964	42	43	42	47	53	48
Kyegegwa	**336,774**	**120,893**	**34**	**56**	**36**	**31**	**45**	**32**
Kyenjojo	470,101	354,111	72	91	75	64	91	69
Lwengo	283,711	204,439	76	44	72	75	46	72
Lyantonde	**102,499**	**53,133**	**47**	**82**	**52**	**43**	**74**	**48**
Masaka	314,858	221,374	78	57	70	78	54	69
Mityana	348,258	271,910	75	95	78	79	70	77
Mpigi	268,712	214,595	84	61	80	83	59	78
Mubende	767,201	229,548	32	0	30	38	0	34
Rakai	547,918	250,428	45	55	46	36	36	36
Sembabule	**273,060**	**103,207**	**37**	**44**	**38**	**38**	**41**	**38**
Overall	**5,316,936**	**3,181,229**	**66.2**	**67.8**	**65.8**	**66.5**	**63.9**	**65.2**

Source: MWE Water and Environment Sector Performance Report 2020]

4. Legal and Policy Framework

4.1. International commitments

There are a number of international legal instruments to which Uganda is a signatory. These international instruments provide clear principles for gender equality and women's empowerment in all sectors, and provide a framework to address discrimination.

1	Convention for Elimination of all forms of Discrimination against Women (CEDAW)
2	Beijing Declaration and Platform for Action, 1995
3	The Commonwealth Plan of Action on Gender, 2005-2015
4	United Nations Security Council Resolution (UNSCR) 1820
5	The Universal Declaration of Human Rights 1948
6	International Covenant on Civil and Political Rights 1996

4.2. Regional commitments

1	1. The AU Heads of State Solemn Declaration on Gender Equality, 2004
2	2. Kampala declaration of International Conference of the Great Lakes Region (ICGLR), 2011
3	3. The Common Market for Eastern and Southern Africa (COMESA) Gender Policy, 2002
4	4. The Protocol of the African Charter on Human and people's Rights on the Rights of Women in Africa

4.3. Uganda National Legal framework

1	**1.The Constitution of The Republic of Uganda 1995** is the supreme law that provides for equal rights between men and women in marriage, ownership of property; equality in social, political, cultural and economic spheres and affirmative action. It also provides for non-discrimination.
2	**2. The Local Government Act Cap 243, 1997:** This Act provides for the establishment and operations of local governments in Uganda. A key role of local government is to facilitate and coordinate the formulation of district development plans that should draw on key needs and priorities from citizens in their districts.
3	**3. The Occupational Safety and Health Act 2006** provides for gender considerations in the provision of sanitary and other facilities, structures and infrastructure in places of work.
4	**4. The Land Act Cap 227** as amended regulates land ownership and registration and provides for spousal consent regarding land transactions.
5	**The Land Acquisition Act Cap 226** that provides for procedures for land acquisition.
6	**The Employment Act** regulates employment relationships. This Act prohibits discrimination in employment based on gender and sexual harassment in the work place.

4.4. The national policy framework

1	**The Uganda Gender Policy of 2007** guides all MDA to mainstream gender in their activities. The MGLSD has developed gender mainstreaming guidelines to be used by sectors to ensure that gender equality and women's empowerment is achieved. In most MDAs, Gender focal point persons have been put in place to ensure implementation of gender provisions in their respective departments and activities. However, the investment in the oil and gas sector has been limited by

	the lack of an adequate coordination framework, strategy and resources.
2	**The National Employment Policy for Uganda 2011** provides a framework for achieving decent and remunerative employment for all women and men seeking such work, in conditions of freedom, equity, security and human dignity. The policy recognizes that women in Uganda constitute the majority of farmers and unpaid care work as they are responsible for most of the care economy. There is a segregation of women into low paying sectors and in all sectors and women are paid less than the male wages.
3	**The National Land Policy, 2013:** Provides a framework for articulating the role of land in national development, land ownership, distribution, utilization, alienability, management and control of land.
4	**The National Community Development Policy for Uganda 2015** aims to understand and recognize the different issues and problems that affect women and men, girls and boys and promotes identification of appropriate strategies for overcoming gender inequalities in the development process.
5	**Social Development Sector Plan (SDSP) 2015/16- 2019/20**
6	Gender equality and women's empowerment is one of the priorities of the SDSP. Within the SDSP, gender analysis has been undertaken in labour, productivity and employment, community mobilisation and empowerment, social protection and institutional development thematic areas. The sector shall focus on mainstreaming gender and rights in policies, plans and programs in sectors and Local Governments. Focus shall be on integrating gender and social safeguards in all infrastructural projects such as transport infrastructure, public buildings, energy, oil and gas.
7	**The National Development Plan II 2015/16- 2019/20**: The oil and gas sector is projected to be a major driver in employment creation and GDP growth over the medium term through value addition. The attainment of gender equality and women empowerment is a prerequisite for accelerated socioeconomic transformation.

6. Conclusion and Recommendations

6.1. Conclusions

Through controlling the issues that emerged during stakeholders consultations outlined below from which these gender gaps arise, the gender gaps that exist can be reduced.

- Land access and control
- Resource use conflicts
- Access to finance and credit
- Participation in decision making
- Access Sources of Livelihoods
- Climate change perturbations leading to scarcity of water
- Social norms, values and beliefs

Commitments should be to ensure women, men, youth and the elderly are participating in committees and groups for managing local fragile ecosystem areas, but particularly ensuring women take up leadership positions.

Incorporate climate change and gender concerns into planning, budgeting and monitoring in the water resource use and management to reduce some challenges.

7. Gender Action plan

This Gender Action plan provides suggested entry points for gender-responsive actions to be taken under each of the Activity areas of the project (titled: **Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda**). Furthermore, the specific indicators are projected to measure and track progress on these actions at the activity level.

Activity/outcome/Objective	Measure and action	GAP Indicator	Target	Means of verification	Responsibilities
1. Strengthening the capacity of key grass root stakeholders for climate change adaptation					
Outcome 1.1 Capacity of key grass root stakeholders in implementing climate resilient development initiatives strengthened	Build the capacity of women, girls, boys who are grass root stakeholders in implementing climate resilient development initiatives Prioritize women and youth groups to benefit from the climate resilient development initiatives Capacity building initiatives (trainings) should consider equal and balanced participation of both women and men Conduct a gender baseline at the onset of the project	>Number of women and men at grass root stakeholders who have acquired and demonstrate practical knowledge and skills of how well designed climate resilient development measures can significantly and concretely contribute to economic development, poverty strategies and enhance fragile ecosystems. >Percentage increase of targeted women in communities undertaking climate change adaptation actions. >No. of trainings conducted in implementing climate resilient development initiatives	100 persons 50 women 50 women	Training reports List of participant	VWMZ DNROs, DEO, DFO, CDO, District Planner
Output 1.1.1 Climate change Capacity building program for key stakeholders developed	-Conduct at least 3 capacity building trainings targeting a balanced representation of women and men	>No women and men trained climate change programs >No. of trainings conducted >Number of women and men engaged in capacity building activities	100 women		MWE staff Project coordinator Team Leader (VWMZ)
	Conduct a capacity needs assessment	>A capacity needs assessment report- -Number of women consulted during a need's assessment >Number of staff both women and men trained to respond to, and mitigate impacts of, climate related events >Ability of women, girls' able to form and freely meet with social networks, friends and relatives			
	Train women and girls separately on climate changes programs	-200 persons to be empowered -100 women empowered			
	Domesticate tool kits/training materials and make sure they are accessed by both gender	>Number of women and men accessing the tool kit			
Outcome 1.2 Governance of natural resources strengthened	Make certain that men and women are equally engaged in training on	>Presence of gender specific measures in the catchment	At least 30% of leadership	Project reports	

	sustainable land management and natural resource management of wetlands. Women and girls being able to influence decisions within community forums (self-help groups) regarding allocation and utilization of vital resources and ensure that their priorities are taken care of during decision-making processes. Recruit women in key decision making and implementing structures within the Katonga catchment such as catchment management committees etc.	arrangements and integration thereof into climate change initiatives and/or economic development strategies >Number of rights holders (custodians) engaged in accessing information >Stakeholder mapping >Increase in number of women participating in key decision making bodies regarding utilization of services	roles/responsibilities are spear headed by women		
Output 1.2.1 Community resource use group leaders orientated in leadership and management	Women need to be trained specific leadership role pertaining to community plans for management of the catchment areas The Project should support to recruit and promote women in leadership positions through equal access employment training and capacity building opportunities. Consider the participation of both men and women in water user groups and wetland management	>Number of women leaders trained who display basic knowledge and take corrective actions about their communities' rights over territories and natural resources >Number of women in leadership positions >Key decisions taken by women leaders taken into consideration	persons	Project reports	VWMZ DNROs, DEO, DFO, CDO,
2.Promoting appropriate water storage technologies for increased water and food security					
Outcome 2.1 Increased water and food security	provide special considerations for access of water, food and fodder to households headed by the vulnerable group	Percentage increase of households with suitable daily water & food and fodder consumption for livestock	30%		VWMZ DNROs, DEO, DFO, CDO, District Planner
Output 2.1.1 Innovative multi-stakeholder water harvesting and storage technologies adopted	Encourage participation of women in water and sanitation programs. Water harvesting and storage technologies and household level should particularly benefit PWDs, women and girls	>Number of male and female adopting new water harvesting and storage technologies. >No. of households with demonstrated water harvesting enhancing options to reduce water scarcity for domestic and agricultural production within the catchment			
	Aware that the project intends to benefit both women and men in terms of water storage technologies, focus should be put on women because they have the main responsibility of obtaining, using water and sometimes paying for it. Therefore, any efforts geared towards accessibility and utilization of water will be an immediate gain for women.	>Number of male and female adopting new water storage strategies >Number of men and women participating in trainings on resilient water storage >Number of women and men contributing to mapping and preparatory activities for ponds and water			

	Encourage formation of water use groups constituted of both gender	storage facilities >Number of men and women participating in water user groups and wetland management activities and >Changing role of men and women in groups tasked with water and wetland management			
3.Supporting establishment nature-based enterprises for improved community livelihoods					
Outcome 3.1 Increased income for improved stakeholder livelihoods	The project should promote access to basic needs (nutrition/Food) among the vulnerable groups (PWDs, Elderly, Child headed families)	>% age increase in income for project beneficiaries in targeted project sites.	By end of year 3, income for project beneficiaries increased by at least 30%		VWMZ DNROs, DEO, DFO, CDO, District Planner
Output 3.1.1 Nature-based enterprises promoted) Number of households taking	The project should ensure involvement of refugees in income generating activities. Ensure that PWDs benefit from the nature-based IGAs to support their livelihoods	>Number of households taking up new interventions as a result of the project >Number of PWDs benefiting the nature-based IGAs.	50	project reports	
	The project should increase income opportunities for women through unskilled labor especially during infrastructure construction, for instance can provide backing services such as catering for construction workers.	>Number of demonstrated livelihood enhancing options to reduce poverty and environmental degradation in the catchment			
Output 3.1.3 Market linkages of products from nature-based enterprises established	Support women with trainings in business management, value addition, access to markets and record keeping	>Number of producers linked to existing or new value chains	100		
Output 3.1.4 Entrepreneur skills of stakeholders enhanced	The project should provide all training and capacity building activities in entrepreneurship to all but make practical requirements to inspire women to participate.	>Number of producers trained in crucial aspects for inclusion in management, negotiation, identification of partnership opportunities, market outlooks etc.	200		
Outcome 3.2 Enhanced ecosystem health	Incorporate climate change and gender concerns into planning, budgeting and monitoring in the water resource use and management to reduce some challenges.	>By end of project, Sediment load within rivers in the catchment is maintained below average threshold	7%		
Output 3.2.1 Fragile ecosystems conserved	Commitments should be to ensure women, men, youth and the elderly are participating in committees and groups for managing local fragile ecosystem areas, but particularly ensuring women take up leadership positions.	>Area of fragile ecosystem restored	2000 ha		
4.Supporting knowledge management and information sharing					
Outcome 4.1 Lessons and good practices shared and adopted	During awareness at all levels of the project implementation, the focus should be put on increasing the understanding of the Uganda national gender policy.	>Number of development plans incorporating climate change resilience issues		Project report	VWMZ DNROs, DEO, DFO, CDO, Local Leaders

	Link the different needs of women and men to the existing issues such as climate change, institutional gender issues and strategies of the project.	>Good practices and lessons from the project are documented and influence policy			
	The project managers should ensure that they communicate with women and men separately, via passages, which are suitable to either gender. Segregate awareness materials t particularly target women e.g. on water and usage.				
	In instances where men and women are participating in community meetings, women should be called to speak out such that their voices are heard.				

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Annex 7: Consultations Workshop Report

1.0. INTRODUCTION

1.1 Background to the Validation Workshop

The multi-stakeholder national level workshop of up to 50 participants (Figure 1) was held to validate the findings of preparatory studies carried out to support the project proposal formulation process. The proposal is titled: "**Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda".** The studies had been concluded and the following draft reports were presented at the workshop:

- Environmental and Socio-economic assessment
- Vulnerability Assessment
- Gender analysis and Action plan
- Environmental and Social Management Framework (ESMF)

Figure 1: Participants in the multi-stakeholder national level validation

1.2. Field level excursions and consultations

The study reports were produced based on review of literature, beefed up with field observations assessments, and consultations at district, sub county and village levels Table 1). Round table discussions were in addition held with the technical staff of the Victoria Water Management Zone. Critical observations were noted as the team traversed the catchment from the upper, through the middle to the lower sections of the Katonga catchment; with stopper overs in identified villages for the detailed consultations and village transect walks. Details are presented in the respective reports.

Table 1. Field level consultative meeting venues

District level	Sub county level	Village level
Lyatonde	Mpumudde	Bikokora A
Kyegegwa	Ruyonza	Kishagazi
Ssembabule	Kyera (delineated from Rwemiyaga)	Nkonge
Kalungu	Bwase	Kiwumulo

1.3. Objective of the Workshop

To obtain input from stakeholders to enrich the draft reports to be able inform and conclude the proposal formulation process.

1.4. Aim of the Project

The Katonga Catchment is faced with several climate change related challenges. In view of these issues, there is the desire to strengthen the resilience of communities and ecosystems in Katonga catchment. Hence, the Ministry of Water and Environment (MWE) in partnership with Global Water Partnership Eastern Africa (GWPEA) prepared and submitted a concept for a national project to the Adaptation Fund (AF). The overall goal of the project is to strengthen the resilience of communities and fragile ecosystems to climate change impacts by promoting appropriate water infrastructure investments and nature- based solutions. The Adaptation Fund approved the project concept note. At the same time, the AF recommended, that a full scale project document needs to be developed and submitted to AF in order to access the secure funding amounting to USD 2,249,000 million for project implementation.

1.5 The Workshop proceedings

The workshop was officially opened by the Commissioner, Water Resources Planning and Regulation, Dr. Callist Tindimugaya, from the Ministry of Water and Environment. He called upon participants to effectively participate and share knowledge and any necessary literature for production of quality reports to inform the development of a fundable proposal. An interactive approach that advanced participatory and consultative methods was used in a multi-stakeholder workshop setting during the validation of study reports. Reports of the study findings were presented in power point that generated discussions, including additions to the reports, and clarifications from consultants. This enhanced ownership and was useful in gathering critical information to refine the studies.

Figure 2. Presentation during the validation workshop

1.6 Program

Time	Activity	Responsible party
8.30-9.00	Arrival and registration	GWP
9.00-9.15	**Opening** Introductions Welcome remarks by MWE	MWE
9.15-9.25	Overview of the RECOFE Project	GWP
9.25-9.40	Overview of the Assessment Process	Dr. Lawrence – Lead
9.40-9.50	Discussion	All
9.50-10.20	Presentation of Assessment reports (session 1)	Team
10.20-11.00	Plenary Discussion	
11.00-11.30	**Health-Break**	All
11.30-12.00	Presentation of the Assessment reports (session II)	Team
12.00-12.40	Plenary Discussion	Dr. Lawrence
12.40-12.50	Next steps	GWP
12.50-13.00	Closing Remarks	
13.00+	**Lunch and Departure**	All

2.0 THE PRESENTATIONS

The presentations commenced with an Overview of the RECOFE Project. This was necessary in order to benefit participants that were not familiar with the project and to remind those that were familiar. Thereafter, an Overview of the Assessment Process was presented. This was used to clarify the methods and to enable participants evaluate the findings. The draft assessment reports (2.1 -2.4) were then presented. Power Point Slides were presented and participants contributed to these.

2.1. Environmental and Socio-economic assessment

2.2. Vulnerability Assessment

2.3. Gender analysis and Action plan

2.4. Environmental and Social Management Framework (ESMF) including the Grievance Redress Mechanism

3.0 REACTIONS TO THE PRESENTATIONS

Attention to the questions raised and inputs contributed by the participants were noted down to inform review and improvement of the draft reports, in addition to clarifications wherever it was necessary.

Figure 3. Participant contributing to the baseline presentation

3.1. General comments

1) The project talks about climate change, but this is too broad and the specific aspects addressed by the project need to be specified (or, is the project dealing with everything?)
2) What is the duration of the proposed project? What are the proposed dates?
3) Project objectives 1 and 4: please define the 'capacity'
4) What is NACOPART? Who are they? What do they do?
5) Regarding water storage: what initiatives are proposed by the project? How are the people currently surviving? Which water related infrastructure are available to justify the water scarcity?
6) Organogram: Needs to be re-visited for logical placement of the project Steering Committee, Catchment and Sub catchment Management committees
7) Include a map showing the major water related infrastructures
8) There is a need to show a clear linkage between the studies conducted and the project. Of what benefit are the studies to the project? They should, for example, show the gaps so that proposed project interventions are designed to address those gaps. Moreover, data collected during the studies should be used to evaluate the achievement of project objectives during Performance Assessment.
9) Check the budget website of the Ministry of Finance (www.budget.go.ug) for Local Government performance statistics
10) The Consultants should recognise that all the comments are valid: there is a need to show where we are now in terms of aspects that the project will address.
11 Pictures in the reports: Localities and GPS coordinates should be included
12) It is necessary to involve the Political Leadership for a successful proposal
13) Nature Based Solutions are proposed by the project so that communities realise the benefit of biodiversity/nature, and so, are willing to help with enforcement of environmental regulations
14) How did the team come up with the project idea? What's the theory of change? Is the project focussed on livelihoods?
15) Who are the grassroot communities? This should be clearly defined from the onset
16) If there is an opportunity, consider enriching/modifying the title of the concept.

3.2. Environmental and Socio-economic baselines

1) The Water for People Project is not included among the projects within the Katonga catchment (in Biguli, Kamwenge District). The project has (monitoring) data/reports on Ground Water levels and Water Quality. Take note of the restrictions on shallow wells and protected springs. The District Water Offices may have some data on water supply systems that have ceased, so that the proposed project may intervene
2) Kyotera District was not included in some of the maps
3) What do the baselines presented (e.g. on rainfall), mean for the proposed project?
4) Avoid ~~generalisations~~generalizations e.g. on soils/land use, it is indicated that 'most of the area is pervious': what does this mean?
5) Projects that are being implemented by stakeholders: there is a need to show the progress i.e. what has so far been done or achieved? What has changed (impact)? what numbers are involved?
6) Provide the data on Sitatunga populations
7) Poor rural communities: how poor is 'poor' in the context of the project?
8) The Issue/Solution Matrix: Planting trees need not be the only solution to drought
9) Consultations need to made with more stakeholders
10) Stakeholder mapping: Include the cultural as well as the religious institutions (including their projects) e.g. Bisaka in Kamwenge
11) District statistics need to be utilised and interpreted carefully e.g. districts appear to perform poorly in terms of access to clean water due to the increasing population that lowering the % of the population that has access to clean water to <50%
12) Need for more information on Sembabule District e.g. on the status of biodiversity and the pastures (these are very much prone to climate change effects).

3.3. Vulnerability and Adaptation

1) The collapsing bridges (shown in a photo) may not necessarily be attributed to climate change (effects of floods), but may result from poor works during construction
2) Vulnerability dwelt on the communities but ignored the fragile ecosystems
3) How sensitive are the different communities or households to climate change? (in addition, how sensitive are the communities to each of the effects of climate change?)
4) No picture was provided to show the scarcity of water 9e.g. people lining up to collect water)
5) There is a need for more clarification on adaptive capacity
6) The study should not generalise on the effects of climate change (e.g. flooding), but should specify the locations
7) How are the communities adapting to the effects of climate change?
8) Refugee Settlements (Kamwenge and Kyegegwa): Policy aspects (e.g. restriction to construction of permanent housing) should be considered when discussing the poor state of the houses. How could the situation be improved?
9) It is acceptable that there is climate change. However, the study should answer the question: where is the climate change (e.g. flooding, drought and landslides)? Hence, the water storage structures are needed to reduce the effects of floods
10) Ecosystems such as wetlands: how important are they in addressing the impacts of climate change? Later, there will be a detailed assessment of the status at start of proposed project.

3.4. Gender

1) There is a need for Gender Disaggregated Data
2) Consider the Catchment Management Planning Guidelines: these include gender issues

3.5. ESMF

1) Policies versus Acts: how are the two reconciled?
2) The ESMF be developed with support from Local Governments especially technical staff
3) Include the following in the introduction: Ramsar Convention, Refugee Law, and relevant Ordinances

4.0 RESPONSES FROM CONSULTANTS

All questions and inputs raised where quite helpful in enriching the draft report presented to the national level stakeholders. The responses were majorly to clarify on some of the aspects that seemed not clear to the audience. Nonetheless, all comments were noted and appropriate adjustments made in the draft reports.

4.1 General comments

- True to the fact that most of the studies were broad, the aim was to fully appreciate the situation on-ground to inform the appropriate designing of the project. Efforts will be made to refine the reports to capture aspects relevant to the project. In addition, the Environmental and Social Management Framework (ESMF) report narrows down to the specific aspects addressed by the project.
- This is a three -year planned project.
- Capacity refers to the ability of targeted stakeholders to perform or deliver on the projects expectations/results
- NACOPART is an abbreviation for Nature Conservation Partners Uganda Limited, the consultancy firm that conducted the studies
- The baseline report outlines the water storage facilities in the catchment that the project is planning to build on and these include water dam, and shallow wells. Other watering points highlighted include boreholes, piped water system and water dam to support small irrigation schemes. The existing water storage facilities are not evenly spread over the catchment, leaving some of the communities vulnerable.
- Organogram will be revisited as advised
- Regarding the map showing major water related infrastructure, the consultants request relevant institutions to provide such information for inclusion into the report.
- Localities where pictures were taken will be named in the revised reports
- The political leadership at district and at lower levels were engaged and the response was quite positive. Engaging the political leaders should be continuous process, and not only during consultations.

- The project idea was generated from the Katonga Catchment Management Plan that clearly outlines issues in the catchment and the corresponding hot spots. The process of developing the CMP was quite detailed and participatory. The Victoria Water Management Team will disseminate the CMP.
- Grassroot communities' refers to households who are the custodians of the natural resources, directly affected by climate change impacts, and hence targeted in direct implementation of the project. They may be organized together at village/micro-catchment level and/or in form of Community based organizations in project targeted hotspots.

4.2 Environmental and Socio-economic baselines

- Part of Kyotera falls with the Katonga catchment, but following the criteria set in selection of study sites, it was not included in the study areas.
- Temperature and rainfall reflect that the catchment is experiencing climate change impacts hence the justification of the project. These two define climate scenario in any given area.
- Poverty levels and population data are highlighted in the other reports
- The tables represented stakeholders' views/ perceptions to be enriched accordingly
- Project is designed to be participatory in nature using Integrated Water Resources Management Approach that demands wide consultations. Consultation in the project is designed to be a continuous process, with regular engagements with Catchment Management Organizations/committee

4.3 Vulnerability and Adaptation

- Clarified through pictorials including gardening on roofs with soils acting as insulators from excessive heat, and matrix table showing copping strategies
- Later, there will be a detailed assessment of the status at start of proposed project

4.4 Gender

The comments were generally noted for improvement

4.5 ESIA

An act is the law, while policy is the course of action in fulfillment of the law.

5.0 WAY FORWARD AND CLOSING REMARKS

5.1. Way Forward

This was agreed with the consultants as follows:

- Revised and updated studies be shared with Ministry of Water and Environment, and all consulted stakeholders by 12th April 2021.
- Full proposal with attachments to be submitted to the Ministry by 16th April 2021
- Ministry of Water and Environment to submit proposal to the adaptation fund by 19th April 2019

5.2. Closing Remarks

Commissioner in the Directorate of Water Resources Management, Dr. Callist in his closing remarks thanked the different stakeholders to have spared their valuable time in order to participate in validation of the study reports. He re-echoed the importance of the reports in informing the development of the project proposal due for submission to the Adaptation Fund by the Ministry. The stakeholders were called upon to own-up the planned project initiatives and looked forward to ~~there~~their continued support in future engagements. He noted that these studies were not end but related detailed studies will be commissioned on approval and commissioning of the proposed project. He thereafter officially declared the validation meeting closed.

APPENDIX I. LIST OF PARTICIPANTS FOR FIELD LEVEL CONSULTATIONS

Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda

Registration Form- Field Trip

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Registration Form- Field Trip

Vulnerability

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Enhancing Resilience of Communities and Fragile Ecosystems to Climate Change in Katonga Catchment, Uganda

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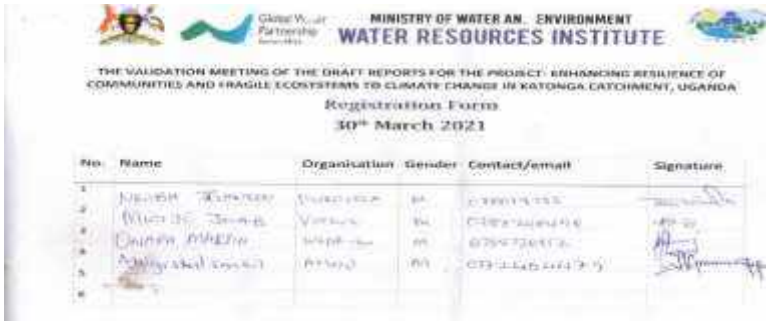
APPENDIX II. LIST OF NATIONAL VALIDATION WORKSHOP PARTICIPANTS



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WATER RESOURCES INSTITUTE

THE VALIDATION MEETING OF THE DRAFT REPORTS FOR THE PROJECT: ENHANCING RESILIENCE OF COMMUNITIES AND FRAGILE ECOSYSTEMS TO CLIMATE CHANGE IN KATONGA CATCHMENT, UGANDA

Registration Form
30th March 2021

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MINISTRY OF WATER AND ENVIRONMENT
WATER RESOURCES INSTITUTE

THE VALIDATION MEETING OF THE DRAFT REPORTS FOR THE PROJECT- ENHANCING RESILIENCE OF COMMUNITIES AND FRAGILE ECOSYSTEMS TO CLIMATE CHANGE IN KATONGA CATCHMENT, UGANDA

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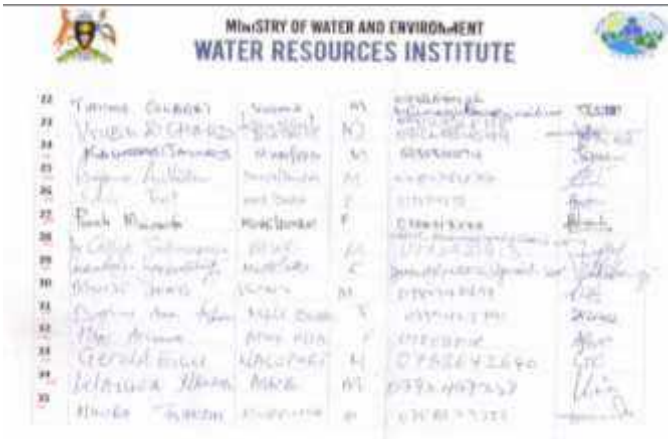
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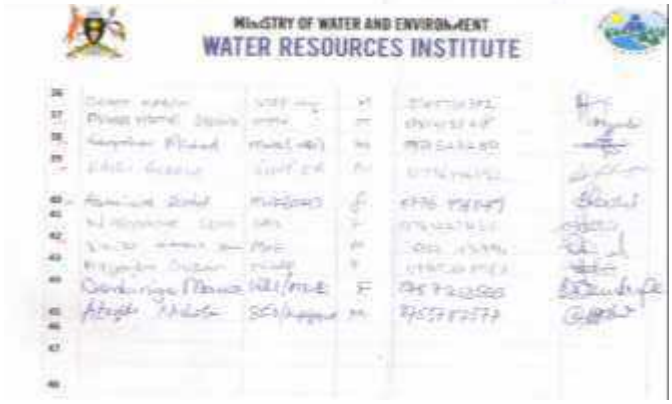
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